

## GUIDE TO INTERPRETING MAINS RECORDS PLAN



## **INTRODUCTION**

The Health & Safety Executive have produced a document entitled 'Avoiding danger from underground services'. Copies are available from HMSO's accredited agents and good booksellers, Ref HS(G)47, ISBN 0118854925.

**WHEN WORKING IN THE VICINITY OF ELECTRICITY CABLES AND OVERHEAD LINES PLEASE FOLLOW THE DO'S & DON'T'S LISTED BELOW.**

### **DO'S**

- Do** Make sure that you have plans of the cables in the area before any excavation work starts. Remember that some cables such as service cables may not be shown on the plans. Cables owned by other companies are not shown, e.g. local authorities, Department of the Environment, National Grid Co. etc.
- Do** Make sure that you understand the plans that have been supplied to you. For detailed explanation of the symbols used by Scottish & Southern Electricity Networks refer to this guide & the key shown on the plan
- Do** Use a cable avoidance tool (CAT) to determine the position of the existing cables in the work area. The positions should be clearly marked, and further tests made as work proceeds. **If in doubt, get advice from your supervisor.**
- Do** Hand dig trial holes over the indicated route of the cable, excavate alongside.
- Do** Ask for a cable to be made dead if it is buried in concrete. Please note that this is likely to be a costly process.
- Do** Watch for signs of cables as work progresses, such as marker tapes or cable covers which may be exposed.
- Do** Backfill carefully using stone free soil around cables, replacing marker tapes and covers.

- Do** Ensure that there is maximum clearance above all cable & joints.
- Do** Notify Scottish & Southern Electricity Networks immediately should accidental damage to cables occur however large or small. Arrange to keep people well clear of the cable that has been damaged. Do not backfill an area where cable damage has occurred.

## **DON'T'S**

- Don't** Operate a bulldozer, scraper, dragline or excavator unless you are satisfied that there are no buried cables or overhead lines in the working area.
- Don't** Use picks, forks or pointed instruments in soft clay or soil where cables are present, exercise extreme caution where such instruments are used to free lumps of stone or to break up firmly compacted ground.
- Don't** Use exposed cables as a convenient step or handhold.
- Don't** Handle or attempt to alter the position of any cable.

**REMEMBER THAT A DAMAGED CABLE MAY CAUSE EXTENSIVE LOSS OF SUPPLIES, MAKE EXPENSIVE REPAIRS NECESSARY AND CAUSE SERIOUS OR EVEN FATAL INJURY.**

**IF IN DOUBT ASK SCOTTISH & SOUTHERN ELECTRICITY NETWORKS**

1. Overhead Line – These can be either High Voltage or Low Voltage, colour denotes voltage.
2. Poles.
3. Pole Mounted Transformer.

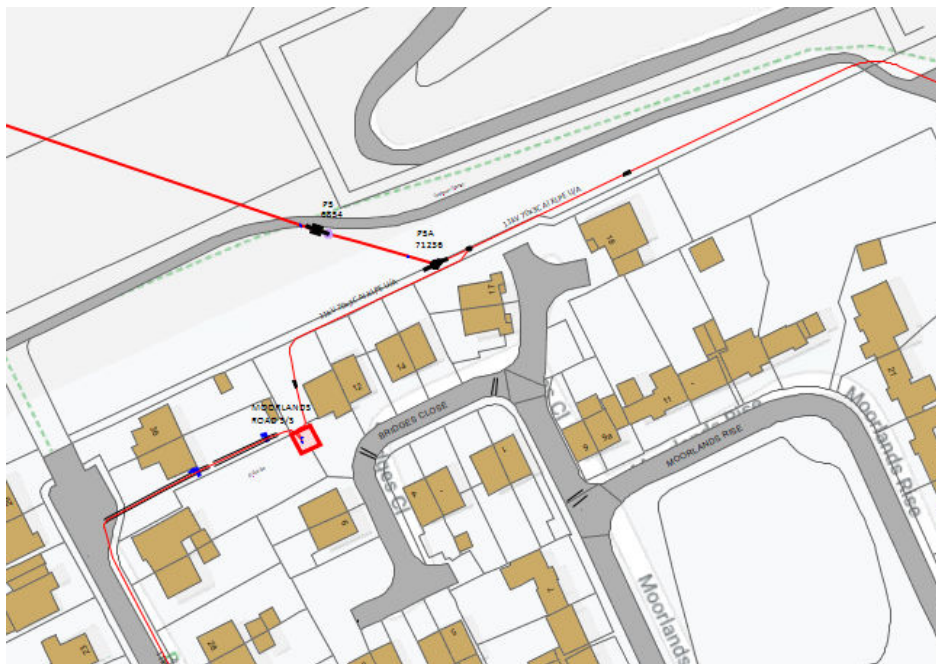
**B) Typical example of Low Voltage cable records:**



1. Sub Station
2. Low Voltage Underground cable.
3. Link Boxes: This is a box with a manhole cover marked as belonging to Scottish & Southern Energy containing links. Either two or four cables will lead away from a link box.
4. Straight Joint: This is where two separate cables are joined together.
5. Breech Joint: This is where another cable is attached to the main.
6. Pot End: This is the end of the cable. In certain circumstances service cables to properties can be taken from the pot end. These services may not be shown on the plans.
7. Road crossing duct where a cable is routed under a path or road.
8. Cable terminations/Pole Box: Where underground cables are connected to overhead lines
9. Overhead line.
10. Street Lamps.

11. Services to properties: The service cable to an individual property are not always shown on the mains records that Scottish & Southern Electricity Networks supply. In some cases, a service can be looped from an adjacent property.










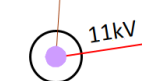

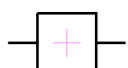










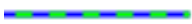
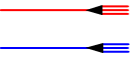





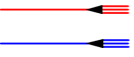
**C) Typical example of High Voltage cable record.**



















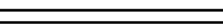











1. Sub Station
2. High Voltage Underground cable – Colour denotes voltage.
3. Straight Joint: This is where two separate cables are joined together.
4. Breech Joint: This is where another cable is attached to the main.
5. Cable terminations/Pole Box: Where underground cables are connected to overhead lines
6. Overhead Switch.














## GIS ELECTRIC SYMBOLS

Service cable		Single Poles	
LV Mains		H Poles	
LV Mains and Services (Split Phase)		3 Poles	
2-3.3kV		Tower	
6.6kV		Pole Mounted Transformer	
11kV		Circuit Breaker	
22kV		Switch Disconnecter/ OH Air Break	
33kV		Pole Box	
66kV		Straight Joint	
132kV		Mains Breech Joint (Tee)	
275kV		Service Breech Joint	
320 kV		Trifurcating Joint	
400kV		Pot End	
Fibre Optic		Capped End	
Pilot Cable		Sealing End	

Assumed Route		Surge Diverters	
Out of Service		Pillar	
Service Connector Joint		Substation	
Overhead Connector		Non Electrical Item	
Wall Box Joint		Street Furniture	
Flying Stay		LV Link Box	
Stay		LV Supply Point	
PME Earth		Oil Pipeline	
Neutral Earth		Gas Pipeline	
Ducting		Areas of Outstanding Natural Beauty	
Pit		National Park	
Embedded Network		Borehole	
Other Network		ASLs	
Water Extraction Point		Sensitive Waterway	



Source Protection Zone		Site of Special Scientific Interest (SSSI)	
Vulnerability Zone		National Nature Reserve (NNR)	
Access		RAMSAR Special Area of Conservation (SAC)	
Ownership		Special Protection Area (SPA)	
Monuments		Ancient Woodland	
Flood Area		Restricted Access	