

# Data Management Guide for recording electrical assets

New Roads and Streetworks Act



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# Version control log



This page details any amendments and revisions to the Asset Guide

Revision Number and Date of Issue	Description of amendment
Issue Draft 001 – 18th February 2010	First issue of Asset Guide
Issue 02 – 22nd July 2010	Revised to omit United Utilities references
Issue 03 – 27 July 2010	Addition of new as-laid drawing form and section outlining requirement for Comm and Decomm Drivers
Issue 04 – 16 June 2018	Newest edition additional Comms and Decomm Drivers

Should you require clarification of any points or have any recommendations for future inclusion please contact:

**E: [Aslaid.Drawings@enwl.co.uk](mailto:Aslaid.Drawings@enwl.co.uk)**



# Why record underground assets?

In compliance with current legislation, Electricity North West are obliged to keep accurate records of all electrical assets against a map background.

## The major reasons for recording can be split into two categories.

(This document should be read in conjunction with Codes of Practice 012).

### Current legislation

The **New Roads and Street Works Act 1991**, section 79, Chapter 22, as amended by the **Street Works Records Act 2002**, states that Electricity North West, as undertaker shall record the location of every item of apparatus belonging to them as soon as is reasonably practicable after –

- Placing it in the street or altering its position
- Locating it in the street in the course of executing any other works being informed of its location as per section 80.

Under Regulation 15 of the Electricity Safety, Quality and Continuity Regulations 2002, Electricity North West, are obliged to make and keep records of all our underground equipment, whether under road or street, or elsewhere.

If you have any queries regarding this guide and future updates please contact:

T: **Data Management on 08433114176**  
E: **Aslaid.Drawings@enwl.co.uk**



### Business benefit

Accurate records of underground apparatus are crucial for the safe and the efficient operation of our networks. We exchange records with other utility companies and issue them to contractors who operate in our area. A standard format reduces operational problems, prevents accidents and saves costs.

All the steps that are indicated within this guide must be followed in order to provide a consistently high level of asset information, to enable fast and accurate recording of underground assets.

This guide is version and date controlled and future versions will be circulated as appropriate.

The latest copy can be found on the Electricity North West Intranet site.

# Details to record



Electricity North West require that the position of any underground and overhead apparatus placed, moved or uncovered during works must be surveyed to an accuracy of +/- 0.1 metre (100mm)

To enable Data Management to accurately record assets, the following should always be taken into account when producing “as constructed” drawings returned from site. Data Management reserve the right to reject “as constructed” drawings which do not meet the criteria set out below:

- All Drawings must be legible.
- All drawings must include the exact location of the work, Ordnance Survey Grid Reference, title, type of job, and dates of actual work. Streets must be names and house names/numbers or plot names/ numbers shown.
- Measurements should be taken from permanent features which are, or would be shown on an Ordnance Survey map, such as buildings (gable ends) Kerb lines, walls, bridges etc.
- Dimensions MUST NOT be measured from trees, gate posts, sheds, bay windows, letter boxes, lamp posts, manhole covers, gullies etc.
- The type of each joint must be indicated.
- Cable cores, sizes, material and type must be indicated.
- Poles position height and size.
- Auxiliary cable type, No of cores/ fibres/pairs must be indicated.
- The phase connection of each single-phase service must be indicated.
- A Commission or Decommission driver must be indicated on all work instructions. See section on page 7 of guide.
- All drawings should include a unique project/cost code.
- Each joint must be located with two dimensions at right angles, e.g. from the kerb and from the end wall of a building.
- Sufficient measurements must be made to show the route of each cable accurately, including additional measurements as necessary to show deviation from straight lines.
- The size, type and colour of any ducting must be indicated, showing which ducts are in use. The positions of the ends of ducting, include any breaks in the run of ducting must be shown with measurements. Where more than one duct has been laid in the same trench, a vertical cross section drawing must be included.

*Continued overleaf*



## Details to record



## Measuring methods



Continued from previous page

- The position of all road crossings must be indicated with sufficient measurements (at least two) to locate the ends of the ducts.
- The depths of cables must be indicated, where these vary from the standard depths.
- All drawings must be to a suitable scale.
- (1:250, 1:500, 1:1250, 1:2500).
- All drawings must show North Point.
- All details of any non-standard work undertaken must be provided. e.g. unusual cable.

### Requirements for a cross section

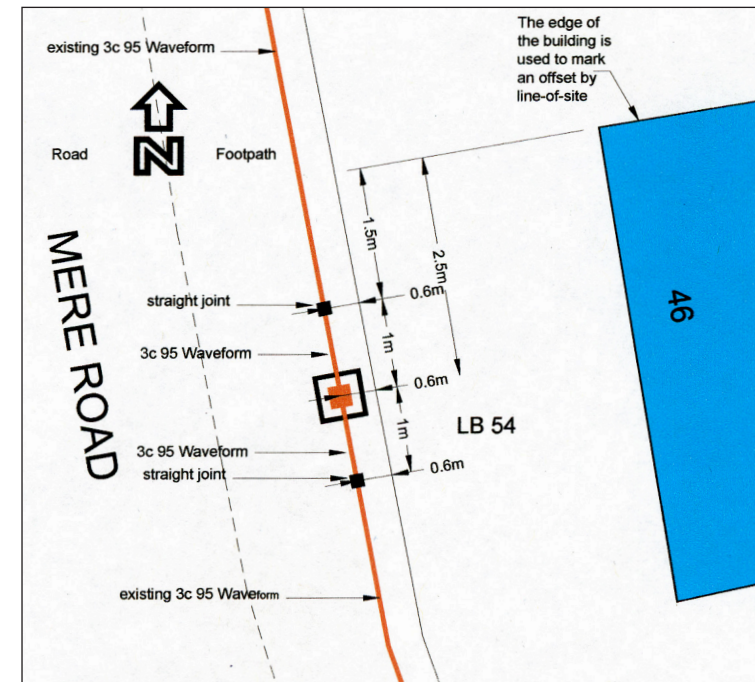
1. A Cross Section drawing is required when a two dimensional drawing is not deemed adequate e.g. more than 1 duct or more than 1 cable on top of each other or where cables cross.
  - Depth from surface to top of ducts
  - No of cores/pairs/fibres, core size and construction material, cable type and voltage of all cables – including pilots including any out of commission cables
  - Depth from surface to cables when not in duct
  - General notes – e.g. Laid under tiles
2. The minimum details required for a Cross Section are as follows:
  - Location of cross section
  - Viewing direction of the cross section
  - Number of/size/material and colour of ducts
  - Which ducts have cable in and which are empty (spare way)
3. A Cross Section drawing is also required when a cable is laid on a route where there is an existing cross section. In these cases the relationship between the new cable and those shown on the existing cross section is required.

The offset method is the preferred method of recording for Data Management.

The offset method entails taking two measurements approximately at right angles to each other from fixed points to the asset to accurately locate its position.

### Offset method

Record offset measurement from centre of link box repair to centre line of the cable.



## Measuring methods



## Recording depth



The following points outline when it is necessary to record depth, and how this should be recorded.

### Remember

- Use a standard 30 metre fibre tape/wheel measure and do not measure over any moveable object eg humps of earth or tops of walls.
- Always obtain permission before measuring on private land.
- Do not measure from tree roots, telephone boxes, letter boxes, lamp posts, manhole covers, gullies, front doors or bay windows, they are seldom marked on maps and are prone to being moved without warning.
- Measure at no more than twenty metre intervals and at the point where the cable changes direction, size or material.
- Always mark up your measurements in metres
- Always measure from a permanent feature which is, or would be shown on an Ordnance Survey map to enable clear and concise understanding of the completed work the new cable and those shown on the existing cross section.

### Commission and Decommission Drivers

In all instances where a new cable is installed, or a cable is disconnected, removed or re-connected to the network, Electricity North West are required to provide a reason why this cable has been affected.

The necessity to record this information relates to Ofgem's definition of Capital Expenditure (Capex).

This reason is known as either a Commission or Decommission driver.

This information should be included on all work instructions, minor or major.

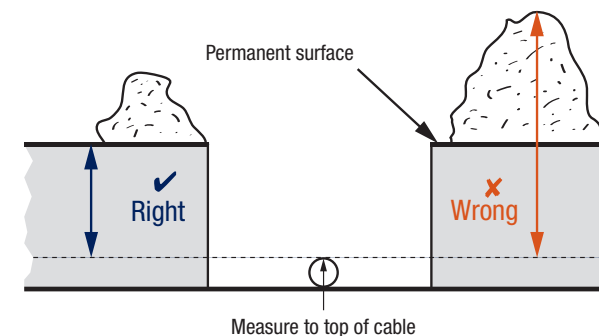
Each piece of work should also have a unique project/cost Code (Acct Code) on any work instruction, minor or major.

Where this information has been omitted Data Management reserve the right to reject the drawing,

Relevant boxes have now been made available to record this information on the new 'As-Laid Drawing Form'. Please see following page. If different driver codes are required for different parts of the job, it is good practice to illustrate these on the actual drawing with the codes written by the cables in question.

- Depth must be recorded if different from 450mm LV and 600mm HV, for 33KV and above, depths must be recorded at all times.
- Depth must be recorded to an accuracy of +/- 0.05 metres.
- Depth should be recorded in metres, to two decimal points.
- If a permanent surface does not exist, such as on a new housing estate: record the final finished depth, measure from the kerb line or back footpath line.
- Where a permanent surface does exist, such as when cables are laid in an existing road, record:
  1. The specified depth of cable.
  2. The depth at where there are major deviations, such as when cables go under other buried apparatus, tree roots, or at the position of horizontal bends.
- Mark depth on the map at the point at which you measured it.
- For a small excavation or opening, record the depth of the apparatus uncovered at that point.
- Measure from the permanent surface level to the top of the cable where possible, as shown in the sketch below.
- Record the date when the depth is measured.


### Remember



# As Laid Drawing Form

The submission of new records from the field should be returned to Data Management with the completed As Laid Drawing form.

ALL WORK TO BE SKETCHED, AND TO BE MEASURED FROM EXISTING OS FEATURES. WE REQUIRE 2 MEASUREMENTS PER JOINT AND INTERMEDIATE MEASUREMENTS FOR CABLE LAY.



Bringing energy to your door

**Please clearly print all details below**

<b>SATS Number</b>		
<b>Project/Cost Code</b>		
<b>Print Name</b>		
<b>Date of Work</b>		
<b>Address</b>		
<b>Full OS Reference</b>		
<b>Commission Driver See overleaf</b>		
	Code	Cable Type
<b>Decommission Driver See Overleaf</b>		
	Code	Cable Type

<b>Data Management</b> <b>Linley House</b> <b>Dickinson Street</b> <b>Manchester</b> <b>M1 4LF</b> <b>Tel: 0871 687 0501</b>	<b>Phases Connected</b>				<b>Job Description</b>	
	L1	L2	L3	L123 (Three)		
	<b>Joints Used</b>				<b>Cable Type(s) Used (check where appropriate)</b>	
			Auxiliary	6.6 kV		
			Service	11 kV		
		LV	33/132 kV			

Code	Driver	Definition
ARI	Asset Replacement	Assets replaced as a result of an assessment of their condition and performance.
AR2	Asset Replacement (Consequential)	Assets replaced to allow the replacement of the prime asset on the project but did not need to be changed due to their condition.
BLS	Black Start	This driver should be used for any asset movements resulting from the Black Start programme.
BTN	BT21	This driver should be used for any asset movements resulting from the 21st century network programme.
CLE	Cleanse	For the retrospective recording of additions and disposals when we do not know the driver.
DC1	Demand Connections (DNO)	Asset movements for providing new connections for demand customers that were constructed by ENWL as the DNO.
DC2	Demand Connections (ICP)	Asset movements for providing new connections for demand customers that were constructed by 3 <sup>rd</sup> parties.
DIR	Diversions Rail	Diversions work undertaken due to the rail electrification programme.
DIS	Dismantlement (use for decommission only)	To be used when assets are removed from the network that is not chargeable to a third party and no new assets are to be installed.
DIV	Diversions	Relocation of assets due to NRSWA or customer requests to move.
ESQ	ESQCR	Assets installed/removed to comply with ESQCR regulations.
ENV	Environmental	Any asset movements relating to environmental issues should be recorded against this driver. This includes undergrounding not related to national parks, oil pollution mitigation, SF6 mitigation schemes and noise pollution.
FAU	Faults	Reactive replacement of an asset following its functional failure.
FLD	Flooding	This driver should be used for any asset movements resulting from work undertaken to mitigate against flooding risk.
GC3	Generation Connections DNO	Asset movements for providing new connections for generation customers that were constructed by ENWL as the DNO.
GC4	Generation Connections ICP	Asset movements for providing new connections for generation customers that were constructed by 3 <sup>rd</sup> parties.
LCN	Low Carbon Networks	Assets installed that are funded by the Low Carbon networks Fund.
LOS	Losses	This driver should be used for any asset movements resulting from work undertaken reduce electrical losses on the network.
NTR	NTR	Non-Trading Rechargeable (Work on an asset that was at the request of a third party, or 3 <sup>rd</sup> party damage to our equipment if we know who has damaged it.)
MOR	Moorside	Any assets replaced as driven by the need to relocate ENWL assets to allow national grid to build their network to support the Moorside nuclear programme.
QOS	Quality of Supply	Assets installed to improve the quality of supply experienced by customer as measured by improvements in either the number of interruption or the durations of interruptions that occur.
QWS	QoS (WSC)	Assets installed to improve the service received by worst served customers, who have experienced 15 or more higher voltage unplanned interruptions over a three-year period, with a minimum of three higher voltage unplanned interruptions in each year.
RE1	Reinforcement (P2/6)	Assets installed/replaced to reinforce network to provide additional network capacity or rectify voltage complaints.
RE2	Reinforcement (Faults Levels)	Assets installed/replaced due to their inadequate fault level rating.
RE3	Reinforcement (P2/6) Primary	Reinforcement work for any other reason than fault ratings e.g. network capacity, voltage rectification. (excludes reinforcement work that is directly attributable to a request for a new connection for either demand or generation customers). This driver is to be used when the work is undertaken to solve capacity issues on the grid and primary networks.
RE4	Reinforcement (P2/6) Secondary	Reinforcement work for any other reason than fault ratings e.g. network capacity, voltage rectification. (excludes reinforcement work that is directly attributable to a request for a new connection for either demand or generation customers). This driver is to be used when the work is undertaken to solve capacity issues on the secondary network.
RLM	Rising & Lateral Main	This driver should be used to record assets installed as part of the solution to deal with rising and lateral mains and associated services and cut-outs within multi occupancy buildings, traditionally tower blocks but also including flats and houses.
VA1	VA (within Nat Park or AONB)	Assets installed/replaced to enhance visual amenity within National Park or Area of Outstanding Natural Beauty.
VA2	VA (outside Nat Park or AONB)	Assets installed/replaced to enhance visual amenity outside National Park or Area of Outstanding Natural Beauty.
OTH	Other	Assets installed/replaced for any reason not defined by this list, eg transfer of st fig after fault
RES	Resilience	To remove or mitigate against the risk of network congestion eg pinch points (cable bridges)
SAF	Safety	This driver should be used for any asset movements related to safety.
SMT	Smart Meters	This driver should be used to record work undertaken to install assets in support of the Smart Meter roll out programme.



# Requirements for updating records at overhead lines and substations

The following section shows the information that is required to accurately record each electricity asset.

## Substation sites

- Geographical position of the site with respect to Ordnance Survey Map background
- Boundary of site
- Location and external dimensions of any buildings or compounds



## Pole mounted equipment

- As for equipment in substations



## HV equipment

- Topographical layout in substation
- HV switch name
- Operating voltage
- Outdoors or indoor
- Ground, pole or other mounting
- Plant reference (CRMS/NMS)
- Nominal Rating
- Status – open or closed
- HV metering or not
- Ownership
- Installer/Connector

## Low voltage equipment

- Geographical position in substation
- Type of LV board
- Outdoors or Indoors
- Ground, pole or other mounting
- Plant Reference (CRMS)
- Circuit Names
- Switch status – open or closed
- LV way numbers



## Overhead lines

- Poles/Towers
- Geographical position of the pole/ tower position
- Type of pole/tower
- Pole/tower construction material
- Pole/Tower number
- Pole/Tower plant reference (MAMS)
- Number and position of the poles and stays
- Details of all earthing conductors attached to pole including material size and length



## Transformer

- Geographical position in substation
- Type of transformer
- Rating
- Transformer number
- Infeed/Outfeed voltages
- Ground, pole or other mounting
- Indoors or outdoors
- Plant reference (CRMS/NMS)



## Services

- Basically captured as underground cables but with some exceptions
- If aerials then the following is needed
  1. Route of aerials
  2. Start point (whether pole or building)
  3. Type of conductor
  4. Conductor Material
  5. Number of conductors
  6. Operating voltage
  7. Type of insulation

## Conductors

- Type of conductor
- Conductor material
- Number of conductors
- Operating voltage
- Type of insulation
- Jumper positions and whether they are open or closed

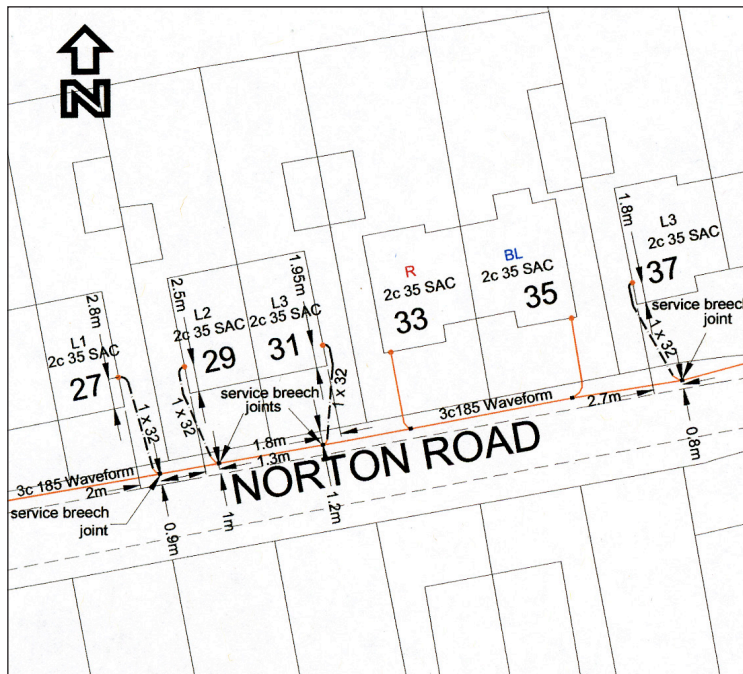
# Example sketches of marking up records

**PLEASE NOTE:**  
Dimensions are not shown on the live GIS system unless 'not to scale'

## A) Mains and services in existing built up area

**Always show:**

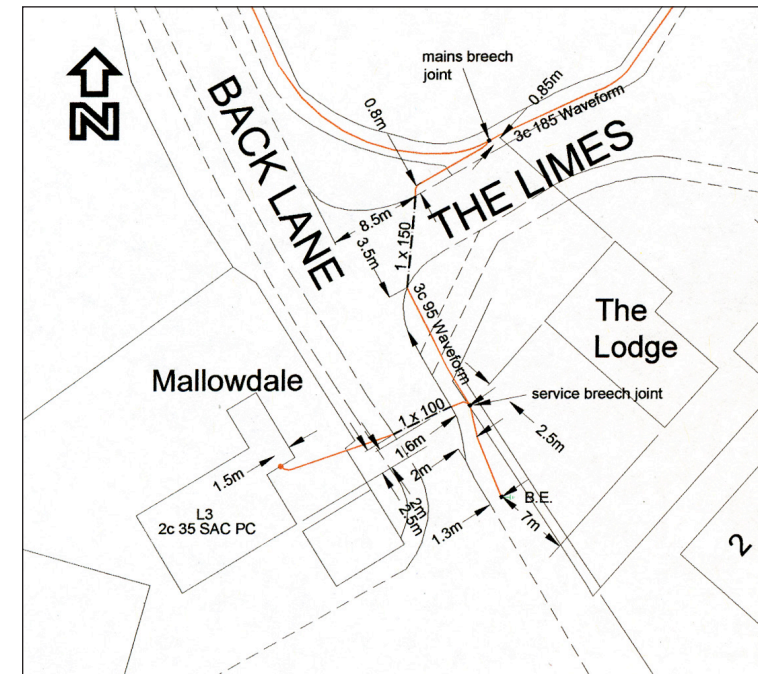
- Measurements from kerb lines, gable ends etc.
- Measurements to ends of road crossings and ducting
- Road and street names
- Cable and duct sizes and types
- House or plot numbers
- Phase colours (red, yellow, blue or L1, L2, L3 as appropriate)



## B) Mains, services and jointing

**Always show:**

- New phase colours (red, yellow, blue or L1, L2, L3 as appropriate)
- Mains and cable size and type
- Plot or house numbers
- Road or street names
- Adjacent plots, houses or landmarks
- Breaks in ducting or deviations
- Joint positions





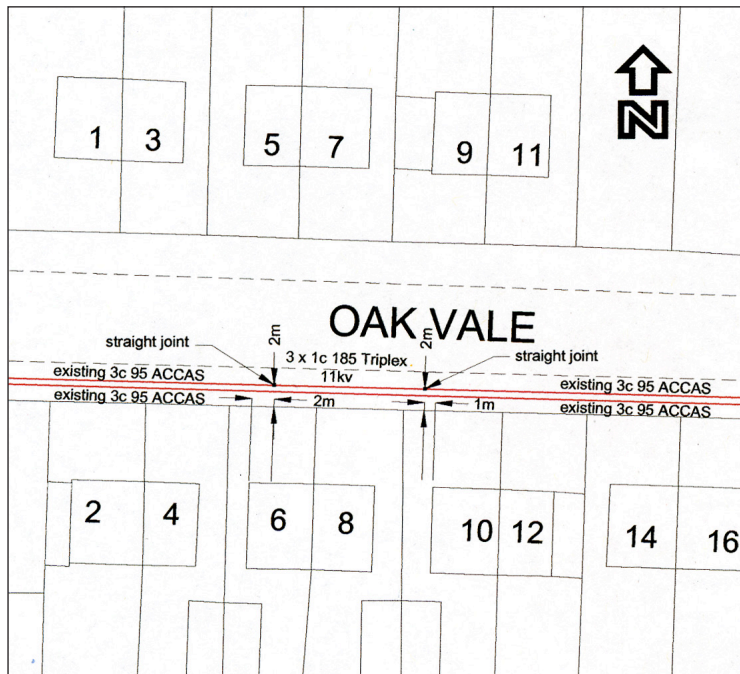
# Example sketches of marking up records

**PLEASE NOTE:**  
Dimensions are not shown on the live GIS system unless 'not to scale'

## C) HV fault

**Always show:**

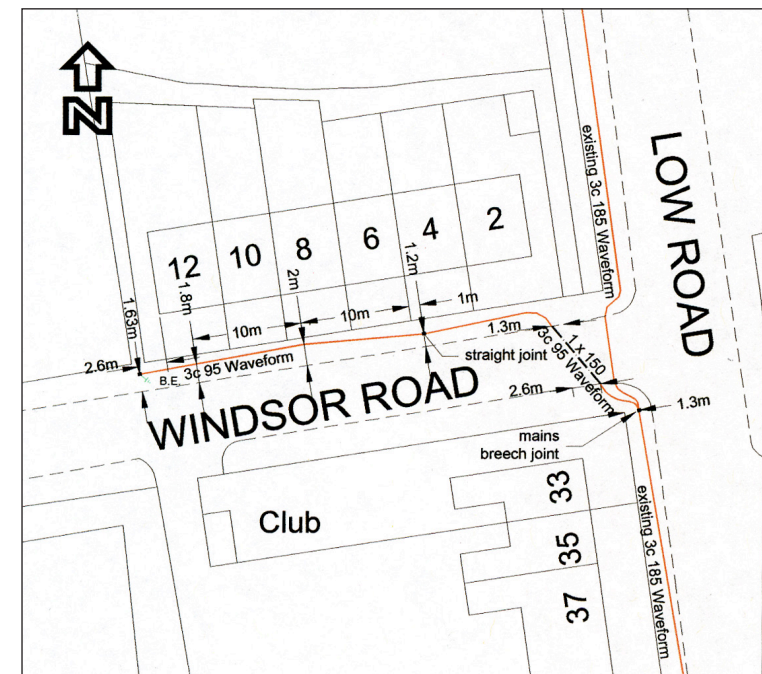
- Main and size type
- Road or street names
- Breaks in ducting or deviations
- All joint positions
- Feeder title/number)



## D) Mains

**Always show:**

- Mains cable size and type
- Road or street names
- Adjacent plots, houses or landmarks
- Breaks in ducting or deviations



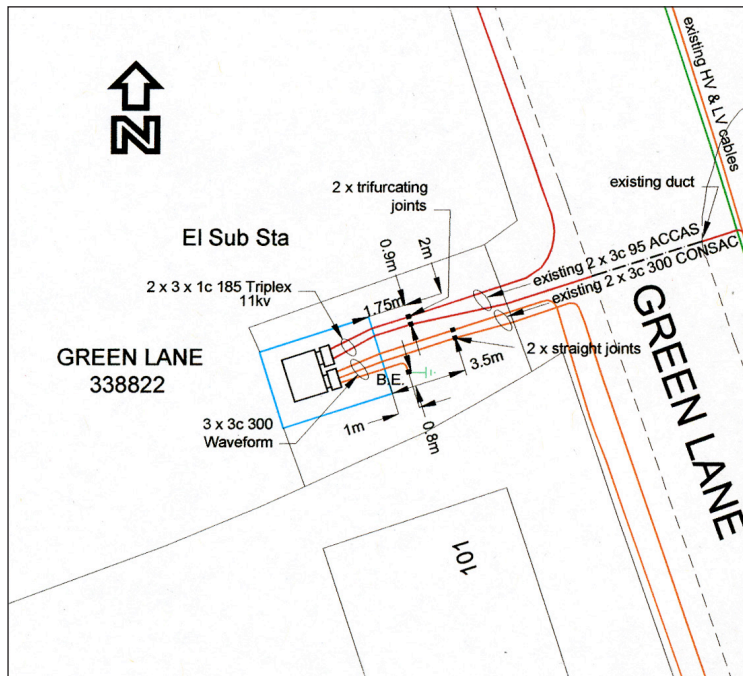
## Example sketches of marking up records

**PLEASE NOTE:**  
Dimensions are not shown on the live GIS system unless 'not to scale'

### E) Switchgear change

**Always show:**

- Mains cable size and type
- Road or street names
- All joint positions
- Substation name
- LV way details/open points
- HV details
- Position of all equipment within the substation



### F) Overhead replacement/service

**Always show:**

- Mains cable size and type
- Road or street names
- New phase colours (red, yellow, blue or L1, L2, L3 as appropriate)
- Breaks in ducting or deviations
- Details of any overhead equipment removed
- Pole numbers
- All joint positions

