1. SCOPE

This document defines the process and data return requirements for contractors modifying, adding or disposing of SP Energy Networks (SPEN) operational network assets.

2. ISSUE RECORD

This is a Controlled document. The current version is held on the EN Document library.

It is your responsibility to ensure you work to the current version.

Issue Date	Issue No.	Author	Amendment Details
	1	Craig Arthur	Original document
30th May 2012	2	G Coogan	Complete Review of Document
1st August 2015	3	S Stevenson	Changes to reflect new OHL contract data requirements and sketch templates
25th October 2021	4	S Stevenson	Addition of sections 13.7, 13.9 and 13.10 for Pilot and Fibre Network Cable and Fibre Chamber asset requirements. Amendments to Appendix 4 and Appendix 5 in line with sections 13.7, 13.9 and 13.10.
24th October 2024	5	Ian Gibson	Minor changes to document.

3. ISSUE AUTHORITY

Author	Owner	Issue Authority
Name: Ian Gibson Title: Technical Author	Name: Andy McKay Title: Asset Data Process & Integrity Manager	Name: Andy McKay Title: Asset Data Process & Integrity Manager  Date: 04/11/2024

4. REVIEW

This is a Controlled document and shall be reviewed as dictated by business / legislative change but at a period of no greater than three years from the last issue date.

5. DISTRIBUTION

This document is not part of a Manual maintained by Document Control and does not have a maintained distribution list but is published on the SP Energy Networks website.

6. CONTENTS

7. RELATED DOCUMENTS

National Joint Utilities Group – Publication Numbers 4, 5, 6 & 7

ASSET-01-021 – Asset Inspection and Condition Assessment Policy

ASSET-01-019 – Asset Health, Criticality & Outputs Methodology

ASSET-50-003 – Distribution Overhead Lines Asset Inspection and Condition Assessment Strategy

BUPR-22-014 – Asset Management Data Standard

BUPR-10-017 – SPEN GIS Data Capture Specifications

BUPR-10-023 – Network Data – Process for Managing Non-Submittal of Cable Records and Jointing

CAB-15-003 – Handling and Installation of Cables up to and including 33kV

CAB-15-004 – Handling and Installation Requirements for 132kV Power Cables

EPS-50-001 – Substation, Plant & Wide Based Towers Hazard & Defect Management Strategy

EPS-50-002 – Hazard & Defect Management Strategy for EHV, HV & LV Overhead Lines

EPS-01-002 – Hazard and Defect Management Policy

OPSAF-04-021 – Operational Hazard / Defect Management Procedure

QUAL-12-299 to QUAL-12-300 – SAP Equipment Data Input Sheets

QUAL-12-302 to QUAL-12-309 – SAP Equipment Data Input Sheets

QUAL-12-311 to QUAL-12-321 – SAP Equipment Data Input Sheets

QUAL-12-323 to QUAL-12-324 – SAP Equipment Data Input Sheets

QUAL-12-326 to QUAL-12-329 – SAP Equipment Data Input Sheets

QUAL-12-330 – Network Data SAP Input Sheet - Pole Data Collection Sheet and Tracker

QUAL-12-331 – Data Management – Span Data Collection Sheet

QUAL-12-365 – RTS - PowerOn Patch Request Form 132 275 & 400kV

QUAL-12-366 – RTS - PowerOn Patch Request Form 11 & 33kV

QUAL-12-367 – RTS - PowerOn Patch Request Form 11kV Secondary Substations and Diagram

8. DEFINITIONS AND ABBREVIATIONS

The following definitions apply throughout this document:

Customer	The recipients of the power supply being a tenant or owner of a domestic dwelling.
Link Boxes	A device buried in the ground but accessible from street level that enables cables to be isolated by the removal of links.
Network Pillars	An outdoor cupboard arrangement that enables cables to be isolated by the removal of links / fuses.
Service	A cable providing supply to an individual house.
SP Distribution plc	The Distribution Licence Holder for the Distribution service area formerly known as Scottish Power.

SP Manweb plc	The Distribution Licence Holder for the Distribution service area formerly known as Manweb.
The Company	A term used throughout this document to refer to SP Power Systems Ltd, SP Distribution plc and SP Manweb plc including all associated design and planning practices.

In addition, the following abbreviations apply:

ABSW	-	Air Break Switch
BWP	-	Best Working Practice
CSRAS	-	Connection and Site Responsibility Agreement System
EGI	-	Equipment Group Identifier
EHV	-	Extra High Voltage
ENID	-	Energy Networks Identification
GIS	-	Geographical Information System
GND	-	Generic Network Diagram
HV	-	High Voltage
I.T.	-	Information Technology
LV	-	Low Voltage
MPAN	-	Meter Point Administration Number
MPAS	-	Meter Point Administration System
MSC	-	Medically Sensitive Customer
MST	-	Maintenance Scheduling Task
OHL	-	Overhead Lines
OR	-	Operational Restriction
PMAR	-	Pole Mounted Auto Recloser
POWERON	-	Control and Operational Network System
PTE	-	PoleTop Equipment
RMU	-	Ring Main Unit
SAP	-	Systems, Applications and Products in Data Processing
SCA	-	Standard Connection Agreement
SSC	-	Supply Sensitive Customer
UMV	-	Utility Map Viewer
UoS	-	Use of System

9. GENERAL

The data and guidance contained within this document remains the property of the Company and may not be used for purposes other than that for which it has been supplied and may not be reproduced either wholly or in part, in any way whatsoever, nor may it be used by, or its contents divulged to, any other person whosoever, without the prior written permission of the Company.

The Company reserves the right to change the data contained within this document without notification. Although detailed requirements are covered in this document there may be circumstances where the Company reserve the right to apply other criteria where necessary. The Company accepts no responsibility for any inaccuracies in, or omissions from the document. It is the Contractor's responsibility to ensure they have an up to date version of this document.

The data and guidance contained within this document details the recording of the electrical asset only and does not embrace the physical construction of the network or the associated safety, environmental and legal requirements.

The Contractor is responsible for ensuring they have gathered all relevant information to accurately record the asset. Only Contractors possessing the appropriate skills, training and experience shall use the guidance contained within this document.

10. CONTACT DETAILS FOR DATA SUBMISSION

All data captured during field work, including Data sheets, as-laid drawings, and jointing sketches, should be submitted through the Contractor Portal (SAP) in accordance with the Data Management returns process. Detailed information about this process can be found in the Contractor Portal v3.3 User Guide.

Network Data can be contacted for any clarification points or to obtain Data sheets via the emails below.

License area of SCOTLAND				
E-mail	datamanagementnorth1@scottishpower.com			
Telephone	External	0141 614 7617	Internal	744 7617
Mobile		07753624652		
Address	ScottishPower HQ, 8th Floor, St Vincent Street, Glasgow, G2 5AD			

License area of ENGLAND & WALES				
E-mail	datamanagementsouth1@scottishpower.com			
Telephone	External	0141 614 5850	Internal	744 5850
Mobile		07702664208		
Address	Network Data Bureau, Energy Networks, Prenton Way, North Cheshire Trading Estate, Prenton, CH43 3ET.			

11. GENERAL RECORDING OF COMPANY OWNED ASSETS

The Company's Asset I.T. Systems require timely and accurate data submission and input to ensure that the company complies with safety, statutory and legislative requirements. Data requirements and submission times are largely dependent on the type of asset to be created or deleted.

The following section relates to all ENGIS owned asset types that must be recorded by the Company (refer to Figure 1):

- Overhead lines – LV, HV and EHV
- Poles, Towers
- Cables and Joints – LV, HV, EHV
- LV Switchpoints
- Pilot and Fibre Network

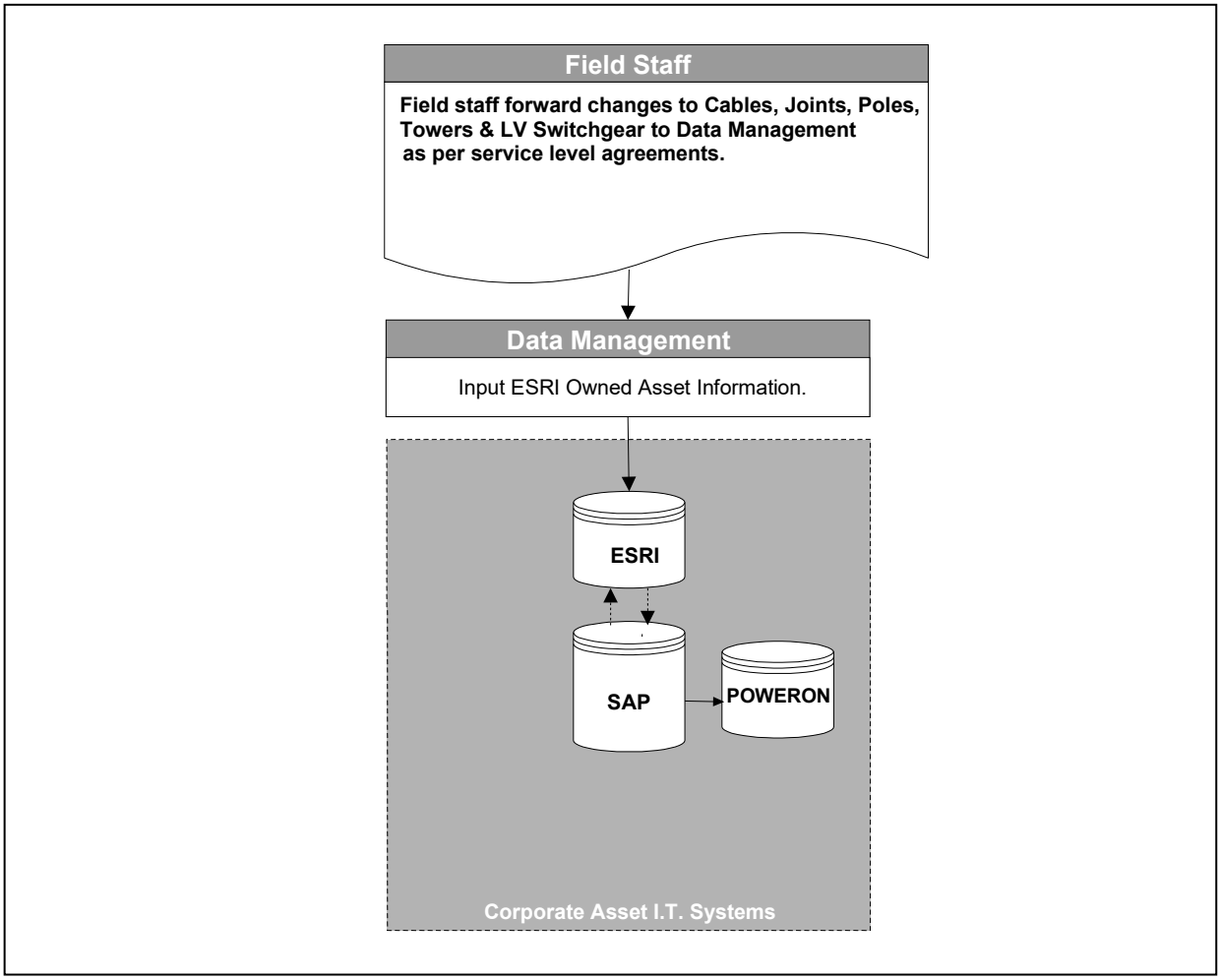


Figure 1

In general, Network Data will receive as-laid/built records for the above asset types in the form of a drawing supported by actual measurements. A competent person should generate these drawings. The drawing will be on a UMV plot using the contractor sketch template option, an AutoCAD generated drawing, an asset update record sheet or an electronic submittal form from a mobile device. The drawing must show the position of the new assets in relation to fixed features, such as kerb lines and building lines.

All other asset information to be recorded should be neatly shown on the drawing or attached to the drawing on a standard pro-forma for that asset type. High accuracy must be maintained on all record drawings. See sections 11 to 16 and the Appendices for further information and examples of as-laids.

As-laid cable records must be submitted within 5 days of the cable being laid.

OHL as-built records and any related plant asset data returns must be submitted within 10 days of the commission date of the individual asset section.

12. DATA FORMAT FOR OHL, POLES & TOWERS

12.1 General

Recording of asset additions and disposals, or any work on assets, forms the key requirement for the Company to be able to satisfy its contract with Ofgem. It is essential that the Service Partner has robust processes in place to ensure that the full asset data requirements are captured from each day's work.

The Service Partner shall comply with this policy as a minimum standard. This details the asset data standard required to be adhered to in order for records to be deemed acceptable by the Company. The Company reserve the right to reject such records if they do not meet the agreed standard, both in terms of the template to be used, timing of the return and the quality of the return. Records rejected shall be communicated to the Service Partner. Project completion will not be authorised until the asset data is returned to an acceptable standard. Performance shall be measured and form part of Service Partner performance reviews. In particular:

- All data will be returned within 10 days of the site commissioning (or outage), or at time of installation, whichever is earlier.
- All equipment planned to be installed by the Service Partner on a project will be logged and tracked from the start to the end of the project, then notified to the Company to confirm total installation prior to the project being closed. Each individual item will also need to be accompanied by a specific data return form.
- All poles installed and removed will be accompanied by a pole data return form / schedule.
- Each individual plant item will also need to be accompanied by a specific plant data return form.
- All cable and jointing work completed on a project must be submitted in a format / template to be provided by the Company.
- All conductors changed on a project, specifically refurbishment projects, shall be logged on a standard template to be provided by the Company, then notified to confirm total conductor installation prior to the project being closed.
- All ESQCR defects removed shall be logged on a standard template to be provided by the Company and notified to confirm total ESQCR defects removed prior to the project being closed.
- All returns will record the SAP Project Number against the work. This will be provided by the Company prior to the commencement of a project; however records without this code included will be rejected.
- Asset records will be required in all circumstances, including storm situations.

The Company reserve the right to modify or change these standards as required, subject to an appropriate notification period. Any changes will be made within the general context of this contract and the Service Partner will be expected to adhere to these new requirements.

Specific process and data return requirements are as follows.

Pre-project requirements

New routes

New routes shall be defined as routes where an existing line is not present e.g.

- New OHL off line rebuild
- New line to new customer (single span included)
- New line to new windfarm connections
- Diversions of existing overhead lines

Where this is the case, for all voltages above low voltage connections, the following shall be supplied to Network Data prior to commencement of the project, by agreement between the Company and nominated Service Partner.

- A detailed Overhead Line blank pole schedule is shown Appendix 8. A copy of this spreadsheet shall be available to all Service Partners as standard method of communicating pole schedules. An example of how this should be completed is shown in Appendix 9.
- A clean plan of the proposals, on an appropriate scale of 1:500 or 1:1000 on a standard UMV background. This must detail the new route and how this aligns electrically with any current assets in the vicinity. The plan must include positions of tie-in locations to current assets.
- Planning assumptions clearly articulated relating to commencement date of project and likely duration of build.

Existing routes

Existing routes shall be defined in context of work as being work undertaken on assets that does not impact upon the existing route and/or does not result in new permissions or wayleaves being required e.g.

- In-line rebuild
- Pole replacement, either for LGC programme or refurbishment
- Defect clearance

Under these circumstances, there is no need to provide information in advance of the works proceeding.

Return of asset information during and on completion of projects

New Routes

Information and asset data will be returned to SPEN at the earliest opportunity, and is expected upon energisation of equipment, or completion of the project, whichever is earliest. For example, on an overhead line rebuild, data returns should be provided whenever new sections are energised. When a section of the new main line is commissioned and cut into the existing line, this will be the date when the clock starts on the timeline for expected data returns. The appropriate data return forms will be expected from this date, for the assets commissioned on the particular shutdown. It is not acceptable to wait until the end of the project and then return all forms for processing, these should be sent as the project delivers.

Data submissions required

For all submissions, fields must be populated with appropriate information and all submissions must be uploaded in an electronic format to the contractor portal (SAP). Detailed information about this process can be found in the Contractor Portal v3.3 User Guide. All submissions must be in the same format as the template provided by the Company i.e. it is not acceptable to return an Excel spreadsheet template as a PDF. Any submissions that fail to meet the criteria set will be rejected.

- Revised plan of OHL route and pole placements, related to the original plan submission.
- Any alterations to original OHL schedule should be individually identified on a revised pole schedule, clearly showing these changes.
- For a new route, it is not necessary to submit an individual pole data return form for every new pole. However, it is critical that these must be submitted to confirm the removal of existing poles. Spreadsheets can be used in these situations for multiple pole returns.
- Plant data return forms for all plant installed on the new line e.g. pole mounted transformers, sectionalisers etc. Confirmation on these forms of all plant assets removed and disposed of.
- Where plant assets have been moved i.e. pole transformer from old line to new line, these must be confirmed specifically.

Existing routes

For work on existing routes, the following requirements will apply.

OHL refurbishment

It is important that the Service Partner specifically confirms all work that has been undertaken on specific assets during refurbishment activity. The required data submissions are as follows:

Pole changes

A pole data sheet is required for every pole change, detailing new asset details and confirming status of existing pole, related back to the activity plan.

Plant changes

A plant data sheet is required for all plant changes, either installation of new assets or decommissioning of old assets, using the appropriate data forms, related to the activity plan.

Re-conductoring existing assets

Where conductor is replaced, details must be supplied to uniquely identify the spans of OHL that have been re-conductored and related back to the activity plan. The span data sheet (QUAL-12-331) will be used to record all such asset changes and must be related back to the activity plan by unique reference points.

Defect removal

All defects removed as part of the project must be uniquely identified in the span data sheet (QUAL-12-331) or marked as rectified within the Contractor Portal, and where work undertaken to replace these defects, explanation given of what activity has been carried out.

LGC removal

Where an activity has removed a low ground clearance defect, the activity must be uniquely identified with confirmation of new height achieved in metres at mid-span position.

Individual projects to address LGC, one off pole replacements

The span data sheet (QUAL-12-331) shall be used in all circumstance to confirm specifically what has been done on site, where this information is not contained within a relevant data return form. For example, for a single intermediate substantial deterioration pole replacement, the pole data return form shall be adequate for this purpose.

Where the pole replacement requires a new stay, and removes a defect, then the span data sheet (QUAL-12-331) should be completed and returned.

12.2 Patrol Number (for Distribution assets only)

Network Data require a patrol number to be clearly associated to each individual pole or tower. The Patrol Number is the Circuit Monitor Reference Number from PowerOn and is generally made up of 5 digits (with the exception of Manweb 33kV lines, which are made up of 6 digits).

For example, in the case of Patrol Number 12345 refer to Figure 2:

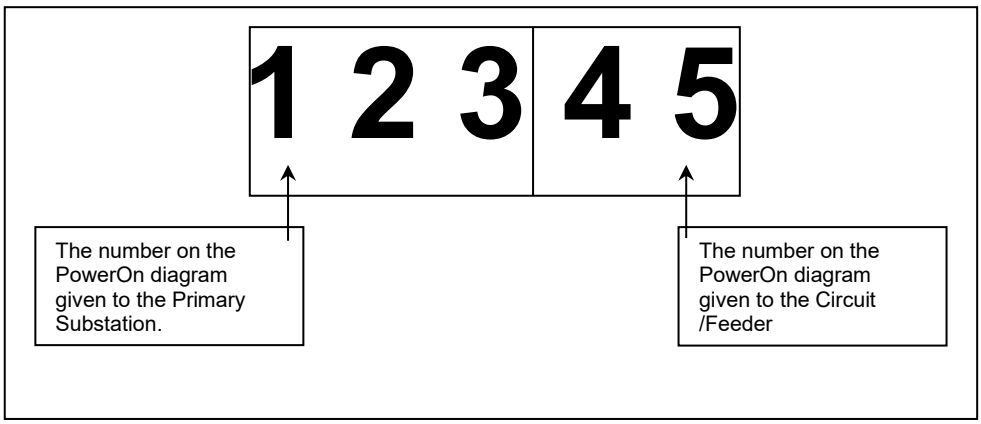


Figure 2

12.3 Route Identifier (for Transmission assets only)

Network Data require a route identifier to be clearly associated to each individual pole or tower. The Route Identifier is the alpha code assigned to each pole or tower by Grid Control.

Table 1 provides a guide to the required patrol / route identifiers per pole and tower asset:

ASSET TYPE		IDENTIFIER REQUIRED		
		PATROL ID NUMBER (POWERON NUMBER)	ROUTE IDENTIFIER (ALPHA-NUMERIC)	PATROL NUMBER FROM FEEDER HV CIRCUIT
Pole	<= 33kV Distribution	✓		
	>=33kV Transmission		✓	
	LV			✓
TOWER	<= 33kV Distribution	✓		
	>=33kV Transmission		✓	

Table 1

12.4 Pole Classification

The nature and use of the surrounding land determine the “Locational Risk Classification” which considers the probability of both wilful and inadvertent contact with live conductors in the environment where they are placed.

The locational risk classification is an integral part of asset inspection process, and the reason why the site has been assessed at a particular risk level, shall be completed and reviewed at every routine inspection, to react to any changes or circumstances, that have occurred since the previous inspection. For guidance of risk categories, refer to Section 13 of ASSET-01-021.

To assist with the practical interpretation of the ESQCR with respect to risk assessment, the location of the Overhead Line electrical network apparatus shall be classified in line with Section 10 of ASSET-50-003.

Distribution Poles and Towers require a Risk Classification which determines Signing and Guarding requirements. Classifications should be provided to Network Data for each affected asset on the drawing or pole data sheet.

12.5 Spatial Hazards

Pole related Spatial Hazards are for additional information only and relate to Hazards which fall outside the guidelines stated within section 16. Pole related Spatial Hazards must be noted for each impacted pole on the drawing or pole schedule. They should be noted as follows:

Spatial Hazard Type	Spatial Hazard Position
• 3rd Party • Campsite • Farmland – Agricultural • Farmland – Pasture • Fishing Area • Golf course • Playground • Rail • Recreational Area • Road • Water Course • Yacht Club • Other • Layby/Parking Area • Restricted Flight Zone	Under Line Over Line Side

13. DATA FORMAT FOR UNDERGROUND ASSETS (ALL VOLTAGES) AND GROUND MOUNTED LV ASSETS

13.1 General

All asset information must be submitted within 5 days of completion or commissioning.

For information on mandatory attributes for LV switch points, cables and joints see Appendix 5.

This information will be provided in the form of a drawing supported by actual measurements to the created, deleted or amended asset. These drawings shall be accurately dimensioned showing actual positions of LV switch points, cables, ducts and joints relative to buildings, footpaths and roadways. The information supplied must be sufficient to plot the asset position to the nearest 0.1 metre. See Appendix 10 for further information and examples of as-laids.

Drawings should be provided at a scale of 1/500 or larger. Wherever possible, drawings must be provided to Network Data on a plot from an Ordnance Survey based drawing or in electronic format. If these are not available, the drawing must be supplied on an asset update record sheet as shown in Appendix 10 Example E. Asset update record sheets are available on request from the Network Data section.

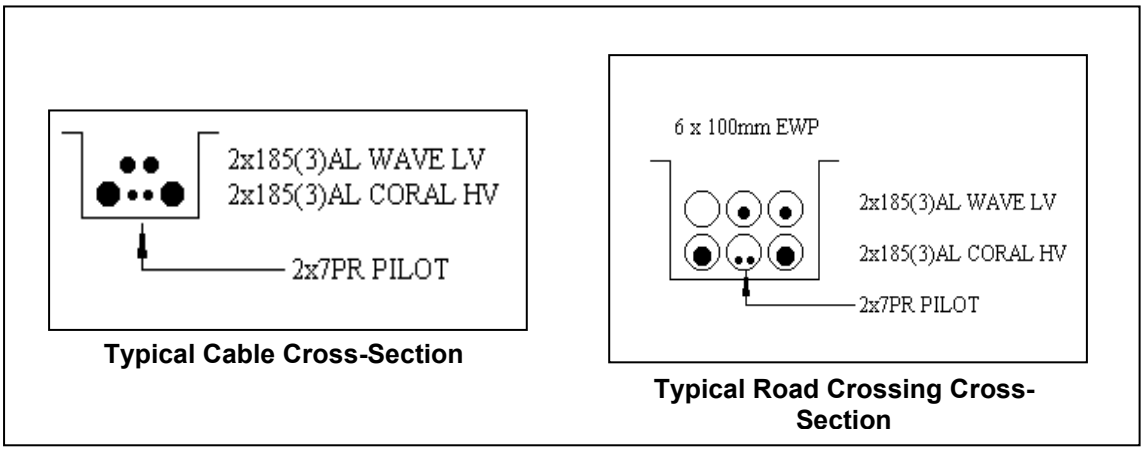
13.2 Points to Note when Taking Records

Measurements can be taken from gable ends, boundary walls, fence lines, walls or kerb lines. Measurements should never be taken from lamp posts, gates, doors, windows, garden paths, driveways, road signs, street lighting pillars, trees, manhole covers or drains.

Information on the cables and ducts laid must be given. These should include cable size and type, any instances where cables or plant cross, duct size and type, cross sections of how the cables, ducts and pipes are laid in the ground and an indication of which cables go through which ducts.

Drawings must show:

- Address and plot numbers where applicable.
- LV switch point details (including classification).
- Cable size and type.
- Installation dates.
- Indicate any instances where cables or plant cross.
- Duct size and type.
- Cross sections of how the cables, ducts and pipes are laid in the ground and an indication of which cables go through which ducts.
- MPAN details must be written on the plan submitted in respect of services to new customers.
- Where the cable is running straight, lateral position and depth should be given every 5 metres. Where the cable bends or depth varies, this should be increased to every 1 metre. (See Appendix 10).
- Drawings must be provided to Network Data on a plot from UMV, an Ordnance Survey based AutoCAD drawing, an electronic data submittal form or an asset update record sheet as shown in Appendix 10 Example E. Asset update record sheets are available on request from the Network Data section.
- Any cables / pipes / road-crossings laid at non-standard depths must be marked as such. A note of the depth must be written alongside the cable.
- If multiple cables / pipes / road-crossings are laid, the configuration and depths of these must be shown on any drawings (Refer to Figure 3). The configuration should be shown in a section drawing:



Typical Cable Cross-Section

Typical Road Crossing Cross-Section

Figure 3

- ALWAYS take measurements from permanent structures. NEVER take measurements from anything not on ordnance survey map e.g. windows, doorways, gates, lamp posts, trees, site offices etc.
- ALWAYS record non-standard depths of cables and assets as specified in CAB-15-003 section 22.6 and CAB-15-004 Section 31.7
- ALWAYS take Size and Type of Cable/Ducts and Date laid.
- ALWAYS include an Ordnance Survey Grid Reference i.e. SJ 543-675.
- NEVER take measurements from structures being altered or demolished.
- NEVER use round objects to measure from, since exact positions of cables cannot be located as indicated in Figure 4:

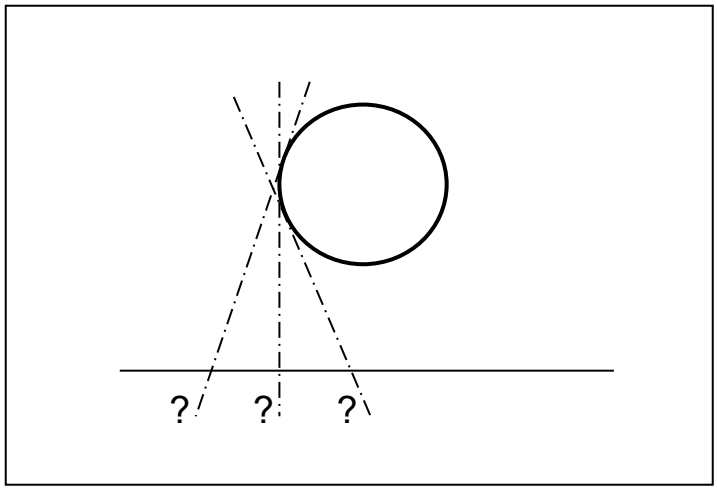


Figure 4

13.3 Mandatory Information: As-Laid Service Cable Route Records

As-laid service cable route drawings must be provided to Network Data on a plot from UMV, an Ordnance Survey based AutoCAD drawing, an electronic data submittal form or an asset update record sheet as shown in Appendix 10 Example E. In the absence of an Ordnance Survey map or suitable builder's plan, the following guidelines should be used to produce a service cable record:

- Measure the basic size/shape of the house.
- Draw the house relative to its surroundings.
- Take measurements to the cable and road crossing.
- Indicate whereabouts of ducts and service ducting.

- Add all applicable details (cable size, date laid etc.) as described in Appendix 5.

13.4 Mandatory Information: LV Switch Points

LV switch point details must contain:

- Type (link-box or pillar).
- Locality (i.e. nearest address).
- Electrical configuration (e.g. 2 way, 4 way).
- Manufacturer (e.g. Sicame).
- Date of manufacture.
- Classification 1 or 2. (See 13.5)
- Asset Activity Code: Who the work was completed for. Reason for work.
- Any relevant information about created, deleted or amended switching points.

13.5 Mandatory Information: LV Switch Point Classifications

For guidance on classifications, refer to Asset Inspection and Condition Assessment Policy (ASSET-01-021)

It is a requirement that each LV switch point has a classification. Classifications should be noted for each impacted asset on the drawing or pole schedule.

13.6 Mandatory Information: Switching Points

The responsible engineer must provide Network Data with details of any changes to LV network switching points within 24 hours of the change. These must be received on a Generic Network Diagram (GND) based plot of the area concerned. An example can be seen in Appendix 11.

13.7 Mandatory Information: Fibre Chambers

- Subtype.
- Chamber Type.
- Construction Type.
- Frame and Cover Classification.
- Asset Activity Code.
- Installation date.
- Who owns the chamber if anyone other than The Company.

13.8 Mandatory Information: Cables

Cable details must contain:

- Design voltage.
- Working voltage.
- Cross sectional area.
- Construction type.
- Number of conductors.
- Conductors per phase.
- Number of phases.
- Conductor material.
- Installation date.
- Asset Activity Code: Who the work was completed for. Reason for work.
- Who owns the cable if anyone other than The Company.
- Where cable is a service, phase colours must be noted.

13.9 Mandatory Information: Pilot and Fibre Cables

- Cross sectional area.
- Construction type.
- Number of conductors.
- Conductor material.
- Installation date.
- Asset Activity Code: Who the work was completed for. Reason for work.
- Who owns the cable if anyone other than The Company.

13.10 Mandatory Information: Pilot and Fibre Overhead

- Subtype.
- Conductor Type.
- Conductor outer material.
- Cross sectional area.
- Construction Type.
- Armoured.
- Installation date.
- Asset Activity Code.
- Who owns the cable if anyone other than The Company.

13.11 Mandatory Information: Joints

Joint details must contain:

- Joint type – e.g. straight, breech, pot end etc.
- Voltage.
- Installation date.
- Name of company that installed the cable.
- Where cable is a service, phase colours should be noted.
- Where phases are crossed, or cores are bunched, phasing should be noted. For example (‘Phases crossed: R-Y, Y-B, B-R’ or ‘RYB Bunched’).

13.12 Mandatory Information: Ducts

Duct details must contain the following information:

- Duct Size – i.e. 125mm, 100mm etc.
- Duct Material – i.e. PCP, PVC, Fireclay etc.

13.13 Mandatory Information: Supply Sensitive Customers

Network Data requires information about all new Supply Sensitive Customers (SSC) and amendments to existing SSC’s as soon as such information becomes available. The data required for input is:

- Customer name contact name
- Telephone number, fax number, address and postcode
- Type of Business

13.14 Developer’s Plans

Developer’s plans are required by Network Data for every new development where either Scottish Power or third-party service providers will create new assets. Network Data will receive developer’s plans at least 10 days before site work commences (also, whenever there are alterations to the site layout, e.g. Changes to plot numbers or road layouts, while work is in progress or after completion).

Wherever possible, developer's plans will be forwarded to Network Data electronically.

It is the responsibility of the business unit (i.e. third-party contractor) to supply developer's plans prior to the submission of cable records.

14. NOTICE OF CONFIGURATION ALTERATIONS TO THE HV NETWORK

The Company's Asset I.T. Systems require timely and accurate data submission and input to ensure that the company complies with safety, statutory and legislative requirements. Data requirements and submission times are largely dependent on the type of asset to be created or deleted.

Prior to commissioning assets that require changes to the configuration of the HV network diagram, a SAP input sheet, PowerOn patch request and before and after PowerOn system diagrams are needed. These should be submitted to Network Data no less than 10 days prior to the commissioning date (Refer to Figure 5). Network Data will receive the request on the standard pro-formas, which are available in either paper or electronic format from the EN Document Library or from Data Management. An example SAP input sheet, Power On patch request and before and after PowerOn diagram can be found in Appendices 1, 2 & 3 respectively.

N.B. Major network changes (grid substation and primary substation) shall be submitted at least one month prior to the commissioning date.

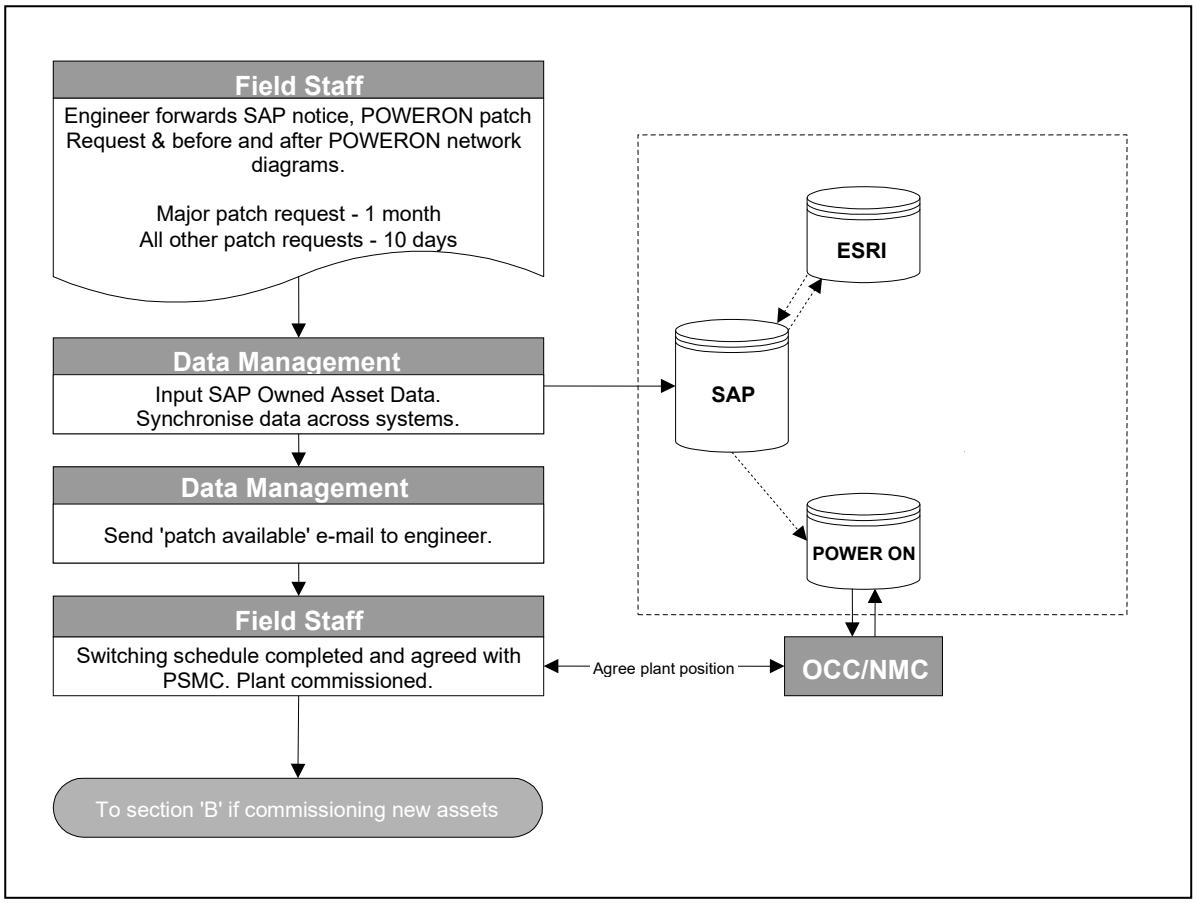


Figure 5

Where the HV network is changing due to the creation, deletion or amendment of overhead line or underground cables, Network Data must receive a patch request and a before and after PowerOn diagram. A SAP notice is not required.

Where assets are to be decommissioned only, Network Data must receive a patch request, a before & after PowerOn diagram and a completed SAP data sheet clearly identifying the reason for decommissioning and the scrap or idle location.

For example, where an RMU is being decommissioned due to an operational restriction (OR), the completed SAP data sheet should indicate that this was the reason for decommissioning. It is also a requirement to associate the plant being scrapped to the correct Sub-office location.

15. SUBMISSION OF PLANT DATA SHEETS

As indicated in Figure 6, SAP plant data sheets must be submitted to Network Data no later than 10 days post plant commissioning. These are required in two distinct situations:

- After the commissioning process covered in section 13, all individual plant data must be input into SAP to enable plant data to be shown as asset attributes within PowerOn, GIS and SAP.
- In the instance of changing plant like for like (e.g. PTE replaced) no patch request or SAP notice is required as no changes will be made to the HV network diagram. However, it is vital that plant detail sheets are submitted no later than 10 days post commissioning.

In both situations, SAP data sheets should be submitted no later than 10 days after plant commissioning.

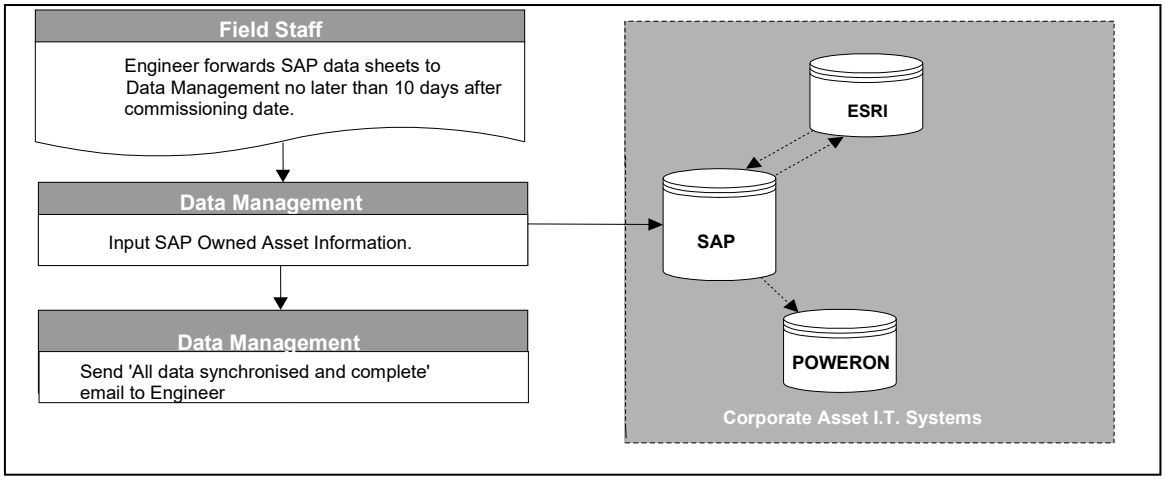


Figure 6

Network Data will receive plant details on standard pro-formas which can be obtained from the EN Document Library or from Data Management. There are individual sheets for all substation plant, LV fuseboards, remote equipment including transformers, PMAR's, switchgear and test prods. All fields on plant detail sheets are mandatory information for SAP data entry and therefore data sheets forwarded to the Network Data section must be completely filled in (wherever plant type permits).

When submitting data sheets for new substation loop-ins, it is extremely important to include new circuit names. As is explained in Appendix 12, the LH and RH switch attributes for the existing substations on either side of a new substation must be updated in SAP. This information should be included in the LH and RH switch sections of the RMU detail sheet for the new substation.

16. RECORDING OF HAZARD AND DEFECT INFORMATION

Where an asset (pole, tower, conductor, switch point or substation) is created or amended and has a defect or hazard present, this must be noted on the SAP data sheet or the pole data sheet as per the associated strategies:

- EPS-50-001 - Substation, Plant & Wide Based Towers Hazard & Defect Management Strategy
- EPS-50-002 - Hazard & Defect Management Strategy or EHV, HV & LV Overhead Lines

Assets that are affected by more than one hazard should be marked as such.

For guidance on hazards, refer to the 'Hazard and Defect Management Policy' document (EPS-01-002) and 'Operational Hazard / Defect Management Procedure' (OPSAF-04-021).

Wherever hazards occur, information should be added to the SAP data sheet or the pole data sheet to be forwarded to Network Data. Information supplied should contain a description of the defect and a hazard category.

Wherever new Hazards are identified during inspections or planned work, these can be raised through the Hazard Reporting Form (HRF) process as detailed in 'Operational Hazard / Defect Management Procedure' (OPSAF-04-021).

17. DATA REQUIREMENT MATRIX

The following matrix (Table 2) should be used as a quick guide to the data requirements per asset type and activity (Create, amend and delete):

ASSET TYPE		Data Required				
		For explanation see section 14		*For explanation see section* 15		*Sections* 11-13
		SAP Location Request	Patch request + Before and after diagrams	SAP Plant data sheet	12 figure Ordnance Survey reference	GIS sketch + pole data sheets where applicable
Substation (change to network configuration)		✓	✓		✓	
Plant within substation	***Change to network configuration***	✓	✓	✓		
	No change to network configuration			✓		
Transmission Plant				✓	✓	
Transmission OHL						✓
Remote Equipment Location (change to network configuration)		✓	✓		✓	✓
Remote equipment. (Including PTE/ABSW/PMAR/ HV fuses and sectionalisers)	***Change to network configuration***	✓	✓	✓		
	No change to network configuration			✓		
EHV / HV / LV OHL	***Change to network configuration***		✓			✓
	Replacement of Conductor					✓
	No change to network configuration (* Pole data sheets required - no sketch required)					✓*
HV cable/joints	***Change to network configuration***		✓			✓
	No change to network configuration					✓
LV cable/joints						✓

Table 2

APPENDIX 1: EXAMPLE SAP INPUT SHEET – REQUEST FOR A NEW FUNCTIONAL LOCATION

SP Energy Networks

Asset Data SAP Input Sheet
Request for New Functional Location

QUAL-12-300
Issue No 9

Project Manager			**Project ID**	A	
Project Reference					
Requesters Name	B		**Date of Request**	B	
Company	2				
Internal Contact Number	3		**External Contact Number**	3	
Email	4				

		Functional Location Name and Number			Type of Location
Zone	C		**Coordinates** (As per UMV)	C	X Y
Substation Name	2		**Location**	2	
4 Letter S/S mnemonic (Transmission Only)	3		**Does Aggregated Site Exist**	3	
Address	4		**Non Transformer**	4	
Town	5				
SAP Postcode (Allocated by DM)	6		**In Square No** (Allocated by DM)	6	
SAP County Code (Allocated by DM)	7		**HV Circuit for Pole Mounted Sub/REL** eg, DC-AANNNNN	7	

Substation Details

Owner of Substation	D		**Capacity**	D	kVA
Location Risk *(see guidance box)*	2		**Voltage**	2	kV
Site Responsibility Agreement Required?	3				

Sections below are for Data Management Use Only

ENID Number	E		**Created On**	E	
Functional Location	2		**Created By**	2	
Aggregated Site Functional Location	3		**Aggregated Site Object Link**	3	
Supernumber	4				

For work sourced within the franchise area of **Scotland**	
Email:	ENDATAIMPROVEMENT@ScottishPower.com

For work sourced within the franchise area of **England & Wales**	
Email:	DataManagementSouth1@ScottishPower.com

APPENDIX 2: EXAMPLE 11KV POWER ON PATCH REQUEST FORM

PowerOn Patch Request Form

PO Ref:.....

DIRT No: .....

SP ENERGY NETWORKS

11kV SECONDARY SUBSTATIONS & DIAGRAM (including Secondary Automation Plant)	
ENGINEER'S DETAILS	
Name:	Location:
Tel.No.	Tel. No. (Mobile):
Date of Request:	Date Patch is required for Switching Schedule:
DIAGRAM AMENDMENT DETAILS	
Patch Name: ***Please note that Patch Name is restricted to 32 characters and will be Prefixed by N for North & S for South Diagram Patches***	
Proposed Date of Job:	Job Schedule No.
DIAGRAM VOLTAGE:	
ADDITIONAL DETAILS	
Please provide details of any future changes to the existing network, i.e. changes from **U/G cable** to **O/H line** or Main line to Spur line. Include **U/G cable** or **O/H line** size, type and length & Protection type.	
Please, consider if any feeder names or remote switches need amending due to the new site.	

Please Note:

Please provide a detailed Diagram for Patch
Please include a copy of both the Existing Diagram and the Proposed Diagram, (or diagrams if there is more than one stage to the job)

Please note that Patch requests with Telemetered Plant will not be processed unless an IO Schedule has previously been submitted to the SCADA Support Team

Please follow the guide below for Notice Periods for Patch Requests

Type of change	Notice period for HV Diagram updates
Patches for 11 / 6.6kV network	2 Weeks
Patches for SA schemes	4 Weeks

It is the originator's responsibility to ensure that patch requests are submitted in sufficient time to allow for:

1. Resolution of Queries.
2. Data Entry and synchronisation by Data Management
3. Patch preparation by PSMC support staff (normally 5 working days from date of receipt for general patches)
4. Incorporation of the completed patch into the switching schedule and completion of restoration switching by the originator
5. Final pre-check of the schedule by the originator at least 7 days before the proposed outage date, in preparation for approval by the PSMC Control Engineer.
6. If any equipment is to be removed then cross through it in **Green**. Any new equipment should be marked in **Red**.
7. Telemetry Detail: This is from the Control Rooms perspective. i.e. Will they be supplied from site with Indications only, Indications & an ability to Control the plant item, or none of these two facilities at all?

PM & GM Secondary Plant Details (NON TELECONTROLLABLE PLANT)		
Is switchgear **Withdrawable** ☐ or **Non-Withdrawable** ☐ **Switchgear Make & Type** e.g. 3 G.Sw & 2 GCB , Hawkvac, Siemens Eclipse, etc		
New Transformers kVA rating =		
CUSTOMERS: If this is a new site please state number of customers to be supplied:		
Does the job involve moving customers' supplies from one transformer to another? If so, please state details:		
Sectionalisers Shot Number (Circle whichever is applicable)	**S1 S2 S3**	Sectionaliser Current rating: ___**A**
Pole Mounted Reclosers: **GVR** ☐ **NOJA** ☐ (please tick whichever is applicable)		
Mast Switch / Air Break Switch **Category (1 or 2)**		
Pole No. / Line No.		
Pole Mounted Switches: **Hookstick** ☐ or **Rod Operated** ☐ (please tick whichever is applicable)		
Pole No. / Line No.		

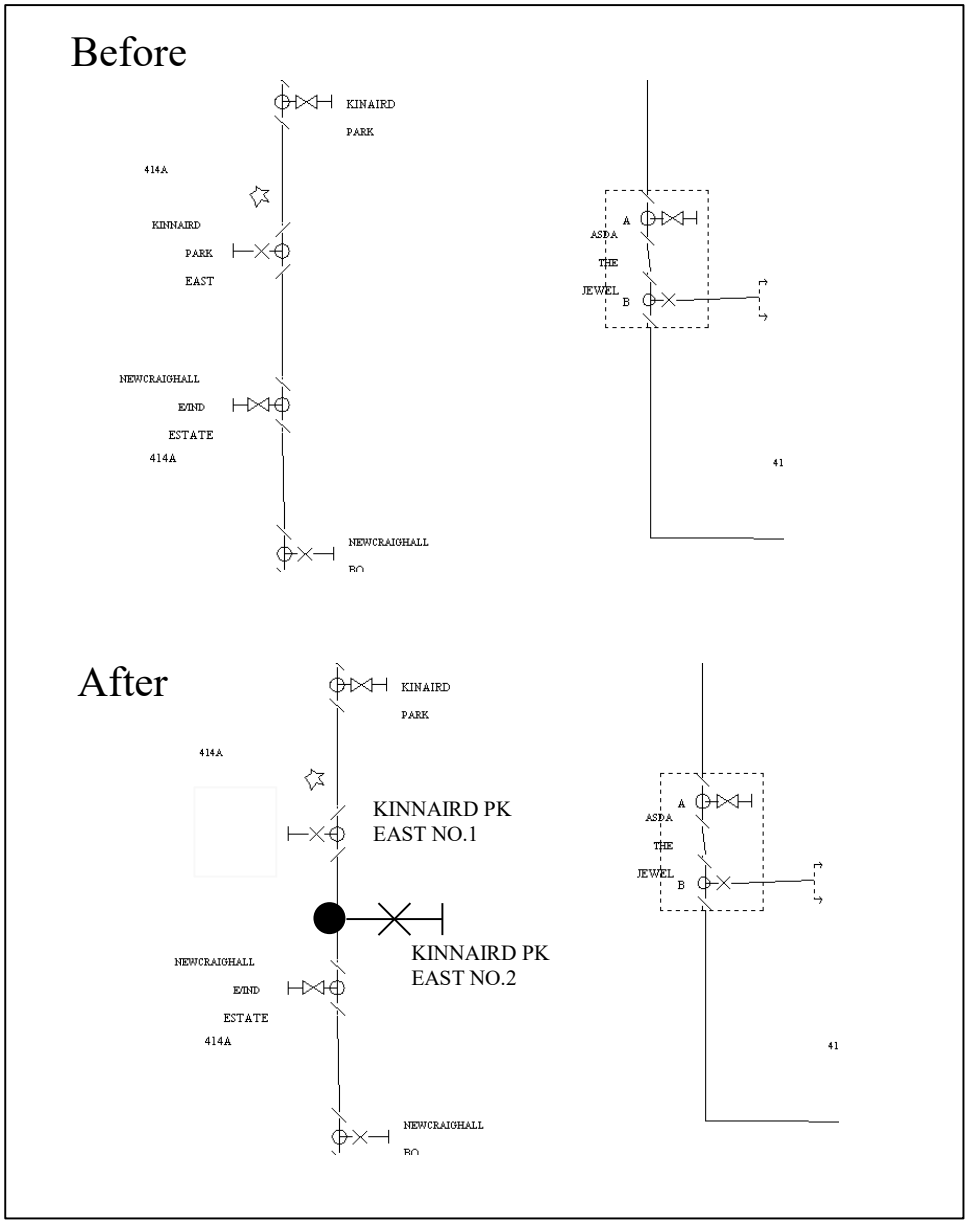
Secondary Automation PM & GM Plant Details (TELECONTROLLABLE PLANT)		
Switchgear Make & Type e.g. 3 G.Sw & 2 GCB , Hawkvac, Siemens Eclipse, etc		
Telecontrollable Plant details: Name & Plant position:		
FPI: YES ☐ (Please indicate which Circuit it is associated with)		
Pole Mounted Reclosers: **GVR** ☐ **NOJA** ☐ (please tick whichever is applicable)		
Mast Switch / Air Break Switch **Category (1 or 2)**		
ASSOCIATED PROTECTION: (Tick where applicable)		
DAR	YES ☐	
SEF **(GVR)**	YES ☐	
LL PROT **(NOJA)**	YES ☐	
MAIN PROT	YES ☐	
Pole Mounted Switches: **Hookstick** ☐ or **Rod Operated** ☐ (please tick whichever is applicable)		
Pole /Line No.		
ASSOCIATED PROTECTION: (Tick where applicable)		
AUTO SECTIONALISER	YES ☐	
FPI YES ☐		

Brief Amendment Description (continue on separate sheet if necessary):
Indicate EFI / VT/Phase Comparator positions, Secondary Automation Schemes, N/O (split) points, Primary circuit numbers, HV supplies etc.

Circuit Labelling – Indicate names on the proposed diagram, as follows:
1. For New Sites, write the name of the circuits against each switch as they appear on the site labels.
2. Where there is to be any change to site labels at existing sites, write the new circuit names against the appropriate switches.

NB Please ensure that these labels comply with circuit naming rules as defined in Eng.Mem 100.

APPENDIX 3: BEFORE AND AFTER POWERON DIAGRAMS



APPENDIX 4: MANDATORY ATTRIBUTES FOR OHL, POLES AND TOWERS

Mandatory attributes for pole asset:

Attribute	Description
Type	Single, H, A, 3 or 4 member, lattice, galley, strut and lay leg
Pole material	Wood, steel, concrete
Associated voltage	LV, 6.6kV, 11kV, 22kV, 33kV, 132kV
Height	Number
Diameter	Light, medium, stout, extra stout
Patrol/Route	Number/Alpha
Category/Classification	number
Hazard	Tree, water, playground
BS Specification	L10, L15, GENU2, BS1320 etc.
Date installed	Date
SAP Project ID	Number

Mandatory attributes for tower asset:

Attribute	Description
Tower ID	Number
Tower type	Single, dual, tri or quad circuit
Route identifier	Number
Patrol/Route	Number/Alpha
Category/Classification	Number
Design voltage	LV, 6.6kV, 11kV, 22kV, 33kV, 132kV, 275kV, 400kV
Height	number
Base dimension	number
Commission date	Date
SAP Project ID	Number

Mandatory attributes for overhead line asset:

Attribute	Description
Cross sectional area	Metric/Imperial measurement
No. of conductors	1-8
Conductor material	Aluminium, copper, steel, steel cored aluminium, hard drawn copper etc.
Design voltage	LV, 6kV, 6.6kV, 11kV, 20kV, 22kV, 33kV, 132kV, 275kV, 400kV, pilot, earth, aux., telephone
Working voltage	If different from design voltage
Number of phases	1-3
Spec	L10, L20, Genu2, Genu3 etc.
SAP Project ID	Number

Mandatory attributes for overhead line pilot / fibre asset:

Attribute	Description
Subtype	Underslung Pilot, Underslung Telecom
Conductor Type	OPGW, ADSS, Copper Pilot
Conductor outer material	Plastic / Kevlar, Aluminium/ Steel, Steel / Plastic
Cross sectional area	70mm, 100mm, 120mm, Other
Construction Type	Independent, Integral to Earthwire
Armoured	Yes, No
SAP Project ID	Number

APPENDIX 5: MANDATORY ATTRIBUTES FOR LV SWITCHPOINTS, CABLES AND JOINTS

Mandatory attributes for LV Switchpoint:

Attribute	Description
Type	Link box or pillar
Category	1 or 2
Electrical configuration	2 to 16 way, 4/6/7/8 way double busbar
Manufacturer	Lucy, Bonar Long etc.
Date of manufacture	Date
Serial number	Number
SAP Project ID	Number

Mandatory attributes for underground cable asset:

Attribute	Description
Cross sectional area	Metric/Imperial measurement
No. of conductors	1-6
No. of phases	1-3
Construction type	Pilc, Waveform etc.
Conductors per phase	1-3
Conductor material	Aluminium, copper
Design voltage	LV, 6.6kV, 11kV, 22kV, 33kV, 132kV, 275kV, 400kV, pilot
Working voltage	If different from Design voltage.
Date installed	Date
SAP Project ID	Number

Mandatory attributes for fibre chamber:

Attribute	Description
Subtype	Fibre Chamber
Chamber Type	FW4, FW6, CW1, CW2
Construction Type	Brick, Cement, GRP, Polypropylene, HDPE, Other
Frame and Cover Classification	B125, C250, D400, E600
SAP Project ID	Number

Mandatory attributes for underground pilot / fibre cable asset:

Attribute	Description
Subtype	Telecom, Pilot, Earth, Telemetry
Cross sectional area	Metric/Imperial measurement
No. of conductors	no. of pair, (2pr, 4pr, etc.)
Construction type	Auxiliary, Telecom, Pilot, Earth, LC, PE, PILC, PVC, PILCPVC, Co-axial
Conductor material	Aluminium, copper, Fibre-optic
Armouring	Armoured, Non standard, Steel Tape, Wire Armoured, Tape Armoured
Date installed	Date
SAP Project ID	Number

Mandatory attributes for underground joint asset:

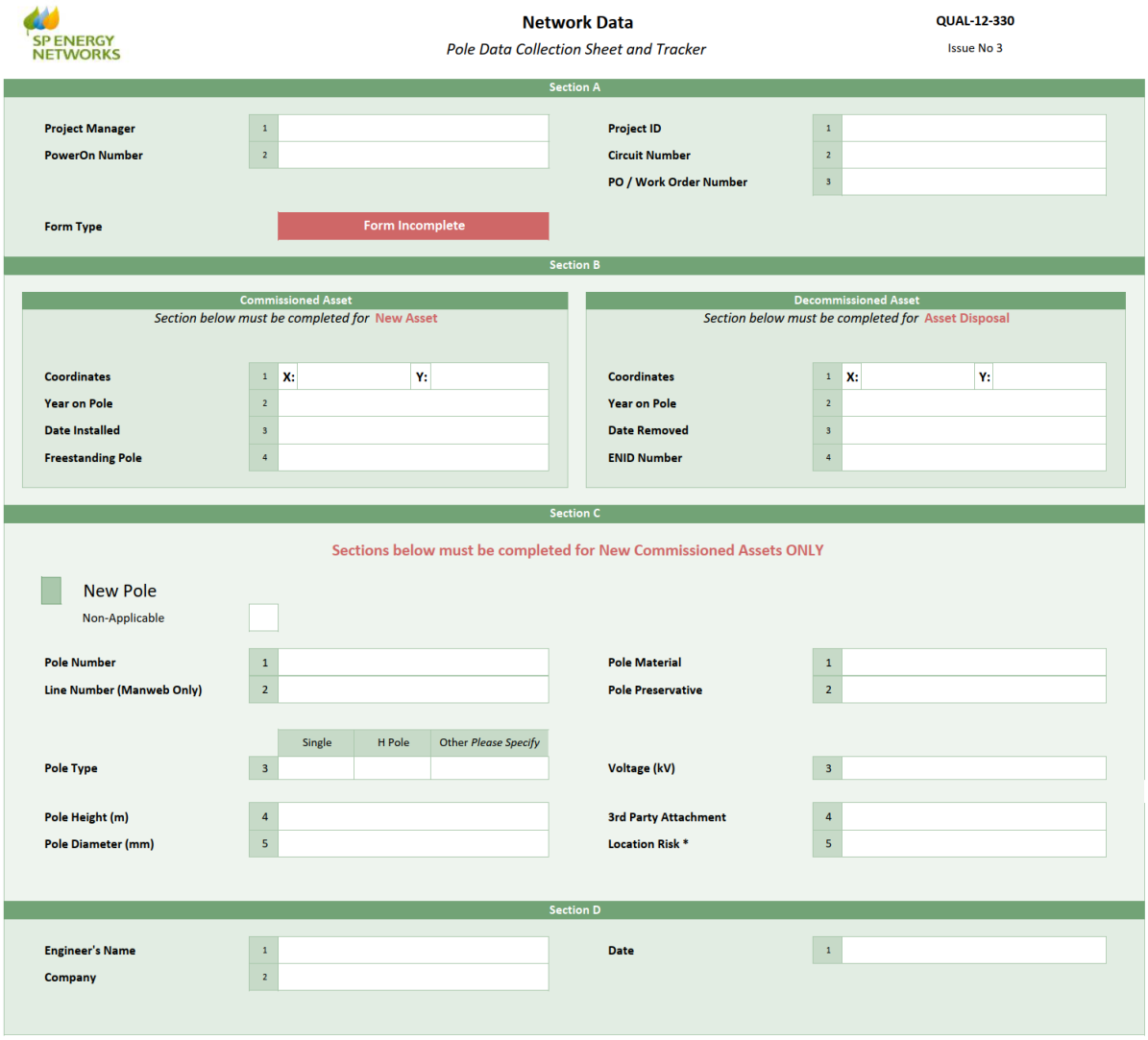
Attribute	Description
Type	Service, Straight, Pot end etc.
Working voltage	LV, 6.6kV, 11kV, 22kV, 33kV, 132kV, 275kV, 400kV, pilot
Installation date	Date
Installed by	ScottishPower/Name of contractor

APPENDIX 6: EXAMPLE OHL SKETCH

Your Name: S Woodworth	Contractor: Emerald Power Ltd	Contact Tel No: 01606 837975	Work Complete Date:	Sketch No.
Exact location of works: THE BUNGALOW, BEESTON BROOK, TIVERTON, TARPORLEY, CW6 9NH		Easting: 355,332	Northing: 360,098	
Engineer: A Urguhart	Project ID/ S9 Notification: Legacy update	INCD No.	FREP / Fault / Job No	Scale: 1 : 505

NOTE - All fields are mandatory. Returns without required information will be rejected and project completion may be delayed.

APPENDIX 7: EXAMPLE POLE DATA SHEET



SP ENERGY NETWORKS

Network Data

Pole Data Collection Sheet and Tracker

QUAL-12-330

Issue No 3

Section A

Project Manager	1		Project ID	1	
PowerOn Number	2		Circuit Number	2	
			PO / Work Order Number	3	
Form Type		Form Incomplete			

Section B

Commissioned Asset			Decommissioned Asset		
Section below must be completed for New Asset			*Section below must be completed for Asset Disposal*		
Coordinates	1	X: Y:	Coordinates	1	X: Y:
Year on Pole	2		Year on Pole	2	
Date Installed	3		Date Removed	3	
Freestanding Pole	4		ENID Number	4	

Section C

Sections below must be completed for New Commissioned Assets ONLY

New Pole

Non-Applicable

Pole Number	1		Pole Material	1	
Line Number (Manweb Only)	2		Pole Preservative	2	
		Single / H Pole / Other *Please Specify*			
Pole Type	3		Voltage (kV)	3	
Pole Height (m)	4		3rd Party Attachment	4	
Pole Diameter (mm)	5		Location Risk *	5	

Section D

Engineer's Name	1		Date	1	
Company	2				

APPENDIX 8: EXAMPLE POLE SCHEDULE – BLANK

Pole Data Collection Sheet and Tracker

QUAL-12-330

Issue No 3

Package Contents

Tab	Circuit	Zone	Primary	ENID	Work Order	Form Date	Type	System	Project Manager	Completed By
1	-			-	-	-	Form Incomplete	-	-	-
2	-			-	-	-	Form Incomplete	-	-	-
3	-			-	-	-	Form Incomplete	-	-	-
4	-			-	-	-	Form Incomplete	-	-	-
5	-			-	-	-	Form Incomplete	-	-	-
6	-			-	-	-	Form Incomplete	-	-	-
7	-			-	-	-	Form Incomplete	-	-	-
8	-			-	-	-	Form Incomplete	-	-	-
9	-			-	-	-	Form Incomplete	-	-	-
10	-			-	-	-	Form Incomplete	-	-	-
11	-			-	-	-	Form Incomplete	-	-	-
12	-			-	-	-	Form Incomplete	-	-	-
13	-			-	-	-	Form Incomplete	-	-	-
14	-			-	-	-	Form Incomplete	-	-	-
15	-			-	-	-	Form Incomplete	-	-	-
16	-			-	-	-	Form Incomplete	-	-	-
17	-			-	-	-	Form Incomplete	-	-	-
18	-			-	-	-	Form Incomplete	-	-	-
19	-			-	-	-	Form Incomplete	-	-	-
20	-			-	-	-	Form Incomplete	-	-	-

Package Summary

Sheets in Package	0
New Asset	0
Asset Replacement	0
Asset Disposal	0

APPENDIX 9: EXAMPLE POLE SCHEDULE – COMPLETED

Pole Data Collection Sheet and Tracker

QUAL-12-330

Issue No 3

Package Contents

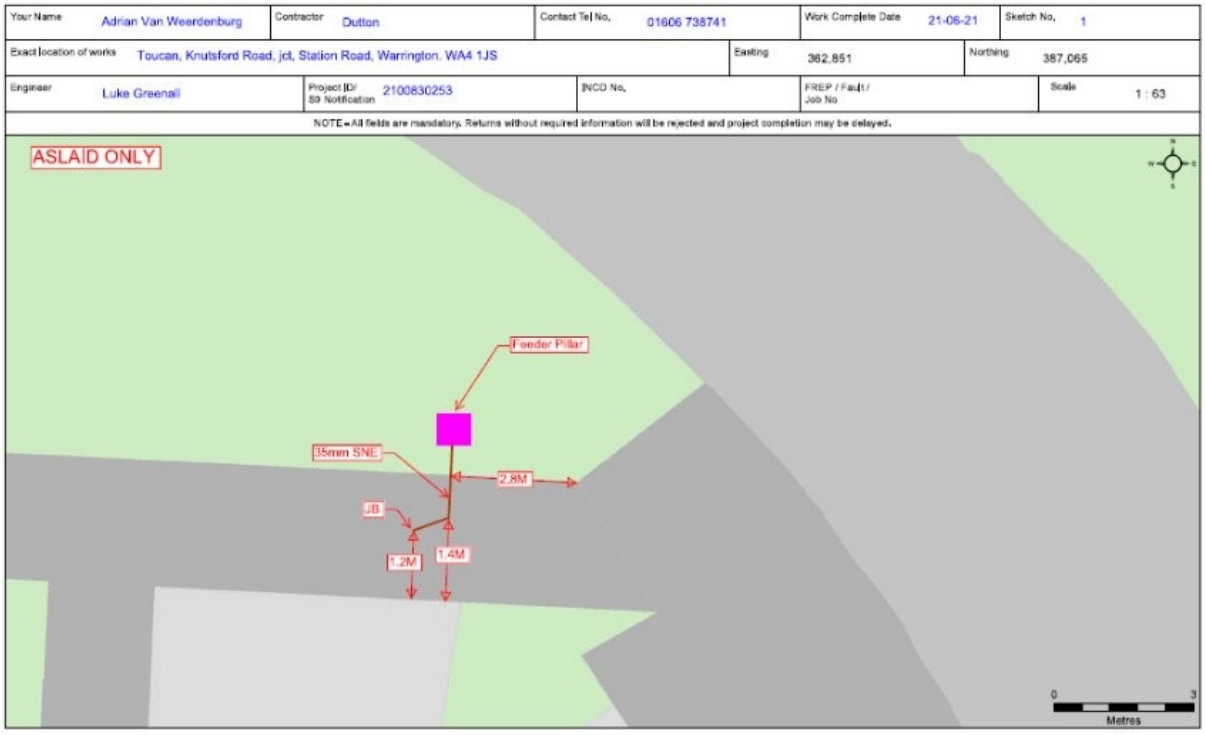
Tab	Circuit	Zone	Primary	ENID	Work Order	Form Date	Type	System	Project Manager	Completed By
1	72911			10859863	-	02/07/2019	Asset Disposal	-	Martin Maxwell	Craig Barr
2	72911			10859859	-	02/07/2019	Asset Disposal	-	Martin Maxwell	Craig Barr
3	72911			10859833	-	02/07/2019	Asset Disposal	-	Martin Maxwell	Craig Barr
4	-			-	-	-	Form Incomplete	-	-	-
5	-			-	-	-	Form Incomplete	-	-	-
6	-			-	-	-	Form Incomplete	-	-	-
7	-			-	-	-	Form Incomplete	-	-	-
8	-			-	-	-	Form Incomplete	-	-	-
9	-			-	-	-	Form Incomplete	-	-	-
10	-			-	-	-	Form Incomplete	-	-	-
11	-			-	-	-	Form Incomplete	-	-	-
12	-			-	-	-	Form Incomplete	-	-	-
13	-			-	-	-	Form Incomplete	-	-	-
14	-			-	-	-	Form Incomplete	-	-	-
15	-			-	-	-	Form Incomplete	-	-	-
16	-			-	-	-	Form Incomplete	-	-	-
17	-			-	-	-	Form Incomplete	-	-	-
18	-			-	-	-	Form Incomplete	-	-	-
19	-			-	-	-	Form Incomplete	-	-	-
20	-			-	-	-	Form Incomplete	-	-	-

Package Summary

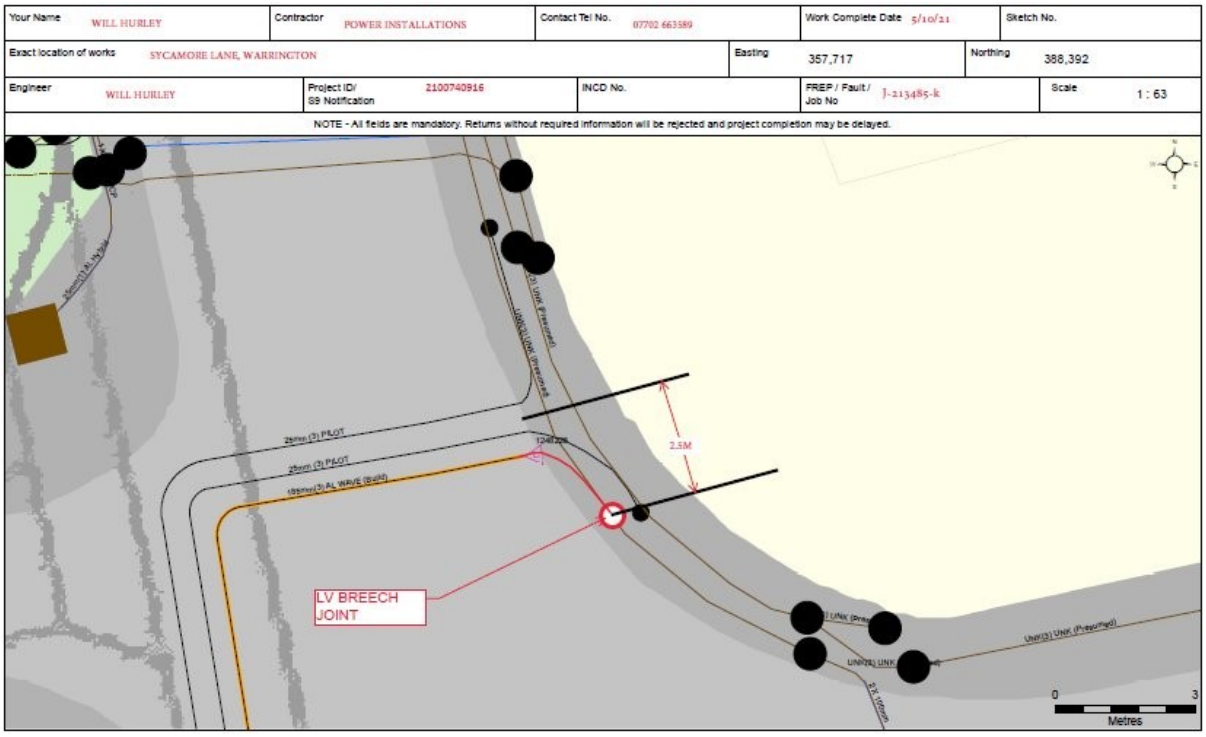
Sheets in Package	3
New Asset	0
Asset Replacement	0
Asset Disposal	3

APPENDIX 10: EXAMPLE SKETCHES

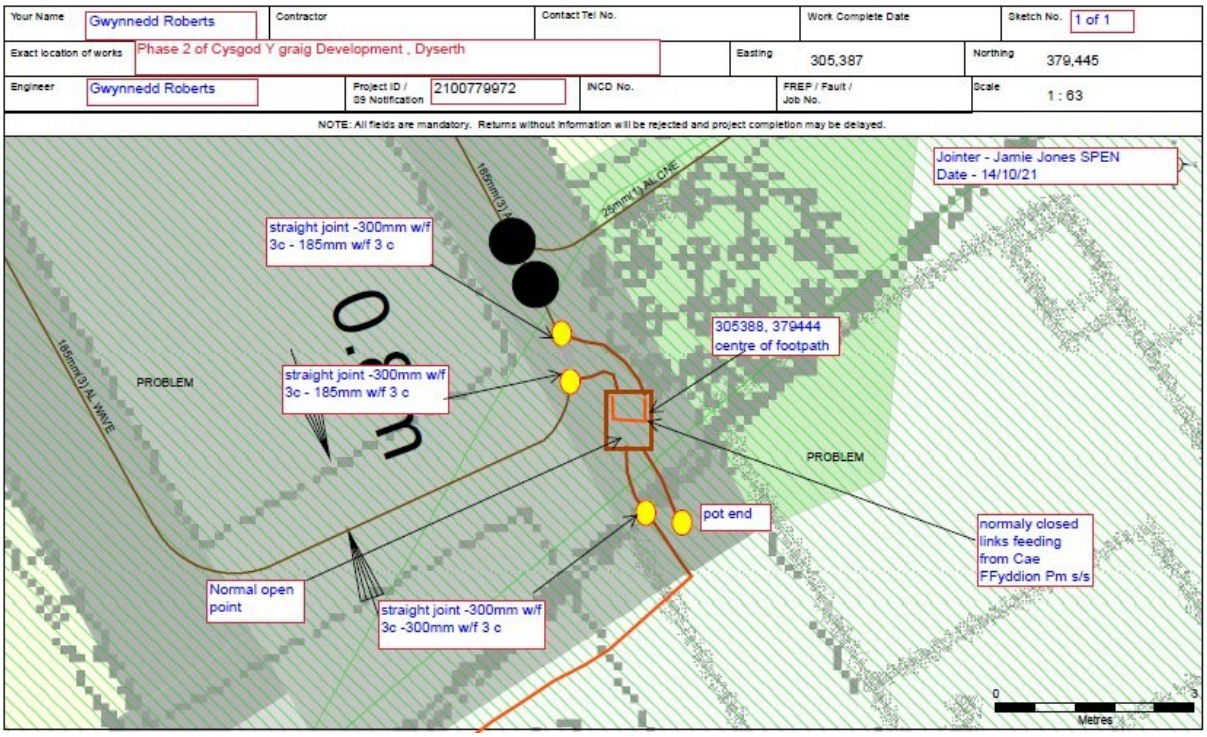
Example A



Example B



Example C


Your Name
Gwynnedd Roberts
Contractor
Contact Tel No.
Work Complete Date
Sketch No.
1 of 1
Exact location of works
Phase 2 of Cysgod Y graig Development , Dyserth
Easting
305,387
Northing
379,445
Engineer
Gwynnedd Roberts
Project ID / 09 Notification
2100779972
INCD No.
FREP / Fault / Job No.
Scale
1 : 63
NOTE: All fields are mandatory. Returns without information will be rejected and project completion may be delayed.
Jointer - Jamie Jones SPEN
Date - 14/10/21
straight joint -300mm w/f 3c - 185mm w/f 3 c
straight joint -300mm w/f 3c - 185mm w/f 3 c
305389, 379444 centre of footpath
PROBLEM
PROBLEM
pot end
normaly closed links feeding from Cae FFyddion Pm s/s
Normal open point
straight joint -300mm w/f 3c -300mm w/f 3 c
185mm(3)AL WAVE
25mm(1)AL CNE
0
3
Metres

Example D

Your Name		Contractor		Your contact telephone number		Date		Sketch No.	
Exact location of works						Easting		Northing	
Engineer/Senior Authorised Person		Work Order No or Fault No		Scope Order no.					

Note - All fields are mandatory requirements, returns without information shall be rejected and payments could be withheld. Requirement also to choose one option each in Work undertaken for and Reason for Work below

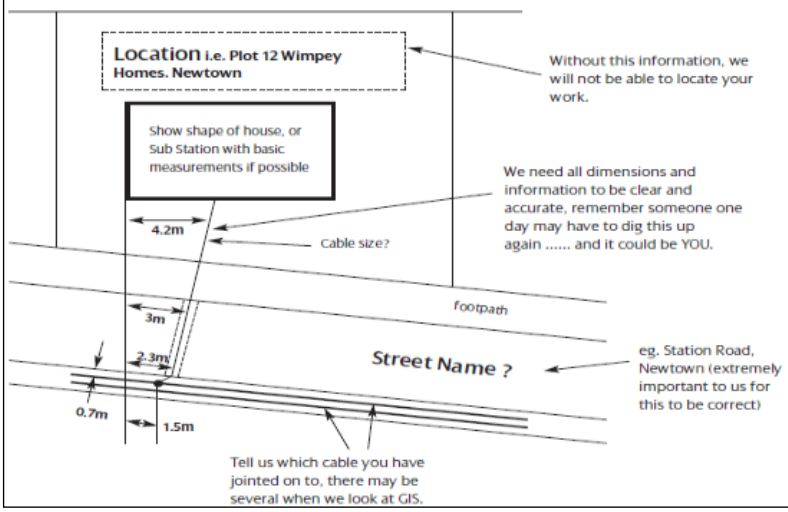
SP ENERGY NETWORKS

Work undertaken for:				Asset Unit Accounting Code (AUA) :			
☐ Distribution Programmes	☐ Network Operations - Distribution	☐ Connections - Demand	☐ Modernisation	☐ ESQCR
☐ Major Projects	☐ Network Operations - Transmission	☐ Connections - Generation	☐ Reinforcement – Customer Driven	☐ AONB
☐ Network Connections	☐ Network Technical Services	☐ Diversion	☐ Reinforcement – Fault Level	☐
		☐ Faults	☐ Reinforcement – General	☐

Points to note when taking a sketch – help us to "get it right"

The following notes should be followed to produce a good quality cable sketch.

What is your name? We may need to ask you a question about your sketch...
What is the date? We need to know when you did this work...
Job Location? We need to know where you did this work...
Reason for Work? We need to know why you did this work...
Work undertaken for? We need to know who you did this work for...



Useful things to Remember

Help us by adding as much information as you can observe.

Always take measurements from permanent points e.g. houses, roads, Pylons etc.

Never STEP IT OUT, all your legs are different lengths (use your tape).

Please tell us the feeder names and if it is LV, the phasing.

Try not to take your measurements from windows, doors, lamp posts etc as these are NOT shown on our maps.

If the depth is abnormal, please tell us what it is.

If a cable goes through a duct, please indicate.

Please use the UMV plan provided by your team leader, if this is not available use the sketch pad or blank sheets available.

Where a jointers sketch pad is not used to submit data, all relevant details must still be provided to Data Management.

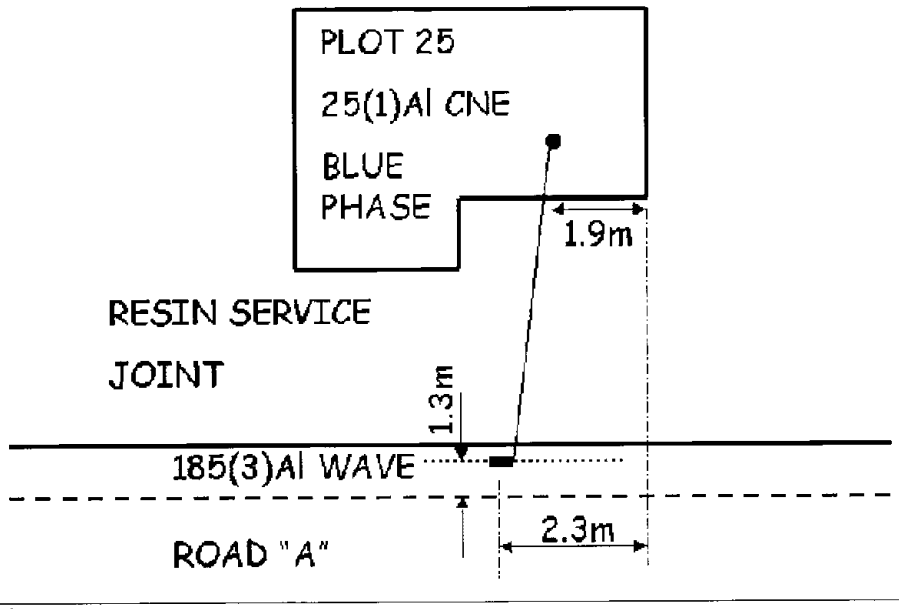
Example E

Asset Update Record Sheet

Accurately capturing service information

DATA COLLECTION - ASSET UPDATE RECORD

Name: John Smith | Business Unit: JV Co. | Date:10/05/01 | Location: Wimpey Ph5, Anytown | Work Order No: 123456

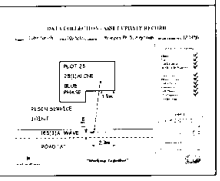


Type of Work:

- ☐ Diversion
- ☐ Fault repair
- ☐ Reinforcement
- ☐ Modernisation
- ☑ New connection
- ☐ Disconnection

I have noted the following:

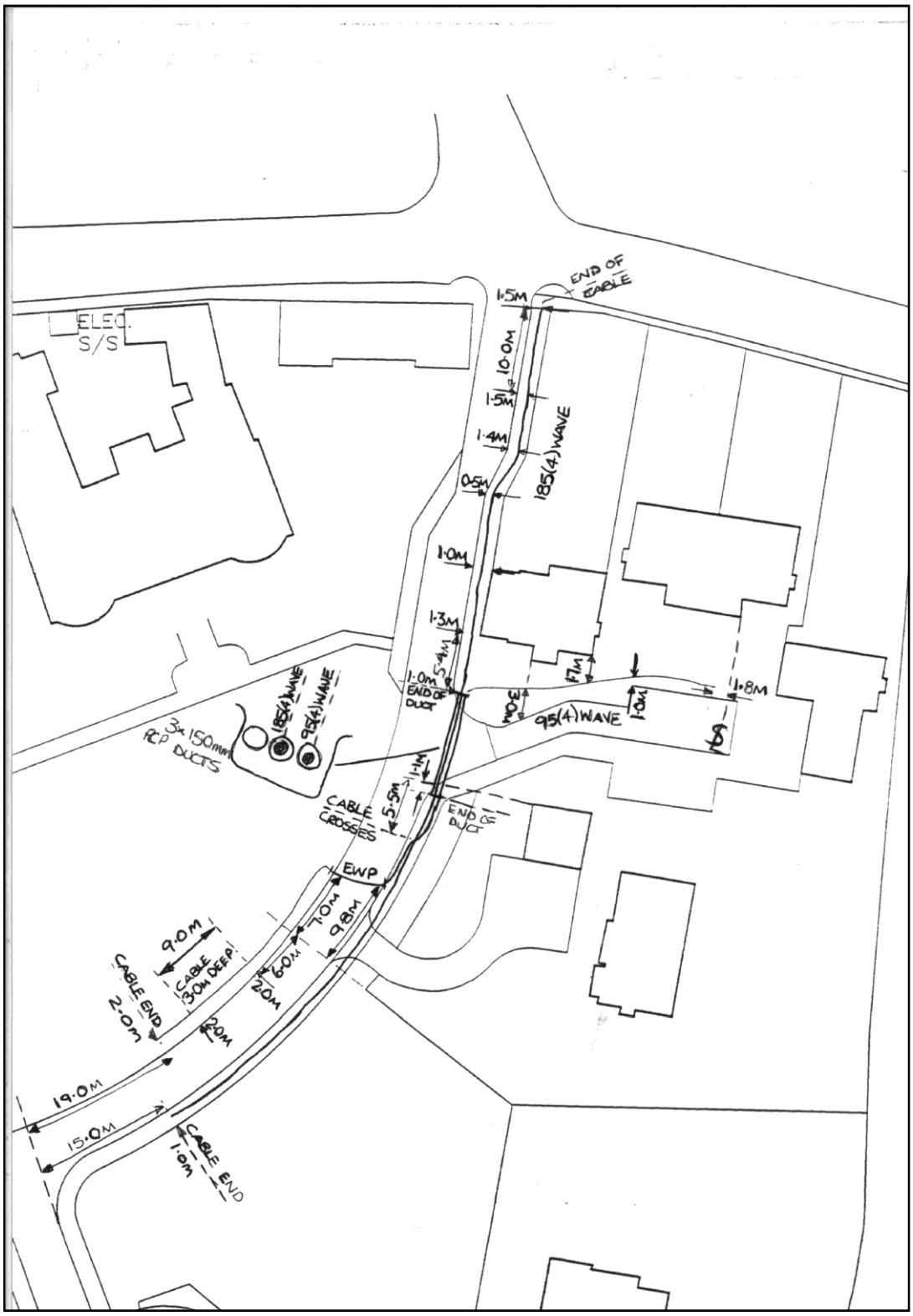
- ☑ Name
- ☑ Date
- ☑ Job Location
- ☑ Work Order Number
- ☑ Joint Type
- ☑ Phase Colours
- ☑ Cable Sizes
- ☑ Dimensions
- ☑ Site Name
- ☑ Plot Number
- ☐ Feeder Name



ScottishPower

"Working Together"

Example F

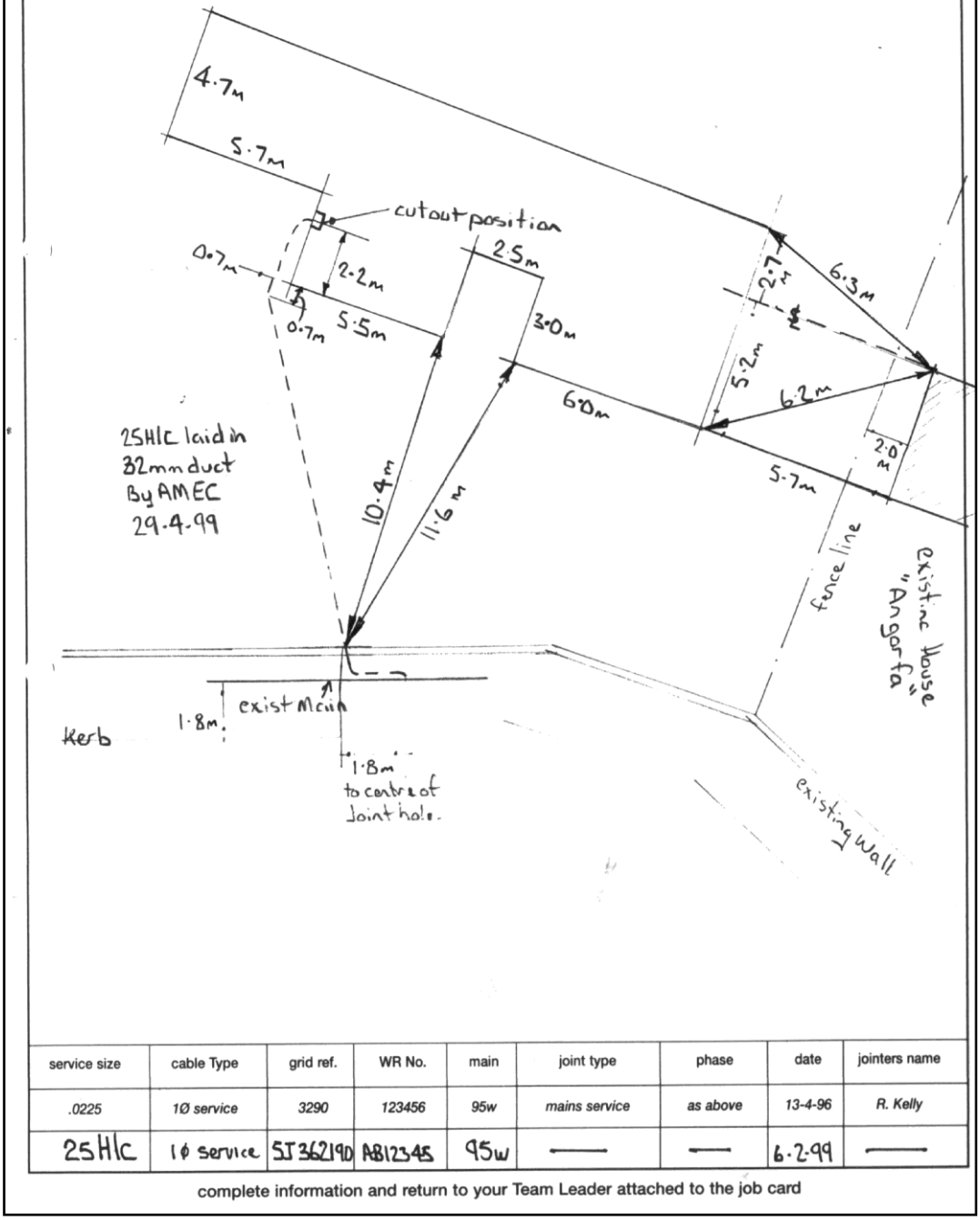


LV cable installation within a new development

Example G

ADDRESS	14 The Links, Sycamore Lane, Wendale.
DESCRIPTION	New supply to single dwelling

All measurements are metric
non standard depths of joints and cables to be recorded

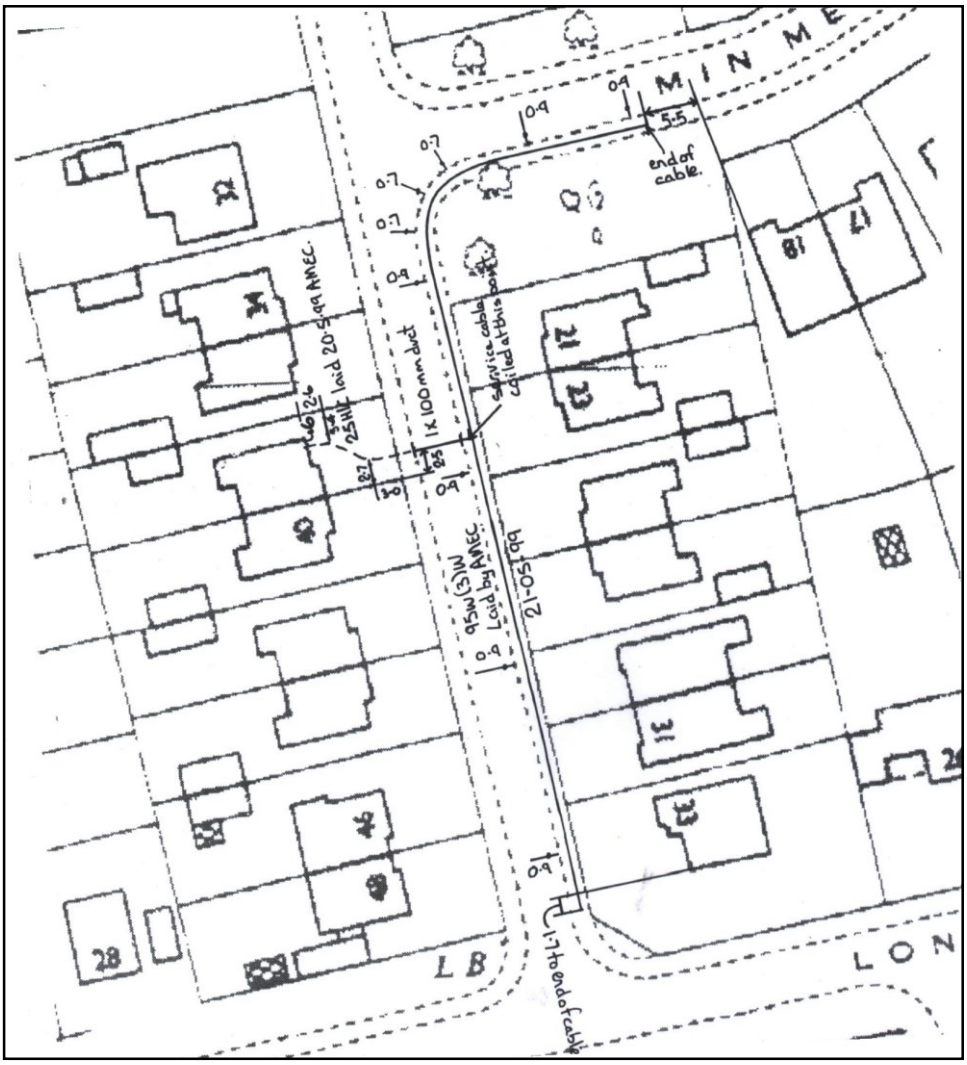


service size	cable Type	grid ref.	WR No.	main	joint type	phase	date	jointers name
.0225	1Ø service	3290	123456	95w	mains service	as above	13-4-96	R. Kelly
25HIC	1ø service	SJ362190	AB12345	95w	—	—	6.2.99	—

complete information and return to your Team Leader attached to the job card

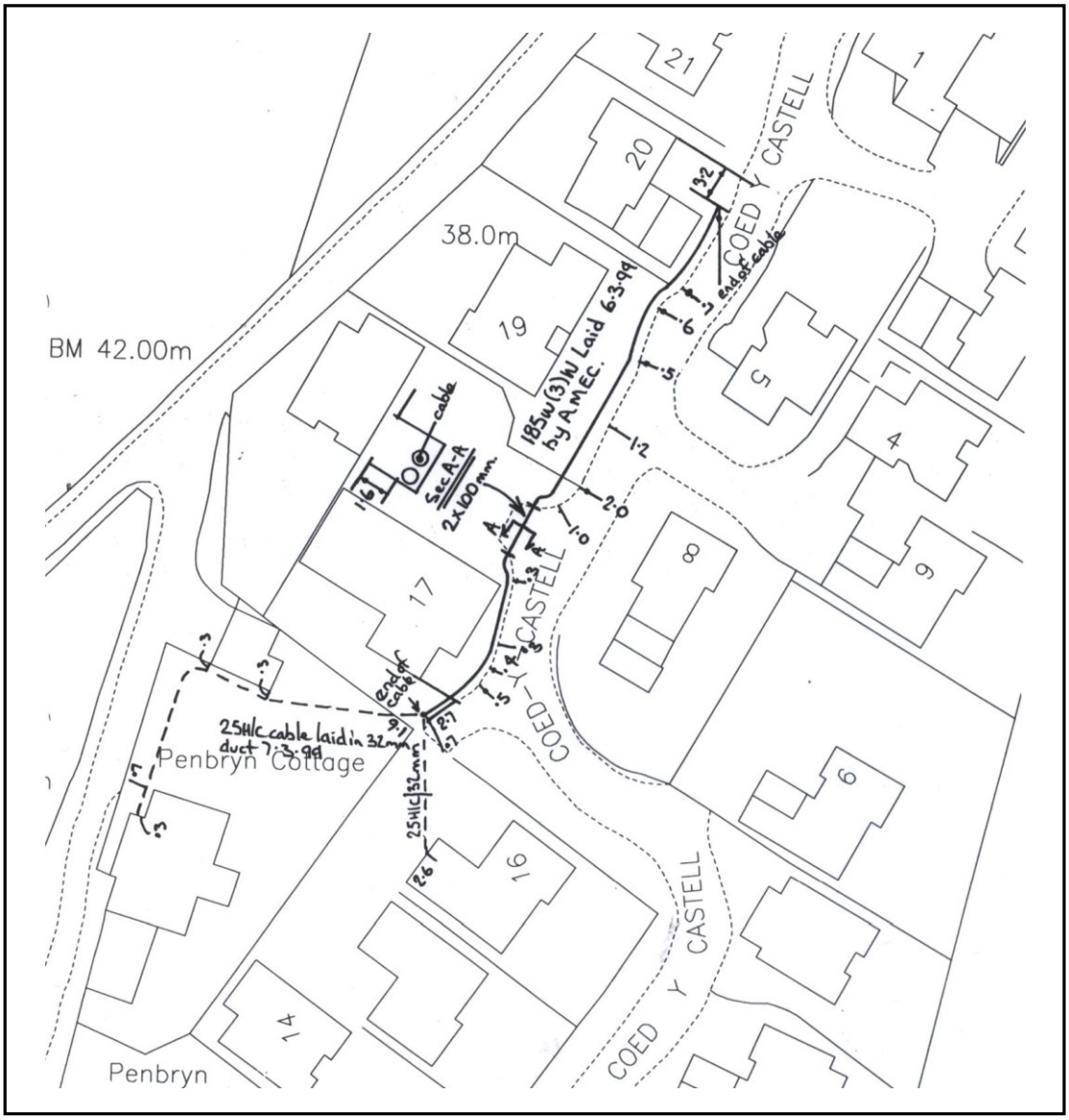
LV cable installation within a new development

Example H



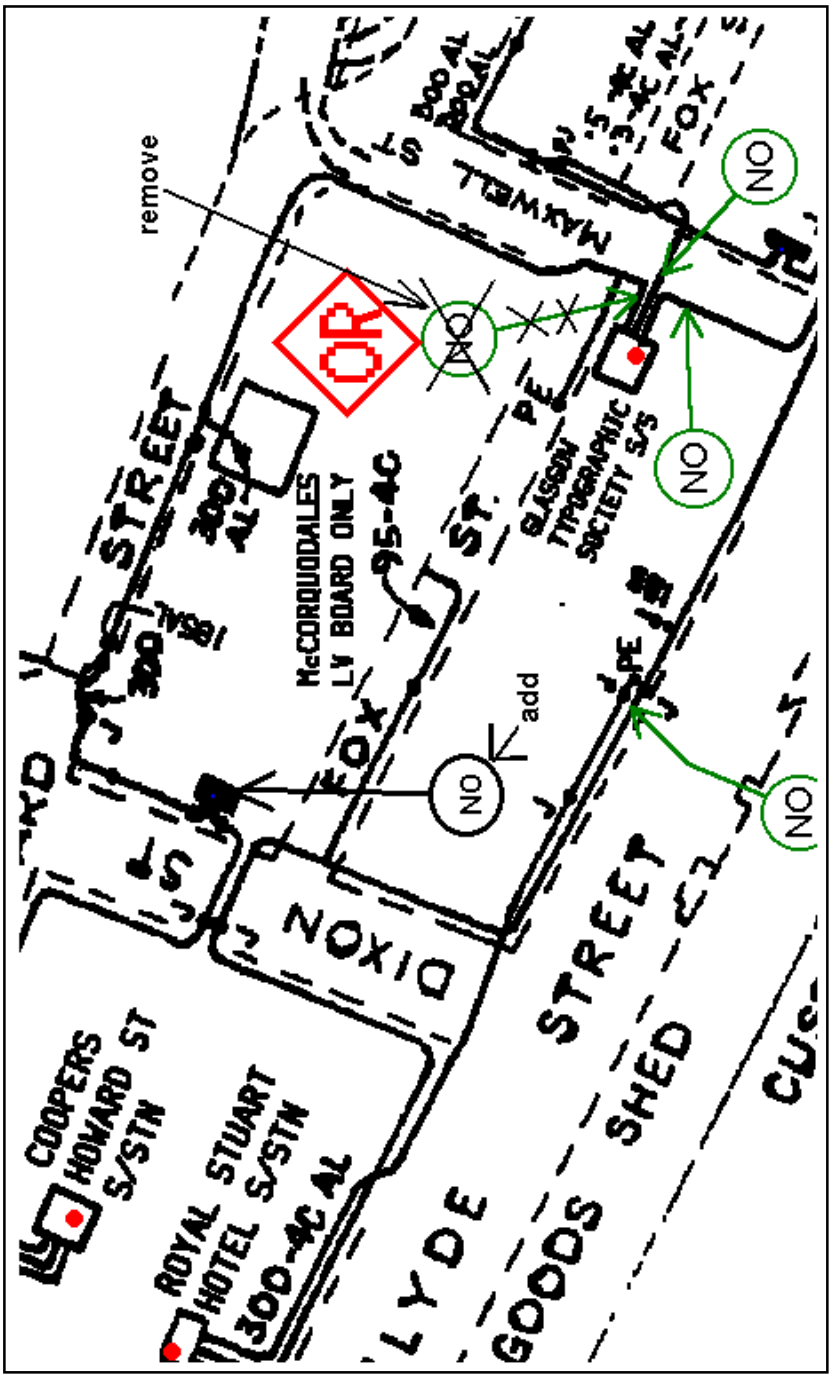
LV cable installation through existing estate

Example I



LV cable installation through new estate

APPENDIX 11: EXAMPLE SKETCH INDICATING ALTERATION TO OPEN POINTS



APPENDIX 12: SUBSTATION SWITCH ATTRIBUTES

This Appendix is a further detail for the description given in section 14.

When submitting detail sheets for new substations, it is extremely important to include new circuit names. As can be seen in the diagram below, the LH and RH switch attributes for the existing substations on either side of the new one have now changed and must be updated within Plant and Circuits.