

Site Quality Assurance Inspection Regime for Connections Extension Assets

Background

Northern Powergrid undertakes sample quality assurance inspections of assets installed by Independent Connection Providers (ICPs) prior to adoption and also works delivered by our own staff and contractors. Inspections are carried out by our enhanced audit team within the Field Safety section of our Safety, Health and Environment Directorate and are independent of the Northern Powergrid's connections delivery function.

Furthermore, we have also appointed Lloyd's Register to undertake independent quality inspections of a sample of new connections works undertaken by both ourselves and ICPs. The service from Lloyd's Register independently verifies compliance with installation specifications and allows us to compare their findings against the inspection results of the Northern Powergrid enhanced audit team.

Inspection Scope, Methods and Reports

Inspections, whether they are carried out by our own enhanced audit team or Lloyd's Register, are undertaken using hand held devices with the quality assurance elements of the inspection form being identical, irrespective of who is undertaking the connections work, be it on behalf of Northern Powergrid, our contractors or an ICP. However, for work being undertaken by our own staff or contractors additional safety elements are also inspected to meet our obligations regarding health and safety legislation. ICP work sites are not under the control of Northern Powergrid and it is therefore the duty of the ICP to have systems in place, such as their own inspections and audit regimes, to ensure compliance with their health and safety obligations.

All ICP site inspection reports are sent by email to the nominated ICP site manager and the appointed Northern Powergrid delivery engineer by the Field Safety Administrator.

Where non-conformances are identified, these shall be clearly communicated to the ICP. Where an ICP disputes a non-conformance or non-conformances, the nature of the dispute shall be notified to the appointed Field Safety Administrator.

Where non-conformances are disputed it shall be the intention of all parties to achieve a resolution as quickly as possible. Where necessary the Northern Powergrid site disputes escalation process may be utilised.

Inspection Areas

Site inspections shall ensure assets installed by ICPs for adoption by Northern Powergrid meet compliance in the following general areas:

- Installed and constructed in accordance with the Northern Powergrid approved design or in the case where the ICP has elected to self-approve, to their submitted design
- Satisfies Northern Powergrid installation policies
- Meets legislative requirements including compliance with Electricity Safety, Quality and Continuity Regulations

Inspection Volumes

The number of inspection visits undertaken will be dependent upon two factors:

1. The scale and type of work being undertaken.
2. The inspection level that the ICP is operating at.

Table 1 shall be used to calculate the number of inspections.

Inspection Levels

Northern Powergrid reserves the right to inspect any works undertaken by an ICP that we are to adopt irrespective of their operating level. Additional inspections will not affect the inspection charges detailed in this document.

ICPs shall move between operating levels based on performance. Level 1 will attract the highest level of inspections and level 3 the lowest. A review of ICPs operating levels will be undertaken twice a year, and a decision to move an ICP to a new operating level will be considered based on past inspection performance. The decision to move an ICP between operating levels will be at our discretion. Persistent and routine failures will trigger an immediate review of an ICPs operating level. The ICP's performance and operating level (including any changes) will be confirmed to the ICP in writing twice a year.

New ICPs operating in the Northern Powergrid Area

ICPs new to operating in the Northern Powergrid area will start at level one. Subject to satisfactory performance for a minimum of six months consideration will be given to movement within the operating level structure at the next review.

Movement between Operating Levels

As a guide, the following criteria will be used to move ICPs between operating levels. The matrix in Table 2 provides guidance on what constitutes a minor or a major non-conformance. Each major non-conformance will attract a score of 1. Each minor non-conformance will attract a score of 0.5.

Movement between operating levels will be based on average number of issues per inspection. If the ICPs average number of issues per inspection is less than 0.75 and satisfies the criteria of movement between operating levels (as follows) then the ICP will be moved to the operating level (Level 1, 2 or 3) commensurate with their performance. If the ICPs average number of issues per inspection in between 0.75 and 1.25 then their inspection level will remain unchanged. However if the ICPs average number of issues per inspection is greater than 1.25 then the ICP may be demoted to a lower level.

The ICPs inspection operating level will be determined as follows whilst also satisfying the criteria detailed in the table below;

Inspection Operating Level	Performance Banding
Level 1	1.25 or greater average score or new ICP
Level 2	Between 0.75 and 1.24
Level 3	Less than 0.75

Level 1 – ICPs new to operating in the Northern Powergrid area will start at this level. Subject to satisfactory performance for a minimum of six months consideration will be given to movement to the appropriate level at the next review.

Level 2 – Movement to level 2 will be subject to satisfactory performance using the following criteria as a guide:

- Having received 10 or more inspections (excluding abortive visits),
- Achieve an inspection performance rate in line with the above table.

Level 3 – Movement to level 3 will be subject to satisfactory performance using the following criteria as a guide:

- Having undertaken 5 or more inspections (excluding abortive visits),
- Achieve an inspection performance rate in line with the above table

ICPs can move multiple operating levels, both up and down, based on performance during each six month review.

Inspection Charges

Previously, inspection charges have been applied at quotation stage. Based on feedback from ICPs, inspection charges are now made retrospectively. This will allow for accurate inspection charges to be made based on the actual number of site inspections undertaken, no more and no less.

ICPs will be notified and invoiced for inspection charges on a quarterly basis based on the actual number of inspections in the previous three months.

ICPs can use the guidance provided in table 1 to calculate the maximum number of inspections that will be undertaken on their project and the non-contestable charges that will be levied quarterly and post-inspection.

We have undertaken a review of our inspection charges to ensure it is reasonable and accurately recovers our reasonable costs. Our charge will increase to £214 + VAT per site inspection from 1st July 2024.

Daily Whereabouts

We plan our inspection visits based on daily whereabouts information provided by ICPs. We have already communicated with ICPs the need to provide more detailed whereabouts information to allow Northern Powergrid the opportunity to inspect appropriate elements of works being undertaken and to avoid abortive visit charges. This will allow the reduced number of site inspections to be planned and undertaken as efficiently and effectively as possible to the benefit of all parties.

Daily whereabouts should provide a minimum of 5 working days' notice of any electrical related works in the Northern Powergrid license area. The daily whereabouts must detail which day, or days, ICPs anticipate undertaking a given task, such as excavation, cable installation, jointing or reinstatement. The daily whereabouts information should indicate the day each element is likely to be undertaken. For example, Day 1 – excavation, Day 2 - cable installation, Day 3 – cable jointing and Day 4 – Reinstatement.

This extra level of detail will ensure Northern Powergrid have the opportunity to inspect appropriate elements of works. If there are any changes to a previously issued daily whereabouts, or cancellation of works, then we require a minimum of 2 working days' notice. Where a Northern Powergrid auditor arrives on site to witness a cable being installed as indicated on the daily whereabouts and that work is not being undertaken, then an aborted visit will be recorded and an aborted inspection charge levied on the ICP. However, we recognise that programmes of work and whereabouts are subject to change due to unforeseeable factors. In these instances, an ICP should inform us of any changes to your works programme via telephone to the Field Safety office on 01977 605975 with a follow up email, to field.safety@northernpowergrid.com detailing any required changes or cancellations.

Northern Powergrid will always aim to operate a flexible approach to accommodate unforeseen changes to ICPs work programmes where possible.

Additional Inspections and Charges

There may be occasions when additional site inspections are required, therefore additional retrospective inspection charges will be charged to an ICP.

Also, any non-conformances found that require an additional site inspection to ensure the non-conformances have been remediated to the required standard.

On a case by case basis we may accept photographic evidence that the remediation has taken place to the required standard and therefore avoiding the need for an additional inspection visit and charge.

Site Disputes Escalation Process

Northern Powergrid also operates a formal site disputes escalation process ensuring that any dispute in relation to installation, specification policies and practices are quickly raised at an appropriately defined level within Northern Powergrid. The purpose of this escalation process is to ensure that all parties work to co-operatively to resolve issues effectively and efficiently whilst ensuring quality of work and safety standards are maintained. Details of the site disputes escalation process can be found on our internet site.

Table 1

QA Inspection Levels				
Activity	Inspection Unit	Level 1	Level 2	Level 3
Service installation work including street lighting	1 unit = 5 service installations	20%	10%	5%
Service jointing	1 unit = 5 Joints	20%	10%	5%
Low Voltage Mains installation	1 unit = 250m of cable installation	50%	20%	10%
Low Voltage jointing	1 Unit = 3 Joints	50%	20%	10%
High Voltage mains installation	1 unit = 250m of cable installation	50%	20%	10%
High Voltage jointing	1 unit = 1 Joint	50%	20%	10%
High Voltage Switchgear/Transformer Installation	1 Unit = 1 Substation	100%	50%	20%
Switchgear/Transformer Pre Commissioning checks	1 Unit = 1 Substation	100%	50%	20%
Overhead Line Construction	1 unit per Scheme	100%	50%	20%
Extra High Voltage - Agreed on project by project basis				

Table 2

ICP / IDNO Quality Assurance Inspection Conformance Matrix						
Issue Number	Identified Issue	Category	Grade 1 (no issues)	Grade 2 (Minor)	Grade 3 (Major)	Notes
1	No Issues	No issues	X			Everything OK
2	Inaccurate whereabouts or works undertaken not in accordance with whereabouts provided	Whereabouts		X		Aborted Visit
3	Not notified of works but call off received or work already in progress	Whereabouts			X	ICP Frameworks agreement
4	Shallow LV Cables / Ducts (no mitigation)	Cable			X	Breach of ESQCR & NPg policy
4a	Shallow LV Cables / Ducts (with agreed mitigation)	Cable		X		Recognising circumstances where depth reduction may be necessary but with agreed mitigation measures.
5	Shallow HV Cables / Ducts (no mitigation)	Cable			X	Breach of ESQCR & NPg policy
5a	Shallow HV Cables / Ducts (with agreed mitigation)	Cable		X		Recognising circumstances where depth reduction may be necessary but with agreed mitigation measures.
6	Earth shorting caps not applied at cable ends	Cable		X		NPg policy
7	Incorrect ducts (too tight or misleading indication of contents - colour wrong)	Cable			X	NPg policy
7a	Incorrect ducts (not to spec but sound construction and correct NJUG colour)	Cable		X		NPg policy

8	No load test for winch	Cable		X		
9	Unable to verify depths or NJUG position due to no kerbs or back edges	Cable			X	NPg policy
10	Incorrect bending radius	Cable			X	NPg policy
11	Excessive loops / coils of cable installed unnecessarily	Cable			X	NPg policy
12	Rubble and stones in trench	Cable		X		NPg policy - NPS002
13	Non fine sand used	Cable		X		NPg policy - NPS002
14	Cables not laid in accordance to NJUG	Cable			X	NJUG & NPg Policy
15	No sand used	Cable			X	NPg policy
16	Over deep cable installation>150mm	Cable			X	
17	Naming & Labelling not fitted or incorrect	Cable			X	
18	Incorrect terminations or joints being used	Cable			X	NPg policy
20	Incorrect cable type laid	Cable			X	
21	Incorrect spacing between ducts / cables	Cable			X	
22	Incorrect spacing from other utilities	Cable			X	
23	No approved drawing on site	Design		X		NPg policy
24	Installation not as per approved drawing (revised drawings in drafting)	Design		X		Unless sanctioned by engineer and new drawing in process
24a	Installation not as per approved drawing (no revised drawings presented)	Design			X	
25	Earth rods not correctly installed	Earthing			X	NPg policy
26	Incorrect separation on earth nest	Earthing			X	NPg policy
27	Switchgear not installed correctly	HV Plant			X	

28	Unswitched fused spur not fitted on outside of IDNO LV cabinet for EFI	HV Plant		X		NPg policy
29	CT Metering Panel test certificates and installer details not provided	Process		X		NPg policy
30	Switchgear test certificates not provided for future adopted assets	Process		X		NPg policy
31	Handover certificate not provided or incomplete	Process			X	NPg policy
32	Meter tails entering cabinet in wrong position i.e. not on right hand side	Service Position		X		NPg policy
33	Service cable entering cabinet in wrong position i.e. not bottom left	Service Position		X		NPg policy
34	Meter cabinet not fixed/secure	Service Position		X		NPg policy
35	Substation not found to be water tight, secure and trench covers fitted	Substation			X	Breach of ESQCR & NPg policy
36	Indoor substation not fitted with adequate power and lighting	Substation		X		Breach of ESQCR & NPg policy
37	No tile tape installed	Tile Tape			X	NPg policy
38	Incorrect tile tape on LV / HV cables	Tile Tape			X	NPg policy
39	NPg tape used on IDNO asset	Tile Tape			X	
40	Damage to cable/switchgear/ link boxes and any other assets to be adopted by NPg	Assets			X	