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Version:-	5.0	Date of Issue:-	May 2022		Page	1	of	15

NPS/001/029 – Technical Specification for Wood Pole and Tower Anti-Climbing Guards

1. Purpose

The purpose of this document is to detail the requirements of Northern Powergrid in relation to anti-climbing guards and brackets for wood poles and tower lines.

This document supersedes the following documents, all copies of which should be destroyed.

Document Reference	Version	Date	Title
NPS/001/029	4.0	Jan 2018	Technical Specification for Wood Pole and Tower Anti-Climbing Guards

2. Scope

Anti-climbing guards and brackets shall meet the latest requirements of the Energy Networks Association Technical Specification 43-90 – Anti-Climbing Measures and Safety Signs for Overhead Lines. The barbed wire fitted to pre-wrapped guards shall be compliant with the latest version of Northern Powergrid specification NPS/001/015 – Technical Specification for Barbed Wire.

This specification contains the following appendixes:

- Appendix 1 – Schedule of Items and Drawings
- Appendix 2 – Self Certification Conformance Declaration
- Appendix 3 – Addendum to Suppliers Requirements
- Appendix 4 – Technical Information Check List

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3. Technical Requirements

3.1. Steel Items

In general items shall comply with latest version of the Energy Networks Association Technical Specification (ENA TS) 43-95 - Steelwork for Overhead Lines.

Unless otherwise specified the steel used in the manufacture of items to this standard shall be to the latest version of BS EN 10025 Grade S.275JR. Bending of flat straps can be carried out cold then stress-relieved at 600°C minimum or alternatively hot bent. Welding shall be carried out in accordance with the latest version of BS EN 1011 Part 1. After welding and before galvanising, welds shall be thoroughly cleaned to remove slag and splatter, particular attention being paid to the toes of the welds and to the prevention of entrapment of slag and splatter. The preferred method of cleaning welds before galvanising is by sandblasting.

All ferrous materials shall be hot dip galvanised in accordance with the latest version of BS EN 1461 after fabrication.

3.1.1. Pre-Wrapped Gates and End Frames

Pre-wrapped gates and end frames shall be suitable for all towers except small lattice masts. The gates and end frames shall be designed to fit securely to a tower so as to provide impediment to trespassers. There shall be no unprotected space greater than 230mm within the gate or end frame. Once installed the gates and end frame shall be suitable to be wrapped with additional barbed wire as shown in the latest version of ENA TS 43-90 figures 19 and 20.

The gates shall be designed to open upwards and shall be stable in the open position and not liable to inadvertent closing. Gates shall be capable of being secured by Northern Powergrid assessed devices such as padlocks or M12 galvanised nut and bolt.

3.1.2. Wood Pole Guard Ring

Wood pole guard rings and associated flat bars shall be pre-wrapped with barbed wire as shown in drawings 1091010408 Sheet 8 and 19.

3.2. Barbed Wire

Barbed wire pre-wrapped on anti-climbing guards shall be in accordance with the latest version of the Energy Networks Association Technical Specification (ENA TS) 43-90, manufactured in accordance with BS EN 10223 and galvanised to BS EN 10244. Barbed wire shall be 2 PLY with a 2.5mm diameter and have four pointed barbs. The barbs shall have a 2mm diameter and be 12.5mm in length. The spacing between the barbs shall not exceed 50mm. It shall be supplied in 100 metre lengths on a reel equipped with a handle.

3.3. Fasteners and Fixings

Fasteners and fixings used in the assembly or fitting of anti-climbing guards shall meet the requirements of the latest version of the Energy Networks Association Technical Specification ENA TS 43-96 – Fasteners and Washers for Wood Pole Overhead Lines.

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4. References

4.1. External Documentation

The products described within this specification shall comply with the latest versions of the relevant International Standards, British Standard Specifications and all relevant Energy Networks Association Technical Specifications (ENATS) current at the time of supply.

Reference	Title
BS EN 10025: 2019	Hot rolled products of structural steel
BS EN 1011 Part 1: 2009	Welding. Recommendations for welding of metallic materials. General guidance for arc welding
BS EN 10223 – 1: 2012	Steel wire and wire products for fences. Zinc and zinc alloy coated steel barbed wire
BS EN 10244 – 2: 2009	Steel wire and wire products. Non-ferrous metallic coatings on steel wire. Zinc or zinc alloy coatings
BS EN 1461: 2009	Hot Dipped Galvanised Coating on Fabricated Iron or Steel Articles
ENA TS 43-90 Issue 7: 2021	Anti-climbing Measures for Safety Signs for Overhead Lines
ENA TS 43-95 Issue: 6: 2021	Steelwork for Overhead Lines
ENA TS 43-96 Issue 2: 1986	Specification for fasteners and washers for wood poles overhead lines

4.2. Internal Documentation

Reference	Title
NPS/001/015	Technical Specification for Barbed Wire

4.3. Amendments from Previous Version

Reference	Description
3.0 Technical Requirements	Version and date reference removed from standards
4.1 External Documentation	Version and date reference updated
6.0 Authority of Issue	Template updated

5. Definitions

Term	Definition
n/a	n/a

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6. Authority for Issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Liz Beat	Governance Administrator	13/04/2022

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period - This document should be reviewed within the following time period.

Standard CDS review of 3 years	Non Standard Review Period & Reason	
No	Period: 5 Years	Reason: Update will be dictated by contact renewal date or any significant changes in the specification or documents referenced.
Should this document be displayed on the Northern Powergrid external website?		Yes
		Date
Steven Salkeld	Policy and Standards Engineer	19/04/2022

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Ged Hammel	Senior Policy and Standards Engineer	14/04/2022
Joe Helm	Policy and Standards Manager	19/04/2022

6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Paul Black	System Engineering Manager	28/04/2022

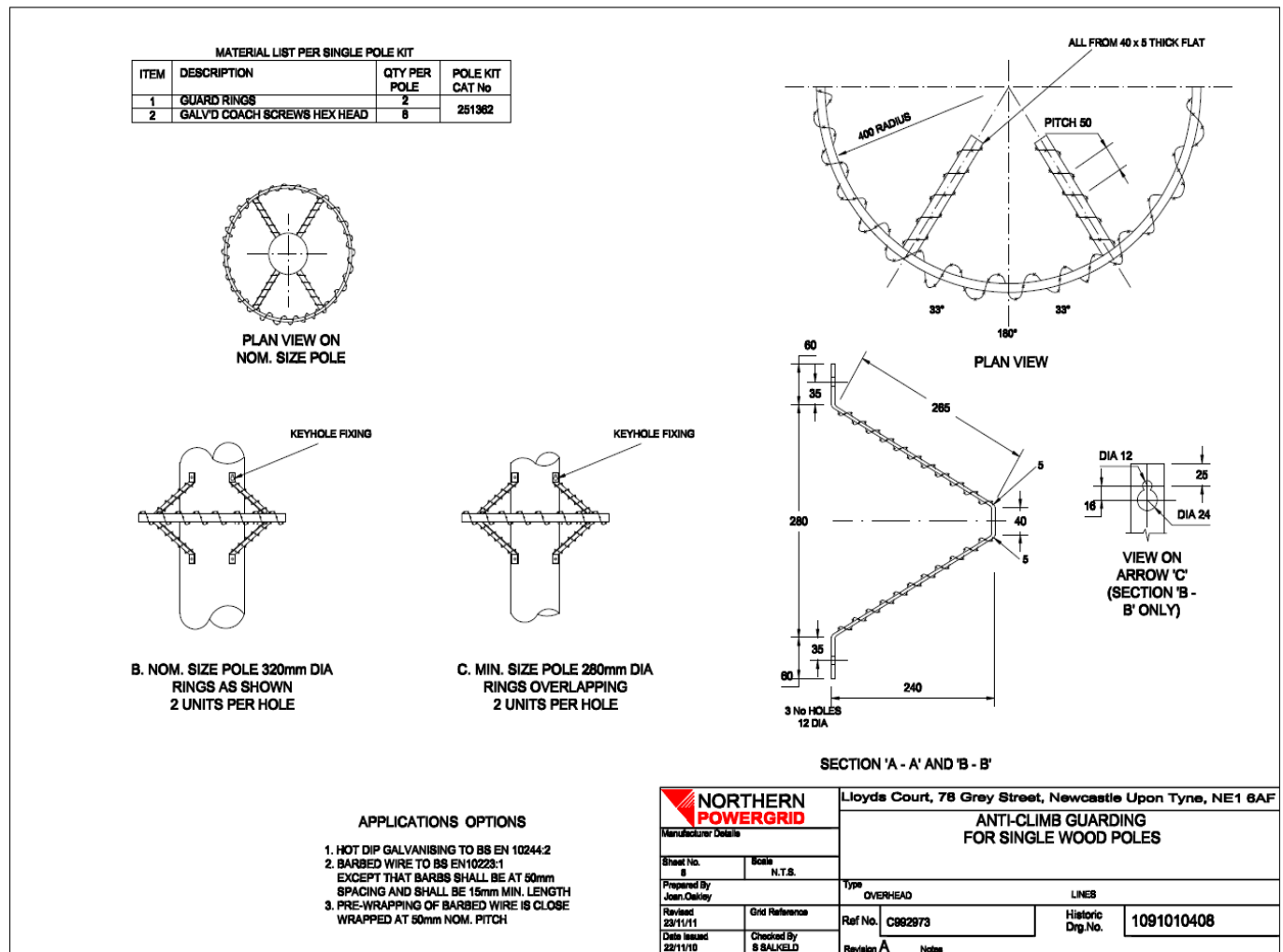
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Appendix 1 - Schedule of Items and Drawings

Commodity Code	Description	Drawing Number
251362	Anti-Climbing Guard for Single Wood Poles – Pre-Wound with Barbed Wire (kit comprising of two half guards and 8 coach screws)	1091010408 Sheet 8
244975	Anti-Climbing H Pole Strap (1.8 Meter) – Pre-Wound with Barbed Wire	1091010408 Sheet 19
241337	Anti-Climbing Arrangement for Double Circuit Towers (kit to include all component parts required)	1091010408 Sheet 6
241197	Spacer Bar for Double Circuit Tower Anti-Climbing Arrangement	1091010408 Sheet 6
244981	Anti-Climbing Guard for Rutter Type Pole – Pre-Wound with Barbed Wire (kit comprising of two half guards, straps and all fixings)	1091010675 Sheet 34

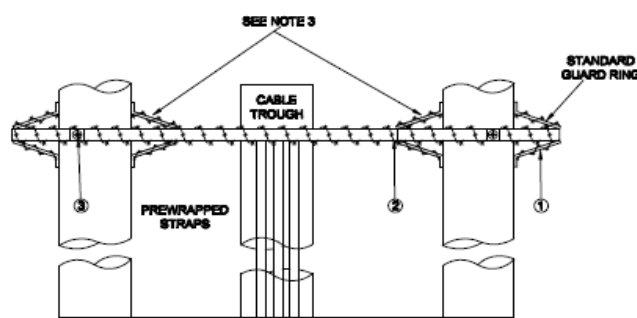
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Appendix 1 (continued) - Anti-Climbing Guard for Single Wood Poles

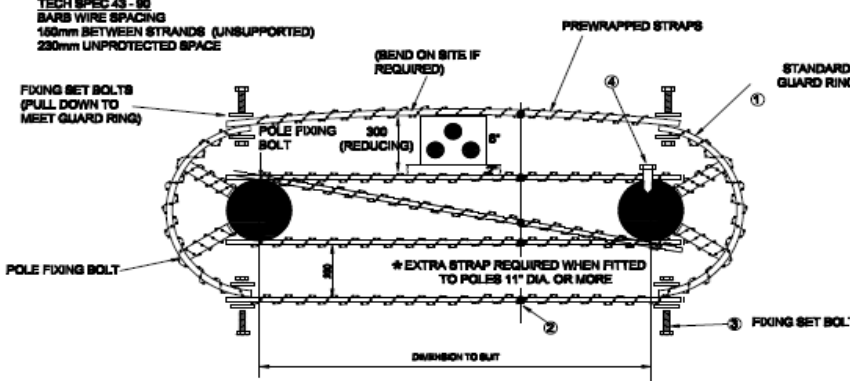


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Appendix 1 (continued) - Anti-Climbing H Pole Strap



TECH SPEC 43 - 90
BARS WIRE SPACING
100mm BETWEEN STRANDS (UNSUPPORTED)
230mm UNPROTECTED SPACE



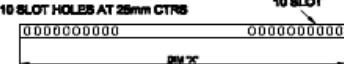
STOUT POLES - SUPPORTING H.V. CABLES

MATERIAL LIST PER 'H' POLE KIT

ITEM	DESCRIPTION	QTY PER 'H' POLE
1	GUARD RINGS	2
2-6	STRAPS (4)	6
8	M12 x 35 LONG BOLTS	4
8	M12 HEX NUT	4
8	M12 FLAT WASHER	8
7	GALVO COACH SCREWS HEX HEAD	12

✦ EXTRA STRAP REQUIRED WHEN FITTED TO POLES 11" DIA. OR MORE

10 SLOT HOLES AT 25mm CTRS



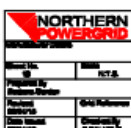
ITEM 2
STRAP 40 x 5 (TO BE WRAPPED END TO END)

ITEM	MANUFACTURERS DSN REF.	DESCRIPTION	CAT No	DIM 'X'
1	DP2047	GUARD RINGS	281382	-
2	-	1.8m CENTRE 'H' POLE STRAP KIT	244976	2.280
3	-	2.8m CENTRE 'H' POLE STRAP KIT	244980	2.680
4	-	2.44m CENTRE 'H' POLE STRAP KIT	244986	2.680
5	-	2.8m CENTRE 'H' POLE STRAP KIT	244978	3.380

NOTES

- ITEM 1 CONTAINS A PAIR OF GUARD RINGS
- ITEM 2 TO 5 CONTAINS THE PREWRAPPED HORIZONTAL BARS FOR USE BETWEEN THE LEGS OF THE 'H' POLE (4 6 BARS)
- THE HORIZONTAL STRAPS MAY BE OMITTED AND REPLACED WITH ADDITIONAL GUARD RINGS AND THE LEGS TREATED AS SEPARATE SINGLE SUPPORTS PROVIDING THE FOLLOWING CONDITIONS CAN BE MET:
 - LEGS GREATER THAN 1.8m APART
 - NO CENTRE MOUNTED AUXILIARY EQUIPMENT
 - NO BRACING BARS POSITIONED BELOW GUARD RING HEIGHT
- ITEM 2 CONTAINS THE PREWRAPPED HORIZONTAL BARS FOR USE BETWEEN THE LEGS OF THE 'H' POLE (4 6 BARS) FOR 2.9m CENTRES

WORK SPEC
04 / 090



Approved By: [Signature]
Checked By: [Signature]
Drawn By: [Signature]

Lloyds Court, 78 Gray Street, Newcastle Upon Tyne, NE1 6AF

DARFEN ANTI-CLIMB GUARD RING FOR 'H' POLES

Rev: 001

Rev: 002

Rev: 003

Rev: 004

Rev: 005

Rev: 006

Rev: 007

Rev: 008

Rev: 009

Rev: 010

Rev: 011

Rev: 012

Rev: 013

Rev: 014

Rev: 015

Rev: 016

Rev: 017

Rev: 018

Rev: 019

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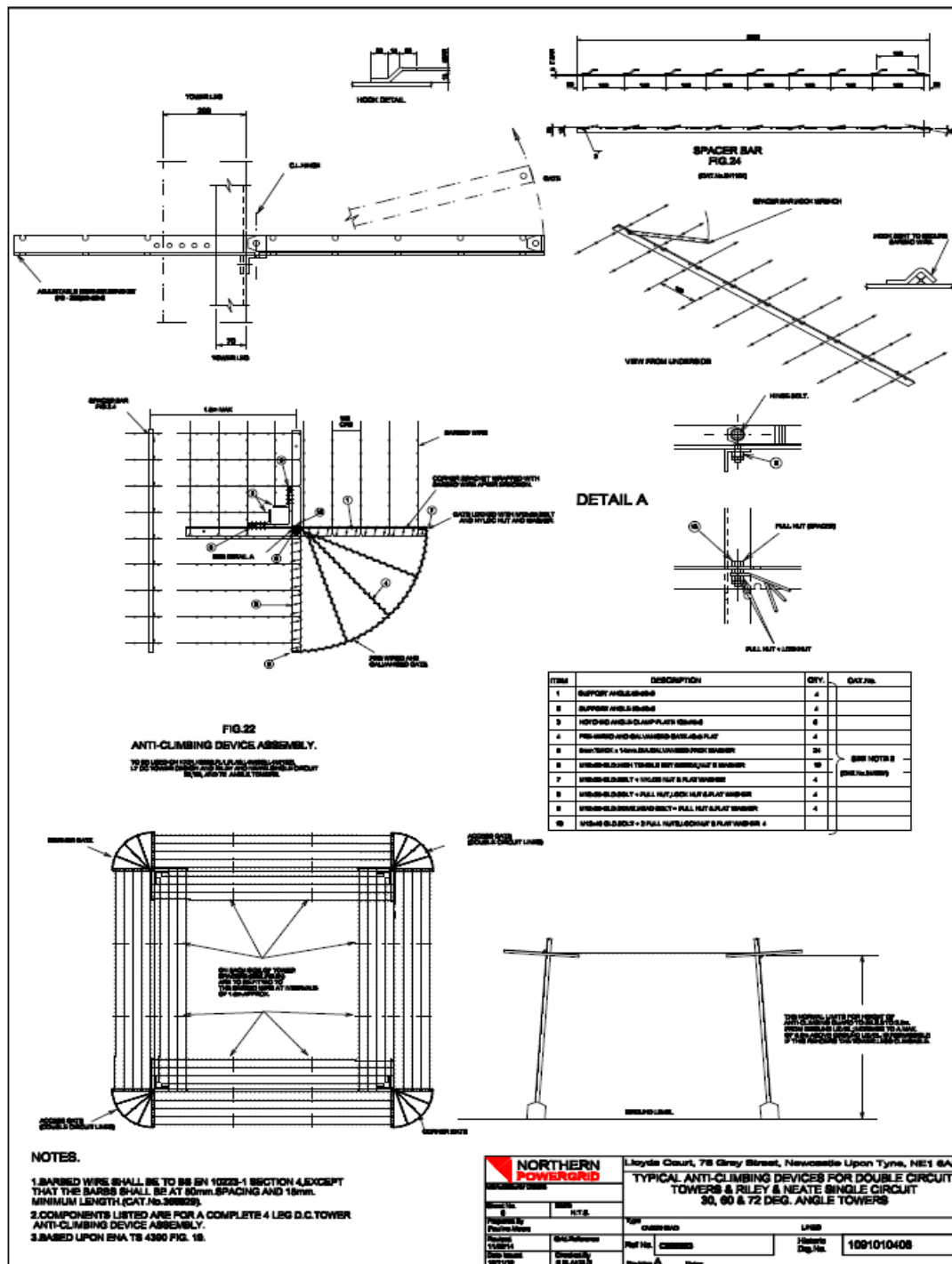
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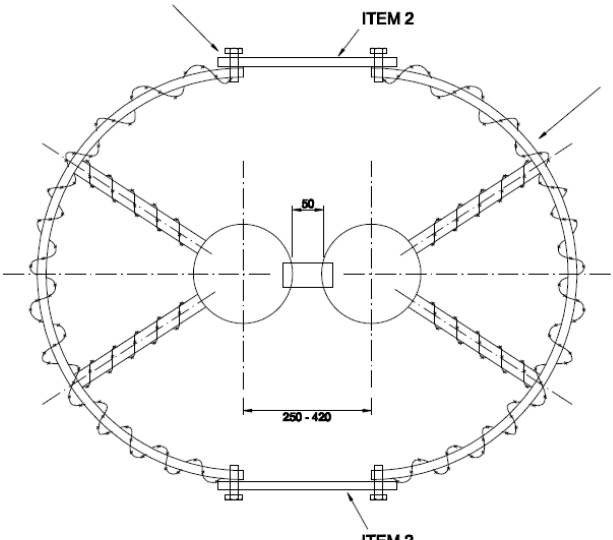
Appendix 1 (continued) - Anti-Climbing Arrangement for Double Circuit Towers



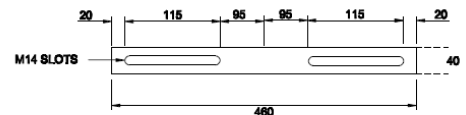
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Appendix 1 (continued) - Anti-Climbing Guard for Rutter Type Pole

**FIXING SET BOLTS
(PULL DOWN TO
MEET GUARD RING)**




ITEM 2
PRE WRAPPED STRAP 40x5 (TO BE WRAPPED END TO END)



ITEM 2	CAT NO	244981
ITEM 1	CAT NO	251362

ITEM	DRG/REF	DESCRIPTION	QTY PER RUTTER
1	DP 2047	GUARD RING	2
2	ITEM 2	STRAPS	2
3		M12 x 35 LONG BOLT	4
3		M12 HEX NUT	4
3		M12 FLAT WASHER	8
		GALV COACH BOLT	8

ITEM 2 TO BE USED IN CONJUNCTION WITH ITEM 1.
SUTIBLE FOR USE ON BOTH WOODHOUSE MAST
REPLACEMENT RUTTER POLES OR CE/C/36 RUTTER
POLES.

		Lloyd Court, 78 Grey Street, Newcastle Upon Tyne, NE1 6AF	
ENHANCED ANTI-CLIMBING DEVICE FOR RUTTER TYPE POLE ASSEMBLY			
Sheet No. 34	Scale N.T.S.	Type OVERHEAD	LINE#
Prepared By Carolyn Palmer	Grid Reference	Rat No. C851111	Historic Drg.No.
Revised 28/10/11	Checked By G HAMMILL	Revision B	Notes
Date Issued 08/08/07			1091010675

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Appendix 2 - SELF CERTIFICATION CONFORMANCE DECLARATION

Anti-climbing wood pole and tower guards shall comply with the latest issues of the relevant national and international standards, including Energy networks Association Technical Specification 43-90.

Additionally this technical specification is intended to amplify and/or clarify requirements relating to these Standards.

This self-declaration sheet identifies the clauses of the aforementioned standards relevant to wood pole and tower anti-climbing guards for use on the Northern Powergrid distribution network. The manufacturer shall declare conformance or otherwise, clause by clause, using the following levels of conformance declaration codes.

Conformance declaration codes

N/A = Clause is not applicable/ appropriate to the product

Cs1 = The product conforms fully with the requirements of this clause

Cs2 = The product conforms partially with the requirements of this clause

Cs3 = The product does not conform to the requirements of this clause

Cs4 = The product does not currently conform to the requirements of this clause, but the manufacturer proposes to modify and test the product in order to conform.

Manufacturer:

Product Reference:

Name:

Signature:

Date:

NOTE: One sheet shall be completed for each item or variant submitted.

Instructions for completion

- When Cs1 code is entered the supplier shall provide evidence of conformance and reference the document
- When any other code is entered the reason and supporting evidence for non-Conformance shall be entered
- Prefix each remark with the relevant 'BS EN' or 'ENATS' as appropriate

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Barbed Wire

BS EN 10223			BS EN 10244			
Clause / Sub-clause	Requirement	Conformance Code	Clause / Sub-clause	Requirement	Conformance Code	Remarks
4.0	Manufacture		4.0	Coating requirements (Table 1 - Class A x 3 ^b)		
6.0	Sample Testing		5.0	Testing		
7.0	Inspection and documentation					
8.0	Testing					

Steelwork

ENA TS 43-95			
Clause/Sub-clause	Requirement	Conformance Code	Remarks
3.0	Materials and finish		
4.0	Welding		
5.0	Tolerances		

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Galvanisation

BS EN 1461			
Clause/Sub-clause	Requirement	Conformance Code	Remarks
5.0	Sampling		
6.1	Appearance		
6.2	Thickness		
6.3	Renovation		
6.4	Adhesion		
6.5	Acceptance criteria		

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Appendix 3 – Addendum to Supplier Requirements

Packaging and Delivery Information

To enable Northern Powergrid to store the product(s) in accordance with the manufacturer's recommendations the Tenderer should provide details of any specific storage or environmental requirements with respect to each tendered product. The Tenderer shall ensure that each item is suitably packaged and protected to maintain the product and packaging as "fit for service" prior to installation taking account of the potential for an outdoor storage environment. All packaging shall be sufficiently durable giving regard to the function, reasonable use and contents of the packaging.

Where items are provided in bagged/boxed form the material from which the bags are manufactured shall be capable of sustaining the package weight and resisting puncture by the materials within. Tenderer shall submit at the time of tendering the details of the proposed packaging (i.e. materials composition and structure) to be used for each product. Where the Tenderer is unable to provide packaging suitable for outdoor storage then this should be stated at the time of tender.

Northern Powergrid requires standard 1200mm (w) x 1000mm (d) pallets.

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Appendix 4 - Technical Information Check List

The following information shall be provided by the supplier for review by Northern Powergrid. Additional information shall be provided if requested.

Requirement	Provided (Y/N)
Full product descriptions and part number/reference	
Appendix 2 – completed self-certification conformance declaration	
Complete set of drawings for each item	
Type test evidence	
Manufacturing routine test and/or quality plan	
Packaging information	