SPECIFICATION FOR OPTICAL FIBRE CABLE SUPPORT FITTINGS FOR THE ERECTION OF OPTICAL FIBRE CABLE ON ELECTRICAL OVERHEAD TRACTION EQUIPMENT MAST POLES

BBG-5673

1) SUSPENSION HOOK
2) TERMINATION HOOK
3) 1000MM EXTENSION SUSPENSION HOOK
4) JOINT/TERMINATION TIRRING/T-OFF

July 2015

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Document authorisation

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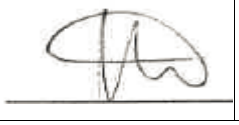
Authorised by :	M Mashologu	Principal Engineer		28/7/2015

DISTRIBUTION

Once updated, a copy of the latest revision will be published in the document management system in use. E-mail to this effect will be sent to the relevant personnel or heads of department.

DOCUMENT CHANGE HISTORY

CHANGES SINCE LAST REVISION

ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
kg	kilogram
mm	millimetre
SABS	South African Bureau of Standards
SANS	South African National Standards
OFC	Optic Fibre Cable
OHTE	Overhead Traction Equipment
DC	Direct current
AC	Alternating current

DEFINITIONS	DESCRIPTION
None	

RELEVANT DOCUMENTATION

APPLICABLE

DOCUMENT NO.	DESCRIPTION	LOCATION
SPEC-00575	Erection of Self-Supporting Optical Fibre Cable on Traction Masts	Document Control Centre
SANS 10340-2	Installation of Telecommunication Cables Part 2 : Outdoor Fibre Optic Cables	External

RELEVANT

DRAWING NO.	DESCRIPTION	LOCATION
1	Suspension hook dimensions	
2	Minimum requirements for Suspension fitting.	
3	Minimum requirements for Termination fitting	
4	Minimum requirements for 1000mm extension fitting	
5	Minimum requirements for Joint fitting	

1.SCOPE

This specification covers the requirements of Transnet for long span aerial optical fibre cable support fittings. Tenderers must note that a host of different brackets were designed and used for
suspension of OFC on OHTE masts but there are basically two types: “in-situ” installation
and “remote” installation types.

2.RANGE OF FITTINGS REQUIRED

The four fittings listed below are required to install OFC on electrical traction mast poles.

2.1 Suspension fitting. (Addendum 2)
2.2 Termination/False Termination fitting. (Addendum 3)
2.3 1000mm extension/ suspension fitting. (Addendum 4)
2.4 Joint /Termination/Spur cable fitting. (Addendum 5)

The purpose of these fittings are depicted in Specification SPC-0575 "Specification for the Erection of Self-Supporting Optical Fibre Cable on Traction Masts" where applicable as well as SANS 10340-2 "Installation of Telecommunication Cables Part 2 : Outdoor Fibre Optic Cables.

3.MANUFACTURING MATERIAL

All fittings and brackets installed must be manufactured in mild steel and galvanised in accordance with SANS specification 763 or manufactured from approved corrosion resistant materials. Where the installation is within 30 kilometres from the coast, fittings and brackets must be made of 3CR12 stainless steel and hot dipped galvanized. Bolts and nuts in both mild steel and stainless steel must be galvanized or coated with mechanical galvanized plating

4.REQUIRED FITTINGS FOR SPECIFIC MAST POLES

In order to minimise different types of brackets for maintenance and stock keeping purposes the design must be such that it can be configured to fit the different sizes of steel and concrete electrical traction mast poles which are used to suspend the cable.
Direct (DC) and alternating current (AC) are used for traction purposes. The types of fittings required are as follows:

4.1 A fitting that can be utilized on all steel masts fitted with DC traction equipment where there is a safe working clearance of 900mm in which case the cable can be installed directly in the required position.

Mounting requirements:

a) Universal to fit I-beam (Universal coulomb) mast pole sizes.

153mm

185mm

205mm

The fitting must be able to be modified to fit 225mm and 250mm mast poles. (Seldom used)

b) Universal to fit left as well as right Rail mast configurations.

Mast pole sizes:

105mm

125mm

NB It is very important to note that certain DC installations are constructed in such a manner that the insulator suspending the traction equipment is mounted directly on the mast pole. In this case the safe working distance cannot be observed and no work is allowed on these mast poles.

4.2 A fitting that can be utilized on all steel masts fitted with AC traction equipment in which case the cable must be installed at plus minus 1500mm from ground level and thereafter transferred by means of approved insulated rods to the required position on the mast pole. The mast pole mounting requirements are the same as for the DC fitting above.

4.3 A fitting that can be utilized on all concrete masts fitted with DC traction equipment where there is a safe working clearance of 900mm in which case the cable can be installed directly in the required position.

5. Mounting requirement:

Universal to fit concrete mast poles. Sizes: 47KN-M to 85KN-M

- **Very important**: The clamping arrangement must be designed so that it will under no circumstances be able to chip the concrete mast pole during installation of the fitting or cable.
- The clamp must fit all pole sizes from 4 metre above ground to the top of the mast pole.
- It must be adjustable to accommodate the taper of the pole.

6.REQUIREMENTS FOR SPECIFIC COMPONENTS OF INSTALLATION FITTINGS

6.1) Suspension/spur hook.

6.2) Termination hooks.

- Two termination hooks are required to accommodate the make-offs or dead ends for false terminations. The hooks must be spaced a minimum off 220mm to allow for required false termination cable slack.

- The hooks must have the same dimensions as the suspension hook – no holes are required.
- An additional termination (T-off) hook on the termination fitting is required to use for a 45 to 90 degree deviation of the cable. (Boom and fly over crossings.)
- The termination and T- off hook must be spaced to allow for the minimum bending radius of the cable when fittings are used for crossings etc.

6.3) 1000mm extension suspension fitting

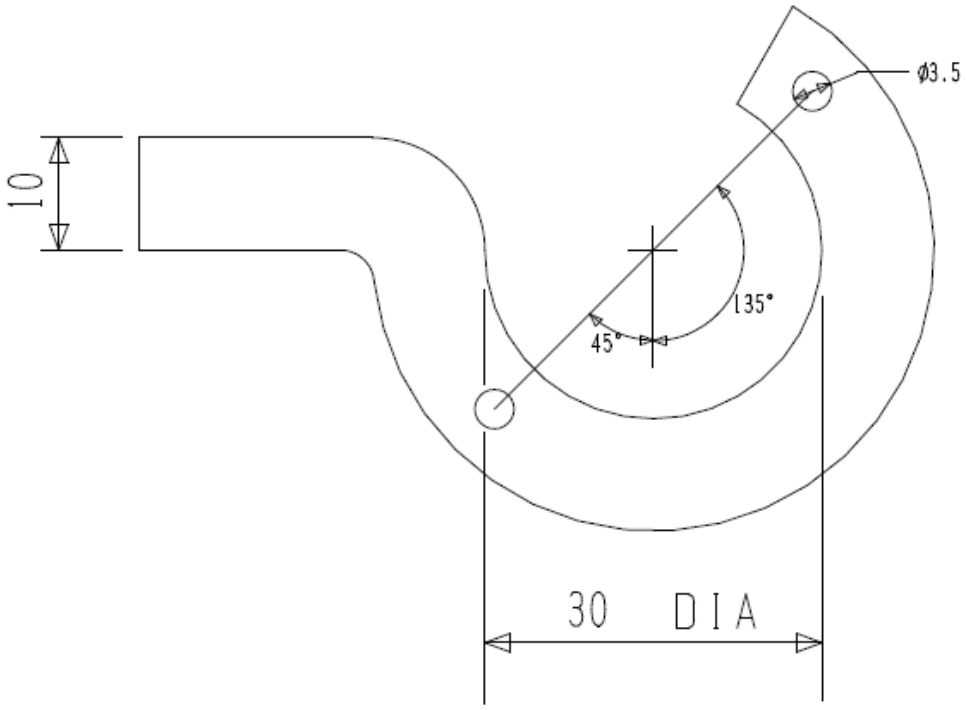
- The minimum distance between pole and suspension hook must be 1000mm.

6.4) Joint/Termination fitting/T-off

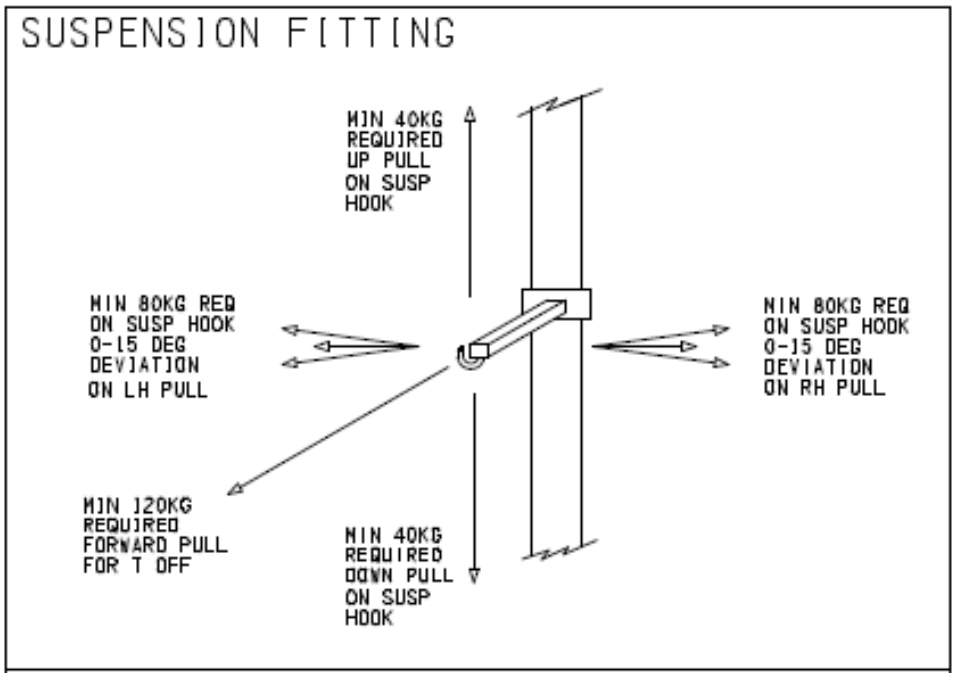
- This fitting must be equipped with a termination hook as well as a spur/T-off hook with the same specifications as the termination fitting. A joint basket must be incorporated to accommodate OFC joint closures ranging from 130-180mm in diameter.

7. ADDENDUMS

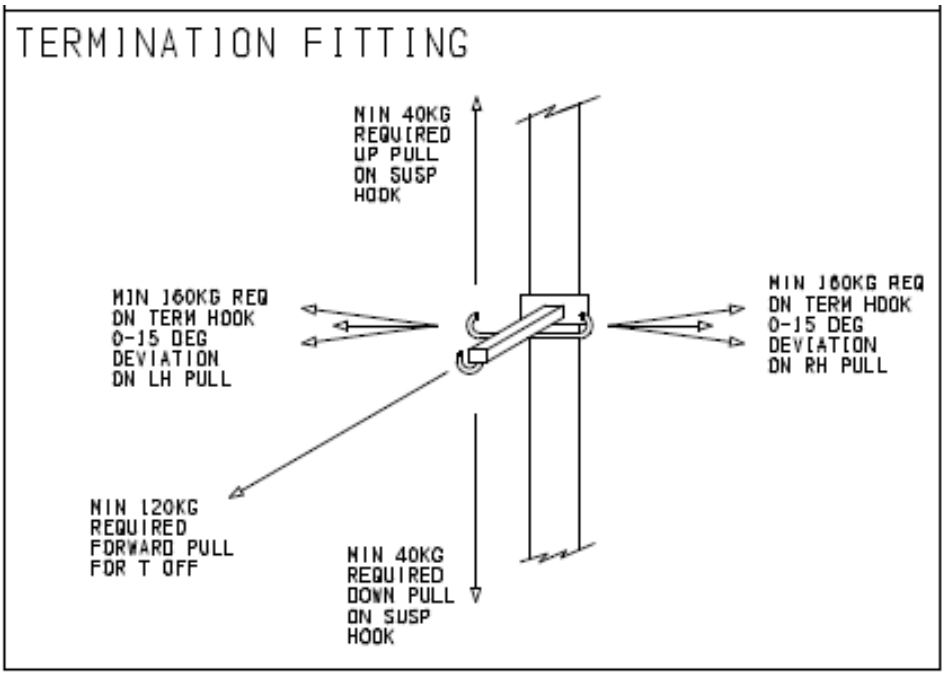
6.1 Addendum 1 Suspension hook dimensions.



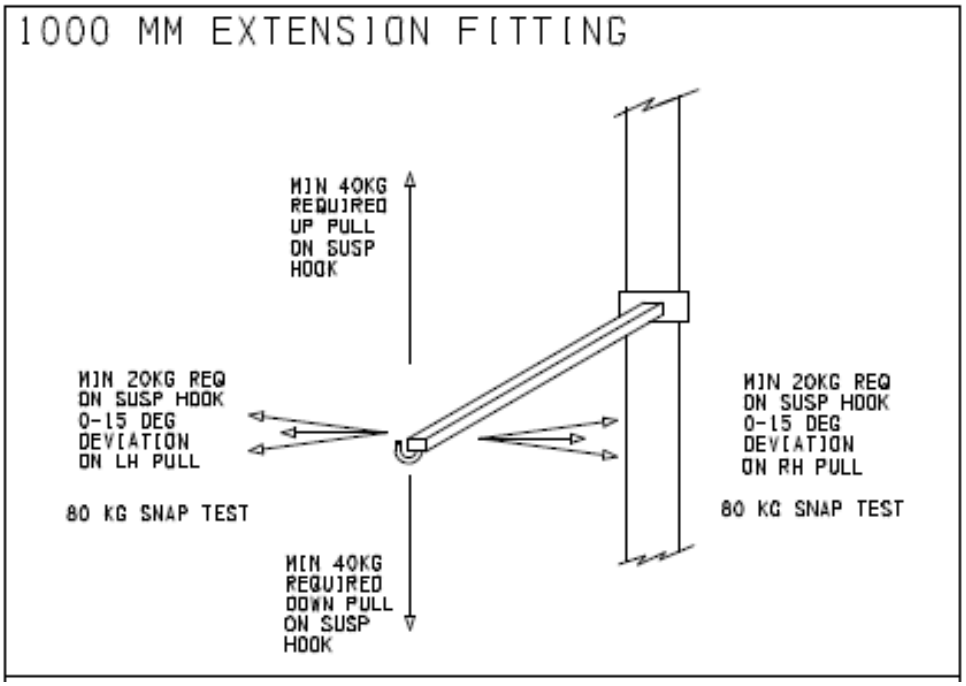
6.2 Addendum 2 Minimum specification requirements for Suspension fitting.



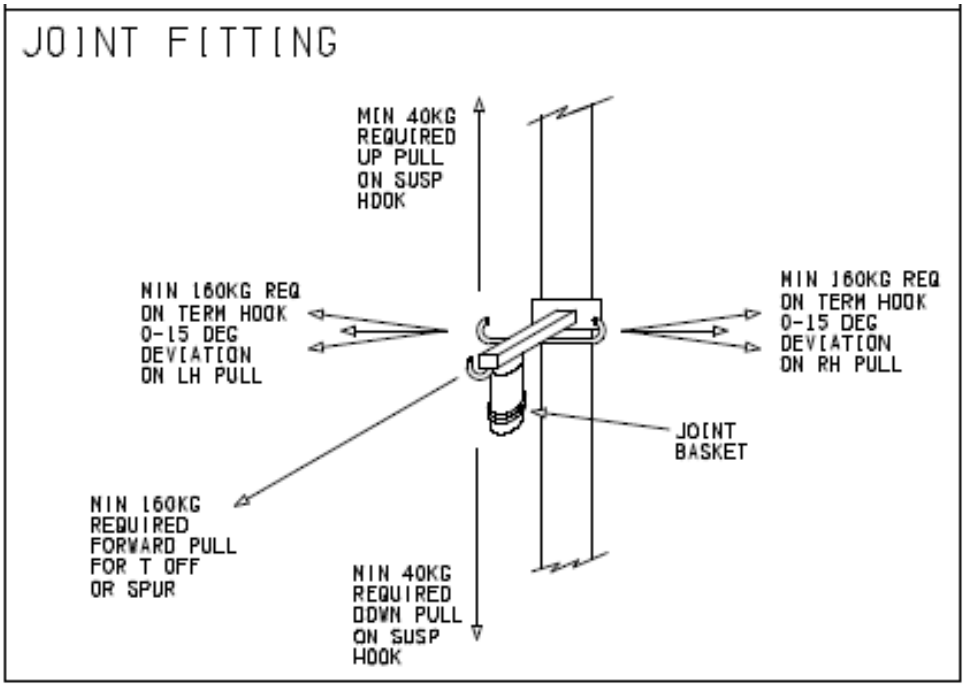
6.3 Addendum 3 Minimum specification requirements for Termination fitting.

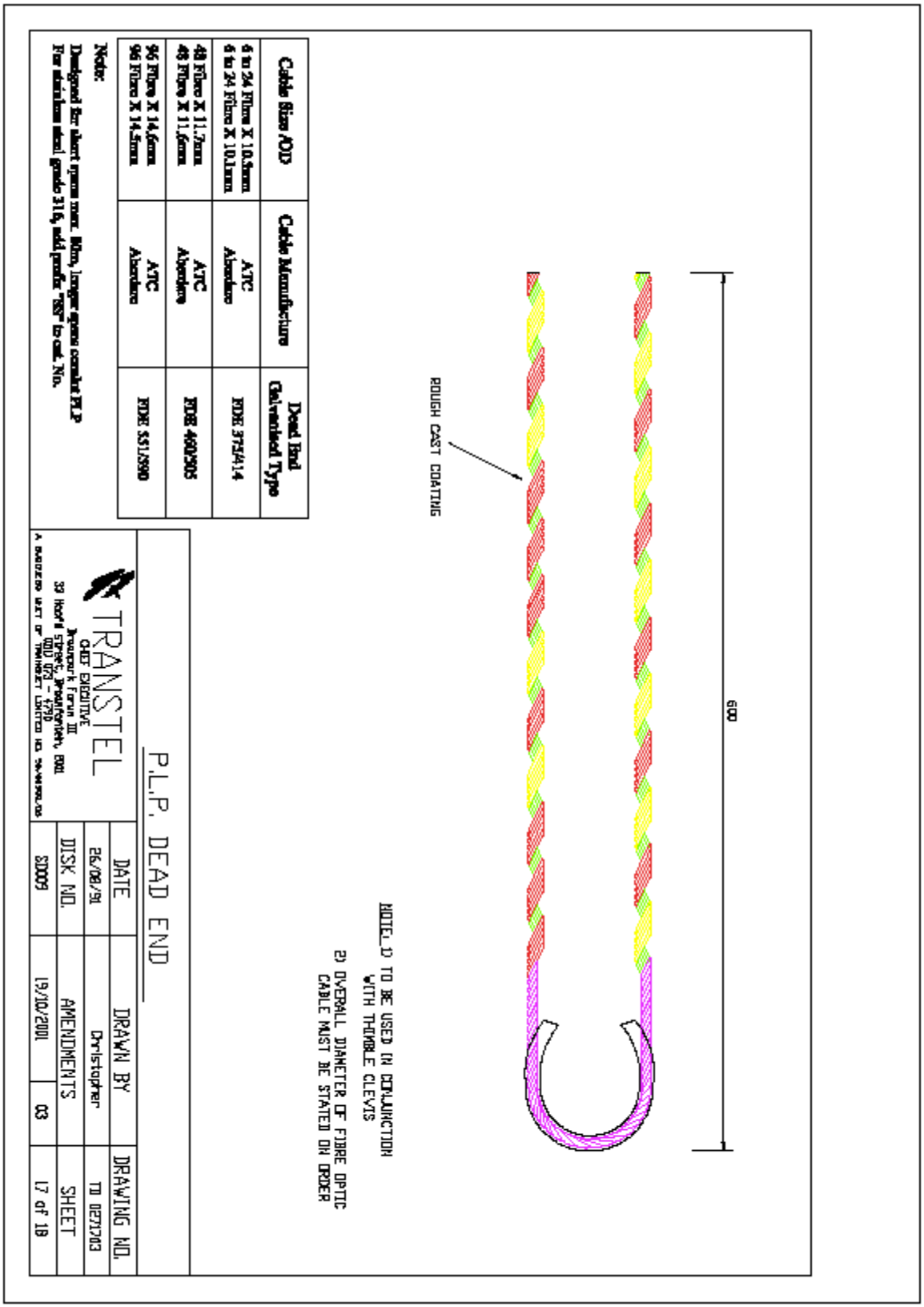


6.4 Addendum 4 Minimum specification requirements for 1000mm extension fitting.



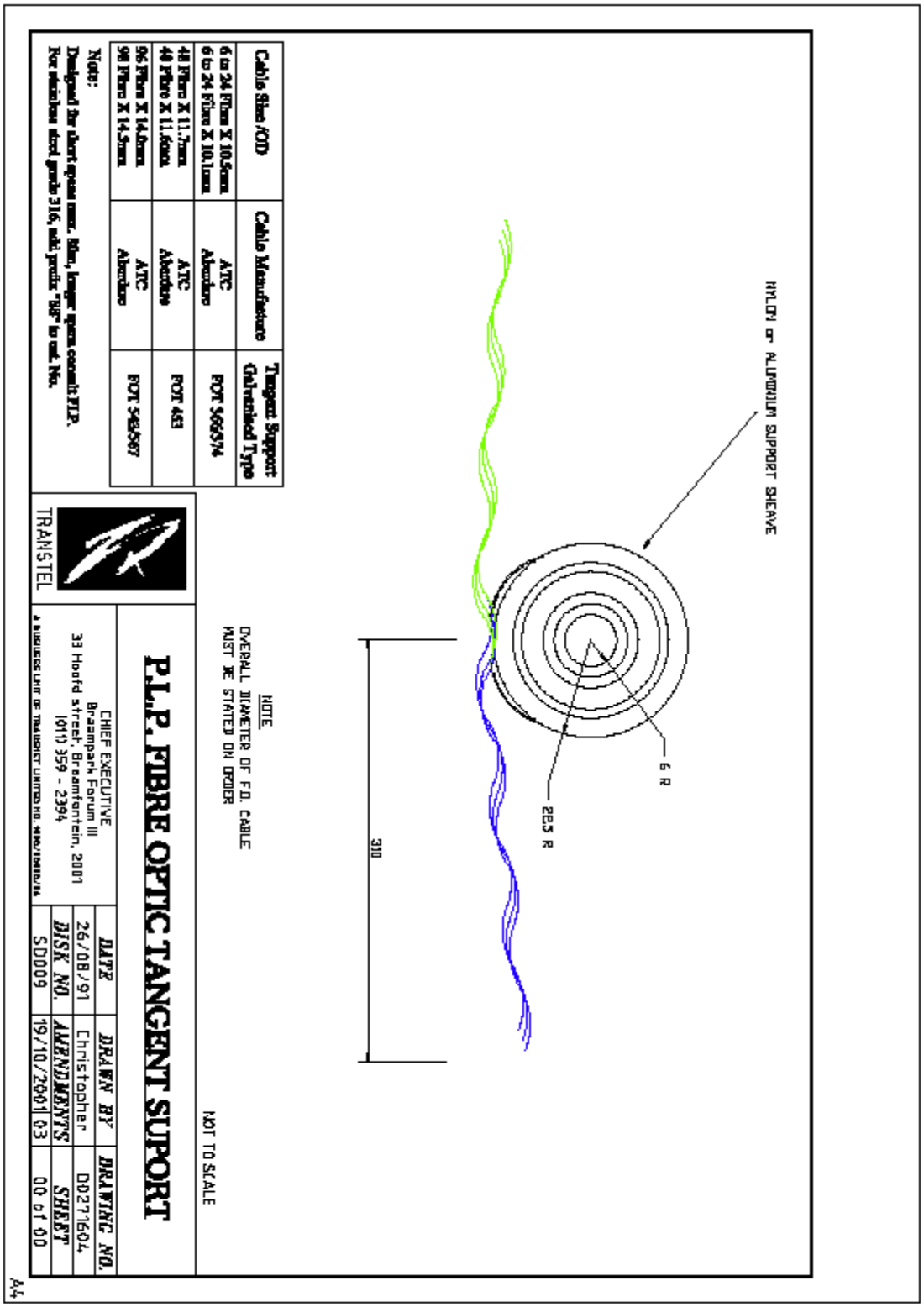
6.5 Addendum 5 Minimum specification requirements for Joint fitting.





Cable Size /OD	Cable Manufacture	Dead End Galvanised Type
6 to 24 Fibre X 10.5mm 6 to 24 Fibre X 10.1mm	ATC Aberdare	FDE 375414
48 Fibre X 11.7mm 48 Fibre X 11.6mm	ATC Aberdare	FDE 460305
96 Fibre X 14.6mm 96 Fibre X 14.5mm	ATC Aberdare	FDE 551390

Note:
Designed for short span max. 80m, longer spans consult PLP
For stainless steel grade 316, add prefix "SS" to cat. No.



End of specification.