NETWORK ASSET MAINTENANCE SPECIFICATION

Supply and Deliver Tensioning System Material for Upington Depot

Authorised: Act. Maintenance Manager
Rail Network – UPG (Elect)

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Circulation Restricted To:

Transnet Rail Infrastructure Manager

Transnet and Relevant Third Parties

CONTENTS

1 GENERAL REQUIREMENTS

This section of the specification lays out the requirements for the procurement of supply and deliver tensioning system material. The section includes the scope of work, design, performance, intended application, attachments of drawings and the applicable standards that need to be considered by the supplier / manufacturer.

1.1 DISCLAIMER

NB: If any discrepancies exist between this specification and the documents attached under section *1.4 (APPLICABLE DOCUMENTS) on page 4* of this specification, the attached documents should be taken as correct.

1.2 SCOPE OF WORK

The scope of work is to supply and deliver tensioning system material as indicated in the bill of quantities *Table 1* below, in accordance with this specification.

Table 1: Bill of Quantities

Item No.	Material Required	Quantity
1	**Pulley Cables**	660
2	**Complete Assembled Pulley Wheels** • 1320 × Pulley wheels • 2640 × Pulley bushes (stainless steel) • 2640 × pulley bearings (Cylindrical roller bearing SKF63062RS)	1320
3	**Bolt, Nut and Washers** • 1320 × Stainless Steel Bolts & Nuts (16mm×100mm) • 1320 × Suitable Stainless Steel Spring Washers (16mm) • 1320 × Stainless Steel Flat Washers (16mm)	1320
4	**Delivery to TRIM Rail Network Upington Depot**	1

The counterweight pulley assembly must be suitable for the indicated application and comply with this specification, including the applicable documents, requirements, product requirements and galvanizing requirements.

The bearings and the bush must be press fitted to the pulley wheel after galvanising as shown in *APPENDIX 6*.

1.3 DESIGN, PERFORMANCE AND APPLICATION

The pulley wheel and cable must be designed according to Transnet drawings attached under section *1.4 (APPLICABLE DOCUMENTS)* of this specification on page 4, which can also be found under *APPENDIX 1* to *APPENDIX 6* at the end of this documents.

Each assembled counterweight pulley wheel must be manufactured to withstand a force of 45 kN without exhibiting failure. Failure includes exceeding the yield point of the material's local failure. The sheave must be manufactured to receive a 10 mm diameter wire. The pulley wheel must be manufactured to turn smoothly without stalling or binding.

The pulley wire must be manufactured of stranded stainless steel wire rope. The stranded stainless steel wire rope must be corrosion resistant and of high tensile strength. It should loop with a thimble, for a 16 mm diameter pin at the one end. The loop must be secured with a copper crimp ferrule. The free end must be provided with manufacturers recommended tape to prevent the wire rope from fraying. The rope shall be suitable for continuous use over 250 mm sheaves.

Each counterweight pulley wheel assembly will be used at the tensioning system to hold and guide the counterweight pulley wire rope. The tensioning system forms part of the overhead track equipment (OHTE) to ensure the correct configuration of the OHTE, which further ensures a safe and reliable supply of power for train movement.

1.4 APPLICABLE DOCUMENTS (DRAWINGS)

Table 2: List of Applicable Documents

Item	Material required with full description	Drawing No.	PDF
1	**Counterweight Pulley Wire**	H500110-3-133-E-DE-0110-01	Adobe Acrobat Document
2	**Counterweight Pulley Assembly**	SSE-TMF-05	Adobe Acrobat Document
3	**Pulley Wheels Assembly**	H500110-3-133-E-DE-0102-01	Adobe Acrobat Document

4	**Counterweight Pulley Bush**	SSE-TX-01	Adobe Acrobat Document
5	**Bolt Washers and Nut**	H500110-3-133-E-DE-0072-01	Adobe Acrobat Document

1.5 MATERIAL REQUIREMENTS

1.5.1 COUNTERWEIGHT PULLEY

- Pulley wheel – Hot dipped galvanised in accordance with SANS 121.
  It must be able to withstand a force of 45 kN.
- Bearings – Cylindrical roller bearing (SKF 63062RS).
- Pulley bush – Machined out stainless steel and manufactured as per drawing in *Table 2* above.
- **The bearings & bush must be press fitted to the pulley wheel after galvanising.**

1.5.2 PULLEY CABLE

Where not otherwise indicated, provide high quality corrosion resistant steel wire (right-regular lay) recommended by the manufacturer for use in the service indicated as follows:

- Nominal diameter: 10 mm
- Minimum breaking strength: 45 kN
- Length: 6.3 metres
- Lay: Right regular.
- Thimble: 10 mm stainless steel.
- Ferrules: Afgrip or as recommended by the manufacturer for the service indicated.

1.5.3 BOLTS, NUTS AND WASHERS

The stainless steel bolts, nuts, flat washers and spring washers should be provided according to *Table 1*, the relevant drawing under *Table 2* above and *APPENDIX 5.*

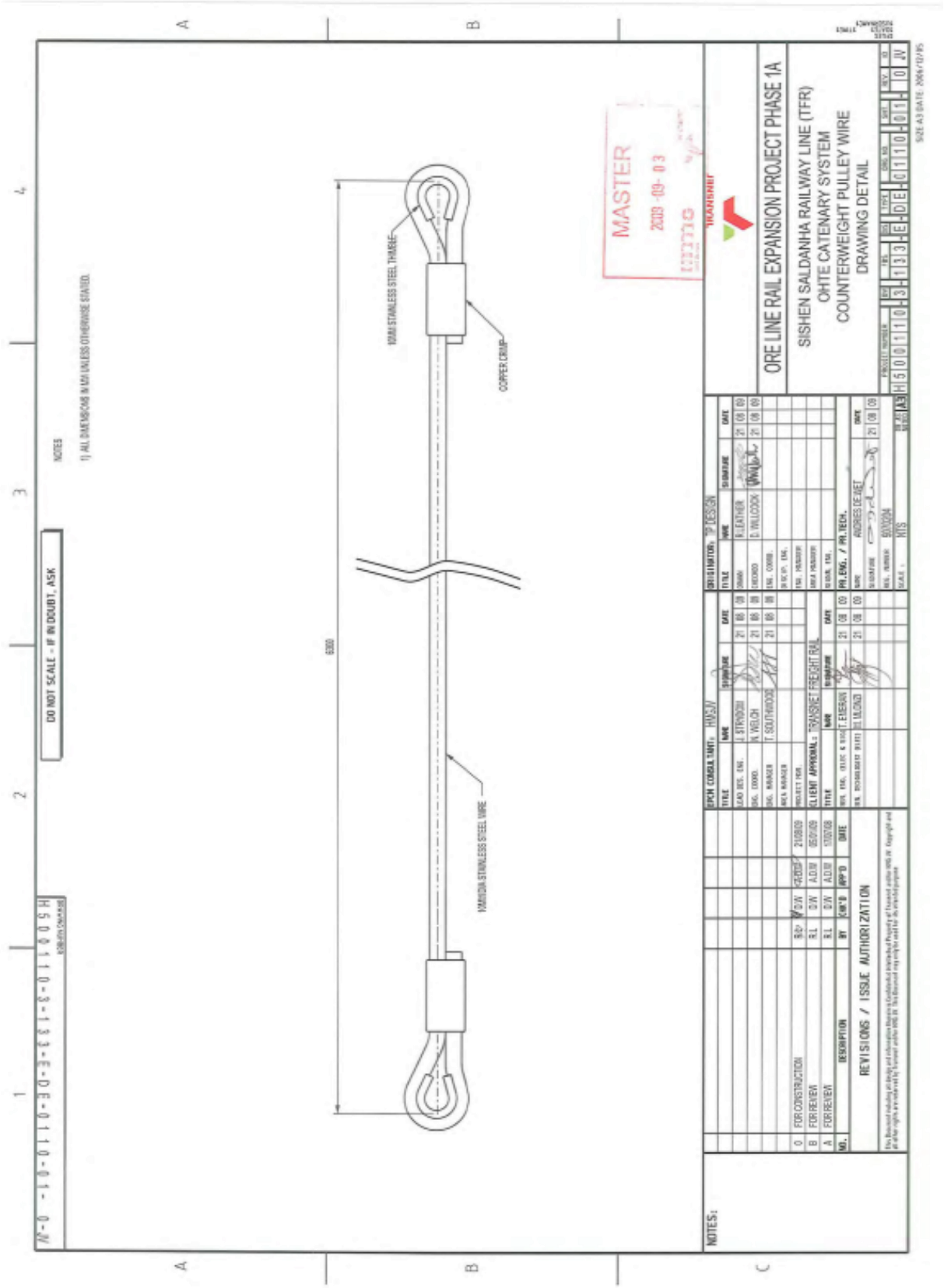
1.6 APPLICABLE STANDARDS

This section provides (but not limited to) the applicable standards that must be considered by the manufacturer / supplier.

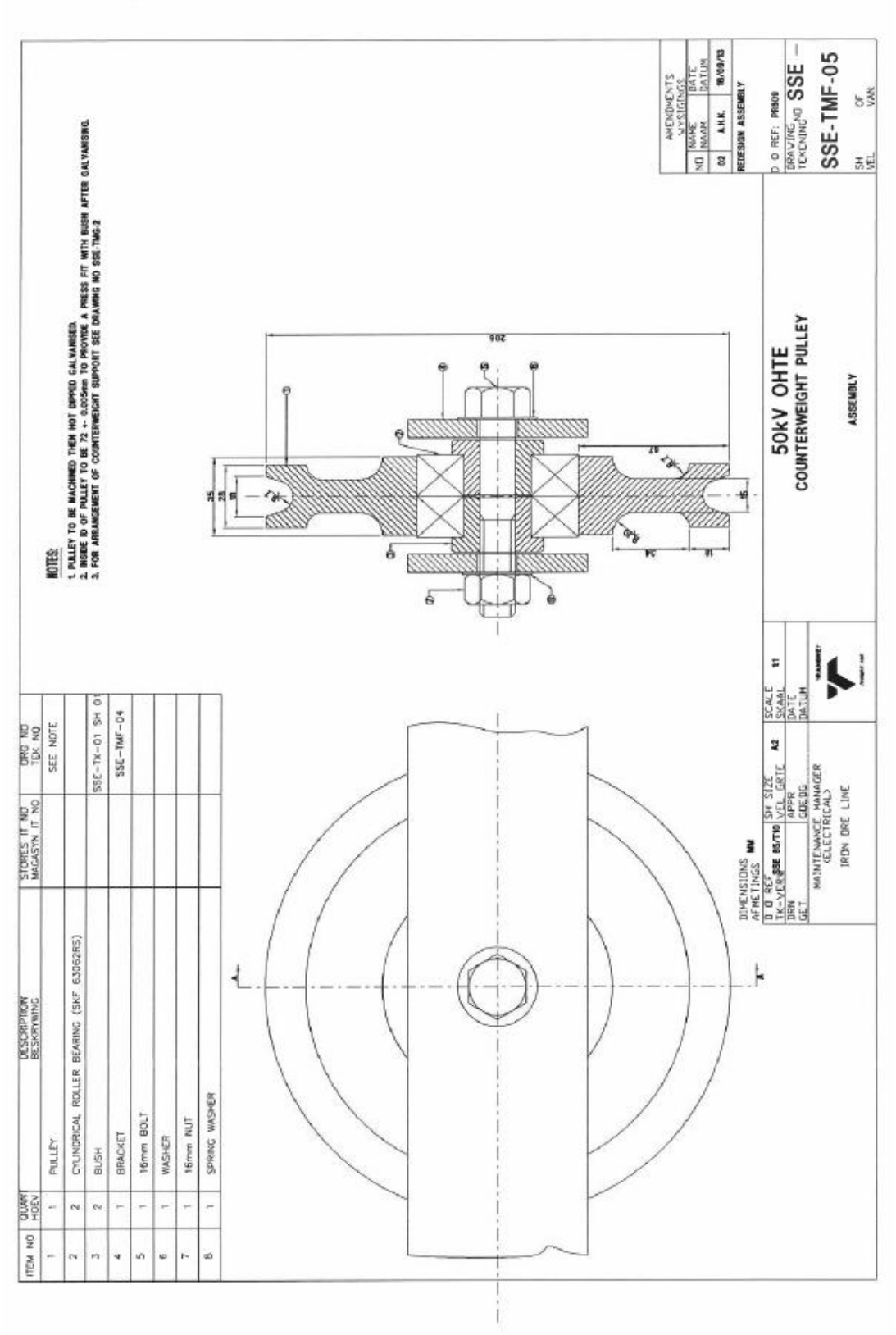
The following standards are to be considered:

- BS EN 10264-4 steel wire and wire products- steel wire ropes
- SANS 7531 Wire rope slings for general purposes - Characteristics and specifications

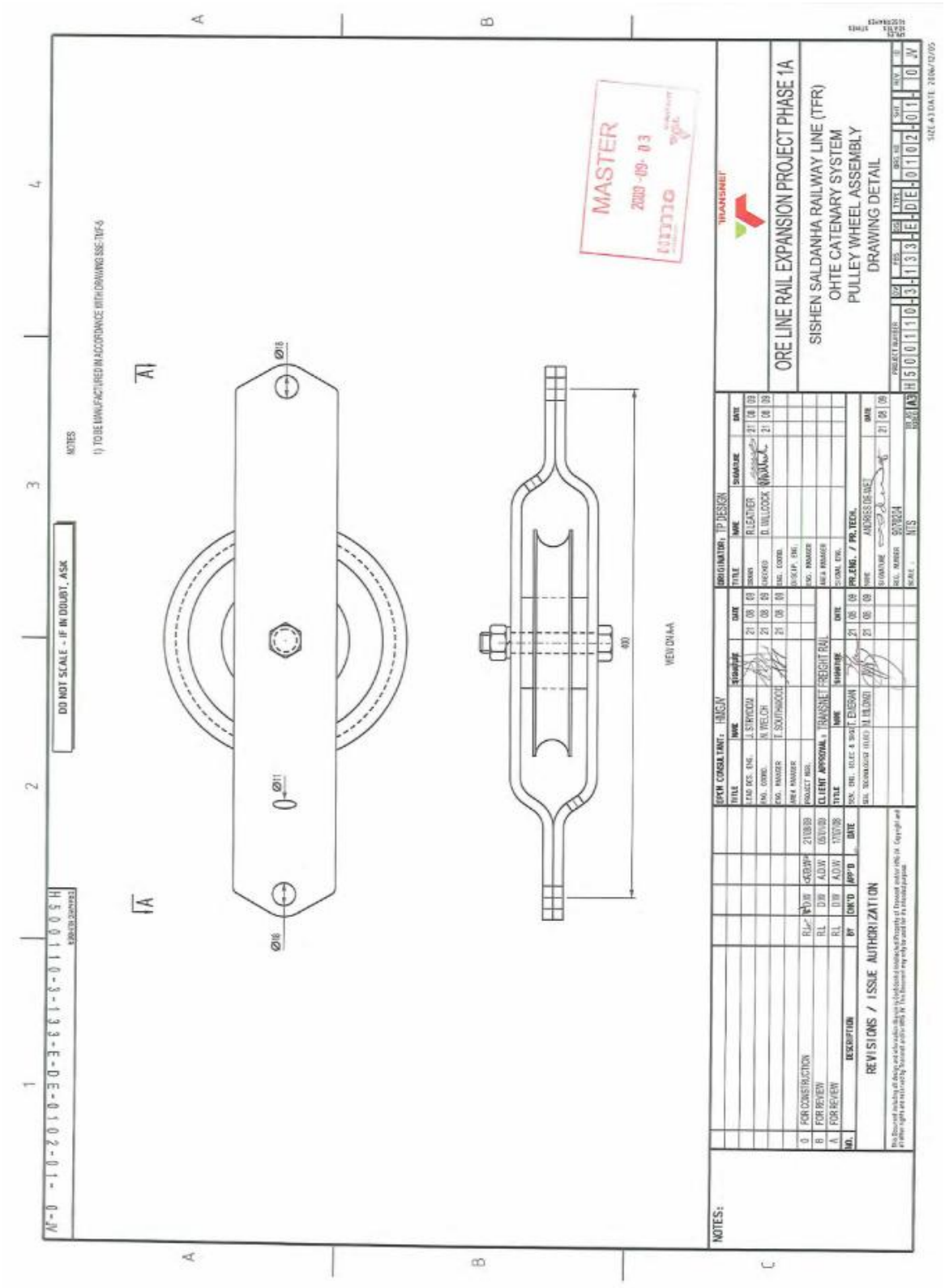
APPENDIX 1: COUNTERWEIGHT PULLEY CABLE DRAWING



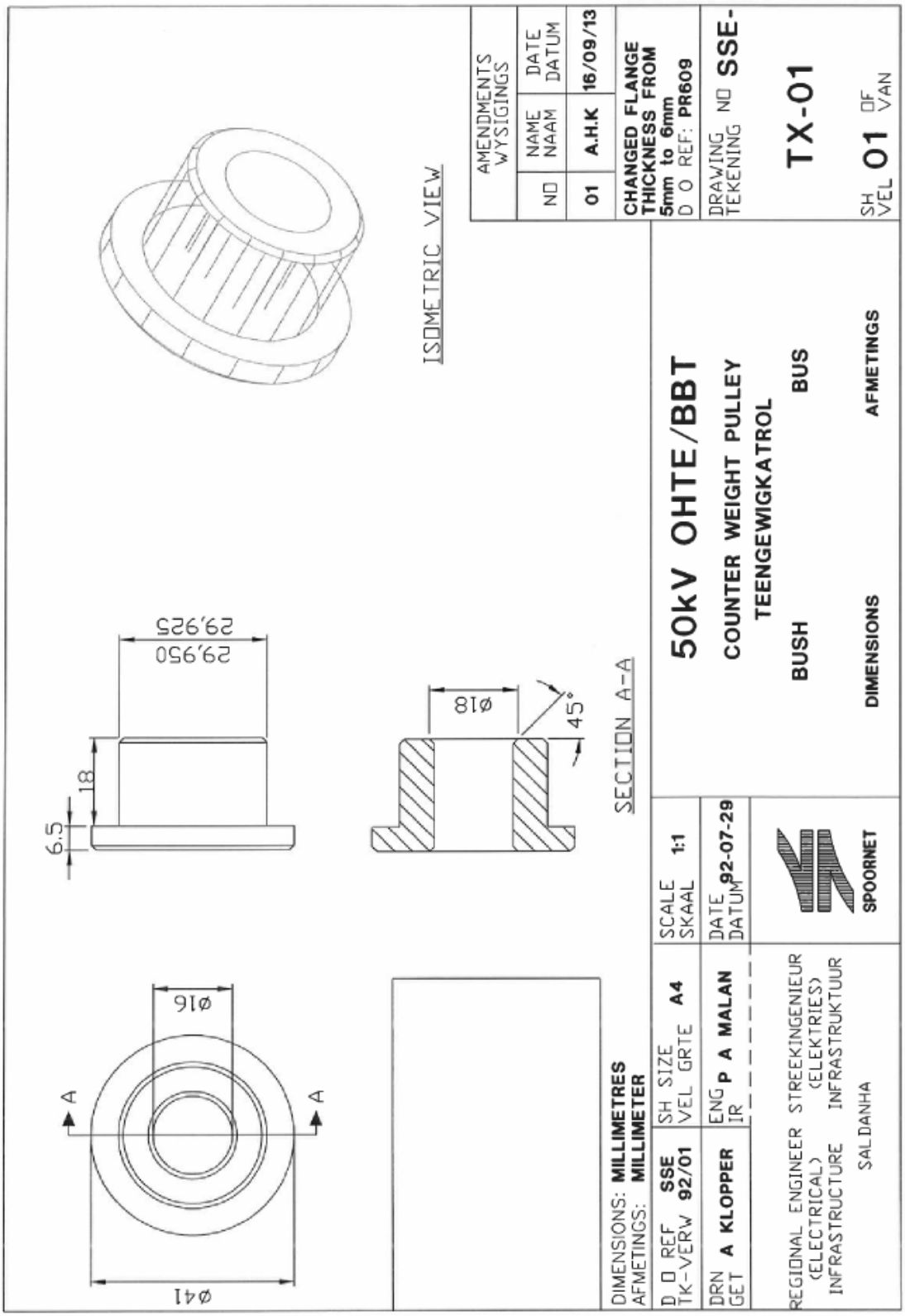
APPENDIX 2: COUNTERWEIGHT PULLEY ASSEMBLY



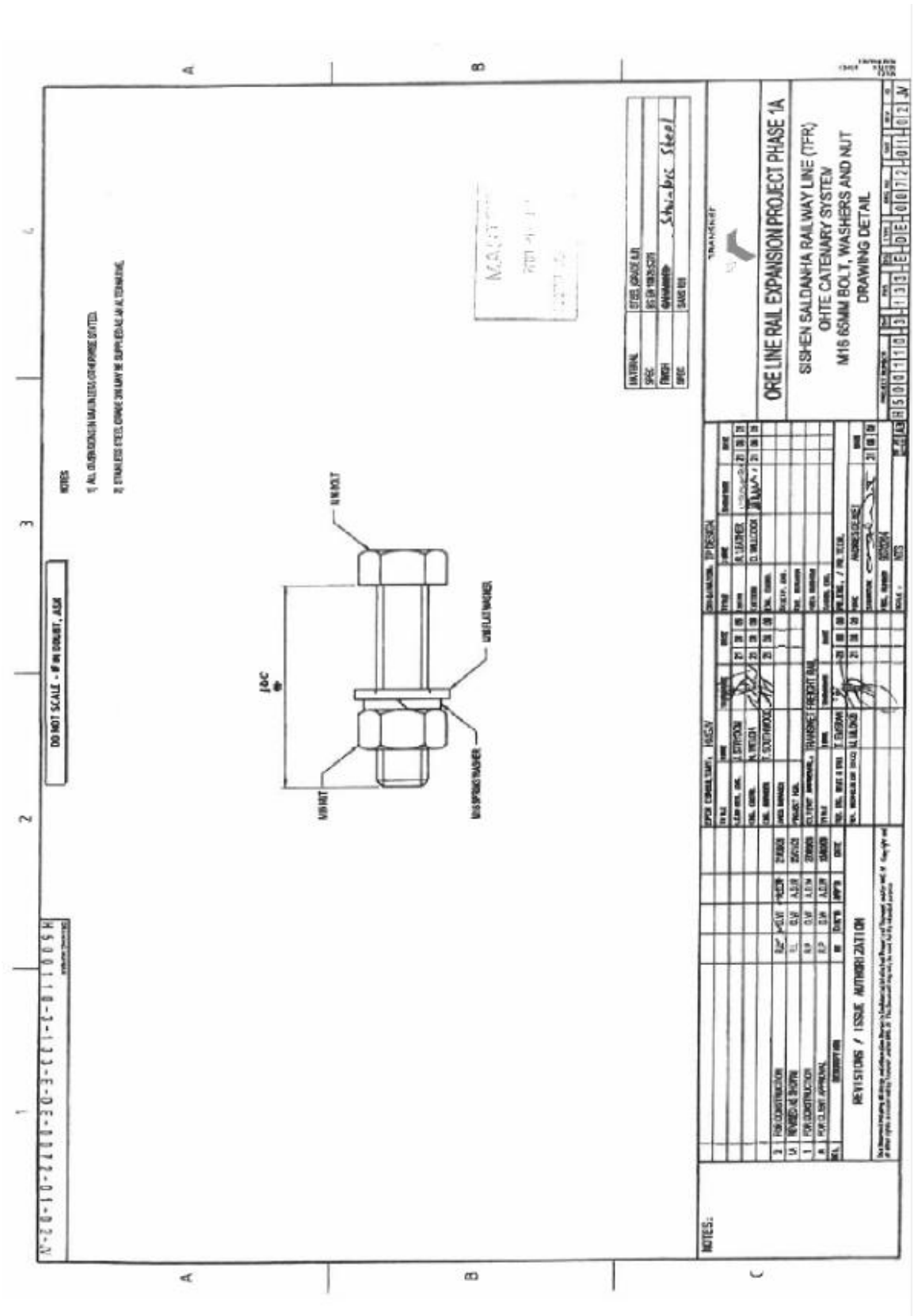
APPENDIX 3: PULLEY WHEEL ASSEMBLY



APPENDIX 4: COUNTERWEIGHT PULLEY BUSH



APPENDIX 5: M16 65MM BOLT, WASHERS AND NUT



APPENDIX 6: IMAGES OF PULLEY WHEEL ASSEMBLY