DRAWING OFFICE STANDARD GENERAL DRAWING (PL103)

DOCUMENT APPROVAL PROCESS

NAME		POSITION/MEETING NO.	SIGNATURE	DATE
Originator:	Zandile Moloi	Drawing Office Manager		06 May 2024
Approver:	Petros Khumalo	Senior Support Services Manager	PKhumalo	06 May 2024
Original date: 15 June 2016				15 June 2016
Effective date:				06 May 2024

TABLE OF CONTENTS

1. INTRODUCTION

The objective of this General Drawing Standards Document is to establish a set of approved drawing standards and codes of practise that shall be required to be adhered to by both Contractor and Client in the preparation of Engineering Documentation for and on behalf of Transnet Pipelines, a Division of Transnet Ltd. By ensuring comprehensive, consistent and uniform means of presentation of information, these Standards and Codes of Practise are intended to facilitate rapid comprehension by the users of the information, and thus assist in the maintenance and fault finding of installed technology.

2. SCOPE

2.1 GENERAL

This document defines as a minimum, the general responsibilities for the provision of all Engineering Documentation, whether it be by the Client or Contractor, for and on behalf of Transnet Pipelines. In this regard, providers of Engineering Documentation are required to familiarise themselves with all applicable Standards and Codes of Practise listed herein, and to ensure compliance in the execution of any work in terms of this document. Failure to comply may render the provider liable for corrections at his own cost.

These Standards and Codes of Practise should be read in conjunction with all other Specifications and drawings as issued for a particular contract. Where discrepancies occur, these must be brought to the attention of Transnet Pipelines in writing before commencement of work. In the event of any conflict between the contents of any documents forming part of a contract (as listed in the Schedule of Contract Documents) and this document, the former shall prevail.

2.2 APPLICATION TO WORK ACTIVITIES

The Standards and Codes of Practise contained herein are suitable for use whenever Engineering Documentation is required to be produced and includes amongst others the following:

- Design Sketches
- Technical Papers and literature
- Equipment Identification and Tagging
- Construction Drawings
- Specifications, both Functional and Technical
- Installation, operating and maintenance instructions, drawings and records

3. REFERENCE DOCUMENTATION

The following standard specifications are to be used for reference purposes. It is expected of Tenderers that they be familiar with the applicable clauses and that these will be adhered to in the execution of any work in terms of this specification.

A. Standards and Recommended Practices for Instrumentation and Control, 11th Edition, Instrument Society of America.

ANSI/ISA-S5.1-2009	Instrument Symbols and Identification
ANSI/ISA - S 5.2-1992	Binary Logic Diagrams for Process Operations
ANSI/ISA-S5.3-1983	Graphic Symbols for Distributed Control, Shared Display Instrumentation, Logic and Computer Systems
ANSI/ISA - S 5.5-1985	Graphic Symbols for Process Displays

B. Graphical Symbols for Electrical Diagrams NRS 002-2000 second edition.

C. International Electrotechnical Commission Standards for Electrical Drawings

IEC Publication 60027	Letter Symbols to be used in Electrical Technology
IEC Publication 60050	International Electrotechnical Vocabulary
IEC Publication 60617	Graphical Symbols for Diagrams

D. American Society of Mechanical Engineers (ASME)

ASME Y32.11 - 1961	Graphical Symbols for Process Flow Diagrams
ASME Y32.2.3 - 1994	Graphical Symbols for Pipe Fittings, Valves & Piping.

E.	TPL-TECH-I-POL-001	Measurement Policy
F.	TPL-TECH-I-POL-002	Control Policy
G.	TPL-TECH-I-POL-003	Instrumentation Policy
H.	SANS-10111-1-2011	Engineering Standards

4. ABBREVIATION

For the purpose of understanding these Standards, the following abbreviations apply.

ANSI	:	American National Standards Institute
C & I	:	Control and Instrumentation
IEC	:	International Electrotechnical Commission
ISA	:	Instrument Society of America
SABS	:	South African Bureau of Standards
ASA	:	American Standards Association

5. EQUIPMENT & INSTRUMENT SYMBOLOGY STANDARD

This specification details general drawing standards to be adhered to in the production of Engineering Documentation for and on behalf of Transnet Pipelines.

5.1 UNITS AND LANGUAGE

5.1.1 All drawings shall conform to SI (System International) units

5.1.2 All notes, comments and text shall be in the English language.

5.2 SIZES

5.2.1 All drawings shall be supplied on standard sized media as listed in Table 1 below:

Table 1. Sizes of Drawing Sheets (SABS 0111-1990 Table 1).

DESIGNATION	TRIMMED SIZE (mm)	WIDTH OF BORDER (mm)
A0	841 X 1189	20
A1	594 X 841	20
A2	420 X 594	15
A3	297 X 420	15
A4	210 X 297	15

5.2.2 Media exceeding A0 length may be used only where absolutely necessary e.g. Long sections / pipe profiles etc, but with prior approval from Transnet Pipelines.

5.2.3 Where possible, the following drawing sizes shall be adhered to in the production of Engineering Documentation. Where undecided, the smallest of the recommended sizes that is consistent with clarity should be used where ever possible. Deviations from the under mentioned drawing sizes shall require prior approval from Transnet Pipelines.

DOCUMENTATION TYPE	DRAWING SIZE
Process Drawings	
Piping & Instrumentation Diagrams	A1
Process Flow Diagrams	A1
Heating Ventilation & Air Conditioning (HVAC)	A1
Hazardous Area Classification Diagrams	A1

Metering & Instrumentation

Instrument Schedules/ Data Sheets	A4
Instrument Hookup Diagrams	A4
Instrument Location Diagrams	A1
Loop Drawings	A4
Panel GA / Layout Diagrams – Internal & External	A1
Panel Wiring Diagrams	A1/A4
Cable Schedules	A1/A4
Cable Block/ Routing/ Interconnection Diagrams	A1
Safety Integrity Levels (SILs) Report	A4
HAZOP Report	A4

Software Documentation

Engineering Design / Functional Design Spec (EDS/FDS)	A4
Plant Input/ Output (I/O) Schedules	A4
Metering Configuration Documentation	A4
Metering Detailed Design Spec (DDS)	A4
Site Acceptance Test (SAT)	A4

Electrical Documentation

Electrical Load & Fault Calculations	A4
Single Line Diagrams	A1/A4
Panel GA / Layout Diagrams – Internal & External	A1
Electrical Schematic & Wiring Diagrams	A1
Cable Schedules	A1/A4
Cable Block/ Routing/ Interconnection Diagrams	A1
Protection settings schedule and curves	A4
Cable schedule to include – de-rating factor Philosophy / calculations, cable lengths, voltdrop calculations	A2
Earthing Single line diagrams	A1
Electrical equipment data sheets	A4
Hazardous area equipment certification	A4
Site and manifold Hazardous area classification drawings	A1
High Voltage yards structural equipment design and foundation drawings	A3

Mechanical Documentation

General Arrangement Diagrams	As required
3D CAD views of Piping, Structural Steel & Mechanical	As required
3D model Isometric views	As required
Underground Drawings	As required

Civil/Site Layout Drawings

Site Layout Diagrams	A0/A1
Cable, Racking & Trenching Layout Diagrams	A0/A1
Survey Drawings	A0/A1
Earthing Reticulation Diagrams	A0/A1
Location Drawings (Plot Plans)/ 3D CAD views	A0/A1
Structural Arrangement Drawings	A0/A1
Structural Fire Protection Drawings	A0/A1
Structural Steel Detail Drawings	A0/A1
Foundation Drawings	A0/A1
Pipe/ Ducting Support Drawings	A0/A1
Weight/ Structural Analysis Design Reports	A4/A3

5.3. TEXT SIZES & CORRESPONDING LINE THICKNESSES

5.3.1. One of the following sets of standard text sizes and corresponding line thickness' shall be used:

Table 2. Text Size & Line Thickness (SABS 0111 1990 Table 2).

SET 1	
Text Size	Line Thickness
1.8 mm	0.18 mm
2.5 mm	0.25 mm
3.5 mm	0.35 mm
5 mm	0.5 mm
7 mm	0.7 mm
10 mm	1.0 mm

SET 2	
Text Size	Line Thickness
2.0 mm	0.2 mm
3.0 mm	0.3 mm
5.0 mm	0.5 mm
7.0 mm	0.7 mm
10.0 mm	1.0 mm
14.0 mm	1.4 mm

5.4. LINE TYPES

5.4.1. MECHANICAL DIAGRAMS

5.4.1.1. The following line types shall be adhered to in the production of Mechanical manufacturing drawings:

Table 3. Types of Lines (SABS 0111 1990 Table 3)

LINE	DESCRIPTION APPLICATION
A	Visible outlines/edges
B	Dimension, projection and leader lines cross hatching, short centre lines, imaginary lines of intersection, outlines of revolved sections
C	Break lines
D	Hidden features
E	Centre lines and lines of symetry, pitch circles, paths of motion, repeated details
F	Cutting planes
G	Limit of maximum or final maching
H	Existing or adjacent parts, alternative and extreme positions of movable parts, developed views and bend lines, feature located in front of a cutting plane, portions to be removed

5.4.2. PROCESS DIAGRAMS

5.4.2.1. Line Types to be adhered to in the production of Process Diagrams (e.g. Piping & Instrumentation Diagrams, Flow Diagrams) are defined in Transnet Pipelines Specification PL 102 Equipment, Instrument and Electrical Symbology Standards Document, Table 3.

5.5. SCALES

5.5.1. All engineering drawings shall be produced to one of the standard scales defined below, or should the need arise, a multiple of ten thereof:

10:1	1:2	1:50	1:1000
5:1	1:5	1:100	1:2000
2:1	1:10	1:200	1:2500
1:1	1:20	1:250	1:5000

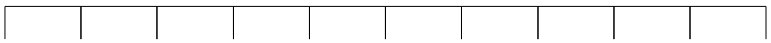
5.5.2 Conceptual drawings not drawn to scale shall be marked as "NTS" in **the box provided in the title block. Plot scales shall be noted** elsewhere on the drawing in these cases.

5.5.3 Where details (either enlarged or reduced), are drawn on the same sheet as the subject, the scale shall be indicated on the drawing, directly under the title of the detail.

5.5.4 Metric Reference Scale

All original drawings shall be marked with a metric reference scale at the bottom of the drawing, placed symmetrically about a centring mark near the frame of the border. The scale shall be 100 mm in length, with a maximum width of 5 mm and marked off in units of 10 mm.

Metric Reference Scale. (SABS 0111 Drg 10759/E)



5.6. TOLERANCES

5.6.1. Tolerances shall be indicated on all manufacturing drawings, whether as a general note, or on specific dimensions.

5.7 DIMENSIONS/NOTES

5.7.1. All manufacturing drawings shall be comprehensively dimensioned and annotated, to ensure that manufacturing methods, sizes and materials etc are clear to the manufacturer.

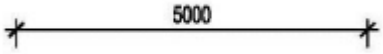
5.7.2. All detailed dimensions shall be in millimetres.

5.7.3. Dimensions are not to be exploded.

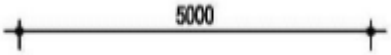
Examples:

Dimension with arrows

Dimension with oblique lines



Dimension with dots



Leader

5.8 TITLE BLOCK

5.8.1. All drawings are to bear the Transnet Pipelines title block (ANNEXURE A), with the space allocated for the Transnet Pipelines drawing number. The format for the drawing number should follow the following guidelines:

Format: **XXXXX-NNN-A-AAAA-NNNN-NN**

Section	Description	Examples of valid data
XXXXXX	Project number	Free-text field up to twelve (12) alpha-numeric characters long, may include a mixture of alphabets, numbers & special characters.
NNN	Depot Code	Refer to Annexure B
A	Discipline code	C (Civil) (Annexure A) Table A1*
AAAA	Document type	SL (site layout) (Annexure A) Table A2*
NNNN	Sequential number by document category	0001
N	Sheet number – only used for drawings	01

*Incorporating Transnet standard document numbering condification: SYS-P-001(a) v1.0

5.8.2. A space of either 25 mm high may be added to the top or 40 mm high may be added to the left hand side of the Transnet Pipelines title block, in which space the Contractor's details and title block may be added.

5.8.3. A further space of not more than 8 mm high may be added in the same area for the Contractor's drawing number.

5.8.4. The Contractor shall indicate the persons responsible for producing the drawing, the title, scale, project name, date, revision etc. in the spaces provided for in the Transnet Pipelines title block. (ANNEXURE A hereof)

5.8.5. On application, Transnet Pipelines will supply, free of charge, one "soft copy AutoCAD version" of their title block.

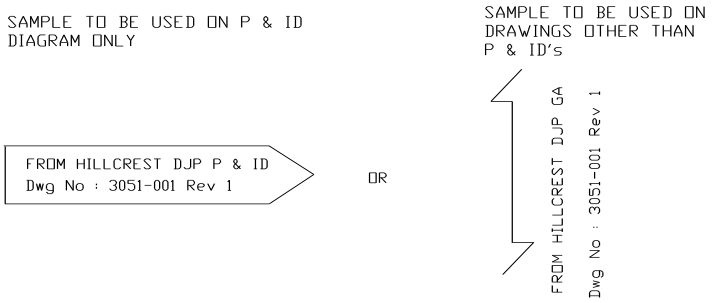
5.9. REFERENCE DRAWINGS

5.9.1. Where applicable, all reference drawings shall be noted in an appropriate place, on all drawings.

5.9.2. Smaller series drawing (A4 and A3) may bear reference drawing numbers as a note, in an appropriate position, on the drawing.

5.9.3. Where a drawing is of sufficient complexity and size that warrants being split over several pages, continuation lines shall be conveyed by means of either of the under

mentioned symbols. Note that the direction of the arrow shall indicate the direction of information flow.



5.10. CONTRACTOR'S AMENDMENT BLOCKS

5.10.1. All amendments made to existing drawings shall be indicated by the placement of the following information within a Revision Block included as part of the Drawing Border:

- Drawing Revision Number — Marked as the next consecutive alpha character.
- Revision Date — Date on which the amendment was made.
- Name — Name of Draughtsman responsible
- Description — Description of the amendment made.

5.10.2. Revision Numbers ascribed to Engineering Design Drawings (prior to completion of a project and production of AS BUILTS) shall be placed in the Contractor's Amendment Block and shall be numbered numerically commencing with the numerals 001. AS BUILT Drawings shall be indicated by the last revision number contained in the Contractor's Amendment Block.

5.10.3. In order to indicate the most recent amendments made to a drawing, all amendments relating to the most recent revision number shall be highlighted by means of a "cloud" symbol placed around the modification with the Revision Number inserted within. Only the most recent amendments shall be highlighted on a drawing in this manner.

5.11. LAYOUT

5.11.1. All drawings shall be laid out in a logical and legible manner and shall comply fully with all provisions as detailed in the Drawing Standards Document PL 100. Where Typical Drawing Layouts have been included in the Drawing Standards Document, Contractors shall be required to ensure compliance to such standards. Where Typical Drawing Layouts have not been defined, all proposed layouts shall be required to be approved by the nominated Transnet Pipelines representative prior to commencement of draughting work.

5.11.2. All orthographic projections are to be in the first angle.

5.11.3. Typical Drawing Layout Standards have been defined for the following documentation types and are required to be complied within the compilation of Engineering Documentation:

(PL 100 APPENDICE B Documentation Layout Standards/Typicals)

Process Drawings
Piping & Instrumentation Diagrams (P&IDs)
Process Flow Diagrams (PFDs)
Heating Ventilation & Air Conditioning (HVAC)
Hazardous Area Classification Diagrams
Hazop Studies

Metering & Instrumentation
Instrument Schedules
Instrument Data Sheets
Instrument Hook-up Diagrams
Loop Reports/ Drawings
Panel Layout and General Arrangements
Panel Wiring Diagrams
Cable Schedules (Refer to Electrical Typicals)
Cable Block Diagrams (Refer to Electrical Typicals)
Cable Interface Wiring Diagrams

Electrical Documentation
Single Line Diagrams
Electrical Schematic & Wiring Diagrams
Panel Layout and General Arrangements
Cable Schedules
Cable Block Diagrams
Cable Interface Wiring Diagrams
Connection/ Hook-up Diagrams

Mechanical Documentation
General Arrangement/ 3D CAD views of Piping, Structural Steel & Mechanical, Installations.
Layout Drawings/ 3D model Isometric views
Underground Drawings

Civil/Site Layout & Survey Documentation
Trenching and Services Layout Diagrams
Earthing Reticulation Diagrams
Cable Routing Reticulation Diagrams
Structural Arrangement Drawings
Structural Fire Protection Drawings
Structural Steel Detail Drawings
Foundation Drawings

Pipe/ Ducting Support Drawings

5.12. SYMBOLOGY

5.12.1. PROCESS DIAGRAMS, METERING AND INSTRUMENT DRAWINGS

All Process Diagram and Metering & Instrument Diagram symbols shall comply with those stipulated in the Equipment, Instrument and Electrical Symbology Standards Document PL 102 Tables 1 to 10. Symbols defined in this Standard cover production of the following Document types:

Process Drawings
Piping & Instrumentation Diagrams
Process Flow Diagrams

Metering & Instrumentation
Instrument Schedules
Instrument Data Sheets
Instrument Hookup Diagrams
Instrument Location Diagrams
Loop Drawings
Panel GA / Layout Diagrams – Internal & External
Panel Wiring Diagrams
Cable Schedules
Cable Block Diagrams
Cable Interconnection Diagrams
Cable Routing Diagrams

Software Documentation
Engineering Design / Functional Design Specs
Plant I/O Schedules
Flow Charts
Software Listing

Graphical instrument/equipment symbols have been based on compliance with ISA Standards 11th Edition Vol 1. Standards and Recommended Practices for Instrumentation and Control, and American Society of Mechanical Engineers Standards ASA 732.11 / 232.2.3.:

5.12.2. MANUFACTURING / MACHINING DRAWINGS

5.12.2.1. MACHINING SYMBOLS / ROUGHNESS VALUES

5.12.2.1.1. Machining and surface finish symbols and roughness values shall comply with the Code of Practice for Engineering Drawing SABS 0111/1990 as amended.

5.12.2.2. WELDING SYMBOLS

5.12.2.2.1. All welding symbols used shall comply with the Code of Practice for Welding, SABS 044 parts I and II, as amended.

5.12.3. ELECTRICAL DRAWINGS

5.12.3.1. All cable and wire sizes, values of resistance, breaking capacity of switches and ratings of equipment shall be clearly specified on a drawing.

5.12.3.2. ELECTRICAL SYMBOLS

All Electrical Diagram symbols shall comply with those stipulated in the Equipment, Instrument and Electrical Symbology Standards Document PL 102 Section 5. Symbols defined in this Standard covers production of the following Document types:

Electrical Documentation
Single Line Diagrams
Panel GA / Layout Diagrams – Internal & External
Electrical Schematic & Wiring Diagrams
Cable Schedules
Cable Block Diagrams
Cable Interconnection Diagrams
Cable Routing Diagrams

5.12.3.3. Graphical Symbols for Electrical Diagrams NRS 002-2000 second edition

5.12.4. OTHER DRAWINGS

5.12.4.1. All other drawings using symbols, must state the standard used, or else have a key as to the meaning of such symbols.

5.13. DRAWING LAYER CONTROL

5.13.1. The following Layer structures shall be utilised by the Contractor in the provision of all Engineering Design Drawings. All Layer Descriptors shall comprise of alphanumeric characters and shall be descriptive in nature.

5.13.2. PROCESS DIAGRAMS

All Process Diagrams shall comply with the following Layer structure:

0	General
ALCOHOL	Alcohol Manifold Piping
AUX	Auxiliary Manifold Piping
BORDER	Border
CDRAIN	Closed Drain System
CDRAINHID	Closed Drain System - below ground
DEFPOINTS	
DIESEL	Diesel Manifold Piping
EFFLUENT	Effluent System
FIRE	Fire System
FUTURE	Future Equipment, Piping
INSTR-ATTR	Instrument Attributes
INSTR-LINE	Instrument Piping
MAIN	Main Manifold Piping
NEW	
ODRAIN	Open Drain System
ODRAINHID	Open Drain System - below ground
PETROL	Petrol Manifold Piping
PIPE-ATTR	Pipe Attributes
TEXT	
TITLE	Title Block
ULP	Unleaded Manifold Piping

Layers defined in this Standard cover production of the following Document types:

Process Drawings

Piping & Instrumentation Diagrams
Process Flow Diagrams
Hazardous Area Classification Diagrams

5.13.3. METERING & INSTRUMENTATION DIAGRAMS

All Metering & Instrumentation Diagrams shall comply with the following Layer structure:

0	General
BORDER	Border
DEFPOINTS	
DIM	Dimensions
FUTURE	Future Installations
INSTR-ATTR	Instrument Attributes
INSTR-LINE	Instrument Piping
NEW	
PROCESS	Process Connections
PNEU	Pneumatics
TEXT	
TITLE	Title Block

Layers defined in this Standard cover production of the following Document types:

Metering & Instrumentation

Instrument Schedules
Instrument Data Sheets
Instrument Hookup Diagrams
Instrument Location Diagrams
Loop Drawings
Panel GA / Layout Diagrams – Internal & External
Panel Wiring Diagrams
Cable Schedules
Cable Block Diagrams
Cable Interconnection Diagrams
Cable Routing Diagrams

5.13.4. ELECTRICAL SWITCHGEAR DIAGRAMS

All Electrical Diagrams shall comply with the following Layer structure:

0	General
BORDER	Border
C1	Control Circuitry 1
C2	Control Circuitry 2
C3	Control Circuitry 3
C4	Control Circuitry 4
DEFPOINTS	
ELEC-ATTR	Electrical Attributes
FUTURE	Future Installations
MAIN	

NEW	
T1	Power Circuitry 1
T2	Power Circuitry 2
T3	Power Circuitry 3
T4	Power Circuitry 4
TEXT	
TITLE	Title Block

Layers defined in this Standard cover production of the following Document types:

Electrical Documentation
Single Line Diagrams
Panel GA / Layout Diagrams – Internal & External
Electrical Schematic & Wiring Diagrams
Cable Schedules
Cable Block Diagrams
Cable Interconnection Diagrams
Cable Routing Diagrams

5.13.5. Mechanical Diagrams, Manifold Piping and General Arrangements

All Mechanical Diagrams shall comply with the following Layer structure:

0	General
BORDER	Border
CDRAIN	Closed Drain System
CDRAINHID	Closed Drain System - below ground
DEFPOINTS	
DIMENSION	Dimensions
FUTURE	Future Equipment, Piping
HIDDEN	Hidden - underground
MAIN	
NEW	
ODRAIN	Open Drain System
ODRAINHID	Open Drain System - below ground
PLINTH	Plinth Details
PIPE-ATTR	Pipe Attributes
TEXT	
TITLE	Title Block

Layers defined in this Standard cover production of the following Document types:

Mechanical Documentation
General Arrangement/ 3D CAD views of Piping, Structural Steel & Mechanical, Installations.
Layout Drawings/ 3D model Isometric views
Underground Drawings

5.13.6. CIVIL / SITE LAYOUT DIAGRAMS

All Civil/Site Layout Diagrams shall comply with the following Layer structure:

0	General
AUX	Auxiliary Manifold Piping
BORDER	Border
BUND	Bund
BUNDW	Bund Wall
CABLE	Cable Reticulation
CDRAIN	Closed Drain System
CDRAINHID	Closed Drain System - below ground
DEFPOINTS	
DRAIN	Drainage
EARTH	Earthing System
EFFLUENT	Effluent System
FENCE	Fencing
FIRE	Fire System
FUTURE	Future Equipment, Piping
INSTR-ATTR	Instrument Attributes
INSTR-LINE	Instrument Piping
MAIN	Main Manifold Piping
NEW	
ODRAIN	Open Drain System
ODRAINHID	Open Drain System - below ground
PIPE-ATTR	Pipe Attributes
RACK	Racking Reticulation
TEXT	
TITLE	Title Block
TRENCH	Trenching Reticulation
ZONE0	Hazardous Area Classification Zone 0
ZONE1	Hazardous Area Classification Zone 1
ZONE2	Hazardous Area Classification Zone 2

Layers defined in this Standard cover production of the following Document types:

Civil/Site Layout Drawings

Trenching and Services Layout Diagrams
Earthing Reticulation Diagrams
Cable Routing Reticulation Diagrams
Structural Arrangement Drawings
Structural Fire Protection Drawings
Structural Steel Detail Drawings
Foundation Drawings
Pipe/ Ducting Support Drawings

5.14. SCOPE OF SUPPLY

5.14.1. PRESENTATION

5.14.1.1. All documentation shall be professionally reproduced and bound to the satisfaction of the nominated Transnet Pipelines representative. At least one set of documentation shall be marked as a "MASTER" set, and shall be presented in electronic medium suitable for reproduction. All binders and binding methods used, shall be approved by Transnet Pipelines prior to the documentation being bound.

5.14.2. SUPPLY REQUIREMENTS

Unless stipulated elsewhere in a Contract Document, the Contractor shall be required to provide the following Documentation:

5.14.2.1. ENGINEERING DESIGN DOCUMENTATION (PRIOR TO CONSTRUCTION)

The Contractor shall be required to prepare and submit to the Engineer three prints of each working drawing/design specification for approval. One print/copy of each drawing/specification shall be returned to the Contractor once approved. Notwithstanding any approval of design or working drawings by Transnet Pipelines or a nominated representative, the responsibility for the correct functioning of the system shall rest entirely with the Contractor.

As a minimum, the following documentation is required to be approved by Transnet Pipelines prior to commencement of construction activities:

Process Drawings

Piping & Instrumentation Diagrams
Process Flow Diagrams
Hazardous Area Classification Diagrams

Metering & Instrumentation

Instrument Schedules
Instrument Data Sheets (if different from Transnet Pipelines standard Data Sheets)
Instrument Hookup Diagrams (if different from Transnet Pipelines standard Hookups)
Loop Drawings (if different from Transnet Pipelines standard Loop Drawings)
Panel GA / Layout Diagrams – Internal & External
Panel 220V/24V Power Distribution and Barrier Layout schedules
Control System Architecture Diagrams
Communication Architecture & Interconnection Diagrams
Instrument Junction Box Layout Diagrams
Cable Block Diagrams

Software Documentation

Engineering Design Specification (Software Functional Design Specification)
Plant I/O Schedules
Flow Charts

Electrical Documentation

Electrical Load & Fault Calculations
Single Line Diagrams
Panel GA / Layout Diagrams – Internal & External
Electrical Schematic & Wiring Diagrams
Cable Block Diagrams

Mechanical Documentation

General Arrangement/ 3D CAD views of Piping, Structural Steel & Mechanical.
Layout Drawings/ 3D model Isometric views
Underground Drawings

Civil/Site Layout & Survey Documentation

Site Layout Diagrams
Cable, Racking & Trenching Layout Diagrams
Earthing Reticulation Diagrams
Structural Arrangement Drawings
Foundation Drawings

5.14.2.2. FINAL CONTRACT DOCUMENTATION

Unless stipulated elsewhere in a Contract Document, the Contractor shall provide as a Minimum the following Final Contract Documentation:

5.14.2.2.1. MAINTENANCE AND OPERATING LITERATURE

Maintenance and Operating Literature is deemed to form an integral part of all equipment supplied and shall require to be supplied along with all equipment installed on Transnet Pipelines sites. Supply shall include comprehensive data on servicing, faultfinding, repairs, procedures and full particulars with diagrams of how the equipment functions. All technical literature, calculations and drawings, which will enable Engineering Staff to be fully informed on electrical, control and mechanical aspects, shall be included.

5.14.2.2.2. AS BUILT DOCUMENTATION

Process Drawings
Piping & Instrumentation Diagrams (P&IDs)
Process Flow Diagrams (PFDs)
Heating Ventilation & Air Conditioning (HVAC)
Hazardous Area Classification Diagrams
Hazop Studies
Metering & Instrumentation

Instrument Schedules/ Data Sheets
Instrument Hook-up/ Location Diagrams
Loop Drawings
Panel GA / Layout Diagrams – Internal & External
Panel Wiring Diagrams
Panel 220V/24V Power Distribution and Barrier Layout schedules
Control System Architecture Diagrams
Communication Architecture & Interconnection Diagrams
Instrument Junction Box Layout Diagrams
Cable Schedules
Cable Block/ Interconnection/ Routing Diagrams
Safety Integrity Levels (SILs) Report

Software Documentation

Engineering Design Specification (Software Functional Design Specification)
Plant I/O Schedules
Flow Charts
Detail Software Listings

Electrical Documentation

Electrical Load & Fault Calculations
Single Line Diagrams
Panel GA / Layout Diagrams – Internal & External
Electrical Schematic & Wiring Diagrams
Cable Schedules
Cable Block/ Interconnection/ Routing Diagrams
Protection settings schedule and curves.
Cable schedule to include – de-rating factor philosophy / calculations, cable lengths, volt drop calculations.
Earthing Single line diagrams.
Electrical equipment data sheets.
Hazardous area equipment certification.
Site and manifold Hazardous area classification drawings.
High Voltage yards structural equipment design and foundation drawings.

Mechanical Documentation

General Arrangement/ 3D CAD views of Piping, Structural Steel & Mechanical.
Layout Drawings/ 3D model Isometric views
Underground Drawings
Piping – Analysis, Calculations, Studies, Reports

Civil/Site Layout & Survey Documentation

Trenching and Services Layout Diagrams
Earthing Reticulation Diagrams
Cable Routing Reticulation Diagrams
Structural Arrangement Drawings
Structural Fire Protection Drawings
Structural Steel Detail Drawings
Foundation Drawings
Pipe/ Ducting Support Drawings
Weight Reports
Structural Analysis Design Reports

5.14.2.2.3. SPECIAL DOCUMENTATION

- Operators Manual/s describing the equipment, system or plant from an operational viewpoint. This shall include any special or supervisory facilities.

- Technical Manual/s which describe the overall configuration of the system, capabilities of the system, how changes are to be made to the configuration of the system and all maintenance and special procedures necessary for Transnet Pipelines to maintain the equipment installed. This manual/s shall encompass both software and hardware requirements and shall be project orientated. Drawings (i.e. Wiring diagrams, dimensioned mechanical components/equipment etc.), excluding basic illustrations contained in manuals – Copies of these drawings are to be supplied separately with the "As-built" drawings and registered in the appropriate drawing index.

5.14.2.3. FINAL CONTRACT DOCUMENTATION COPIES. (See also 5.16 for specific requirements for the supply of "As-built" documentation.

Unless stipulated elsewhere in a Contract Document, the Contractor shall provide as a minimum the following number of copies of Final Contract Documentation:

- Master Control Centre – one full set in soft format (CD, DVD, Hard Drive)
- Drawing Office/Library – one MASTER set in soft format (CD, DVD, Hard Drive)
- Workshops – one full set in soft format each (CD, DVD, Hard Drive)
- Depot – one full set in soft format (CD, DVD, Hard Drive)
- Project Manager and those designated - one full set in soft format (CD, DVD, Hard Drive)

5.14.2.4. Before being submitted to Transnet Pipelines, all Final Contract Documentation and in particular AS BUILT Drawings shall be examined for compliance with onsite detail by the Contractor and signed as such.

5.14.2.5. All documentation (inclusive of hard copies and software) shall be supplied with a comprehensive Indexing system, to enable ease of access to drawing files. This index shall include as a minimum, the file names, drawing title, brief description, Contractor's/consultant's name and Drawing number, pipeline name etc. Transnet Pipelines shall provide a Microsoft Excel spreadsheet with the correct headings within the appropriate columns. Where possible, indexes shall be integral to the packages used; where not possible, indexes shall be presented in a Microsoft compatible database format.

5.14.2.6. Final Contract Documentation shall be submitted to the Engineer within eight weeks of the Contract completion date.

5.14.3. SOFTWARE PLATFORMS.

5.14.3.1. The following Software Platforms are used by Transnet Pipelines and are required to be utilised by the Contractor for compilation of all Engineering Documentation as follows:

Word Processing	Microsoft Word for Microsoft Windows XP.
Spreadsheets	Microsoft Excel for Microsoft Windows XP.
Database	Microsoft Access for Microsoft Windows XP.
Draughting	AutoCAD 2016 or Later.
Survey	ESRI ArcGIS.

5.14.3.2. The following Engineering Design Documentation types are currently installed on software platforms as detailed below, within Transnet Pipelines. Contractors will be required to provide the under mentioned documentation on the same software platforms.

Process Drawings

Piping & Instrumentation Diagrams	AutoCAD
Process Flow Diagrams	AutoCAD
Hazardous Area Classification Diagrams	AutoCAD

Metering & Instrumentation

Instrument Schedules	MS Excel
Instrument Data Sheets	MS Excel
Instrument Hook-up Diagrams	MS Excel (Embedded AutoCAD)
Instrument Location Diagrams	AutoCAD
Loop Drawings	AutoCAD
Panel GA / Layout Diagrams – Internal & External	AutoCAD
Panel Wiring Diagrams	AutoCAD
Cable Schedules	AutoCAD
Cable Block Diagrams	AutoCAD
Cable Routing Diagrams	AutoCAD
Cable Interface Wiring Diagrams	AutoCAD

Electrical Documentation	
Electrical Load & Fault Calculations	MS Excel
Single Line Diagrams	AutoCAD
Panel GA / Layout Diagrams – Internal & External	AutoCAD
Electrical Schematic & Wiring Diagrams	AutoCAD
Cable Schedules	AutoCAD
Cable Block Diagrams	AutoCAD
Cable Routing Diagrams	AutoCAD
Cable Interface Wiring Diagrams	AutoCAD
Protection settings schedule and curves	MS Excel
Cable schedule to include – de-rating factor philosophy / Calculations, cable lengths, voltdrop calculations	MS Excel
Earthing Single line diagrams	AutoCAD
Electrical equipment data sheets	MS Excel
Hazardous area equipment certification	AutoCAD
Site and manifold Hazardous area classification Drawings	AutoCAD
High Voltage yards structural equipment design and foundation drawings	AutoCAD
Mechanical Documentation	
General Arrangement/ 3D CAD views of piping	AutoCAD
Layout Drawings/ 3D model Isometric views	AutoCAD
Underground Drawings	AutoCAD
Piping – Analysis, Calculations, Studies, Reports	As required
Civil/Site Layout Drawings	
Trenching and Services Layout Diagrams	AutoCAD
Earthing Reticulation Diagrams	AutoCAD
Cable Routing Reticulation Diagrams	AutoCAD
Structural Arrangement Drawings	AutoCAD
Structural Fire Protection Drawings	AutoCAD
Structural Steel Detail Drawings	AutoCAD
Foundation Drawings	AutoCAD
Pipe/ Ducting Support Drawings	AutoCAD
Weight Reports	As required
Structural Analysis Design Reports	As required
Survey Drawings/Diagrams	ESRI ArcGIS / AutoCAD
Drawing Index	Microsoft Excel

5.14.4. OWNERSHIP AND COPYRIGHT

5.14.4.1. The Contractor shall be required to grant to Transnet Pipelines a non-exclusive copyright, in accordance with the provisions of Section 22 of the Copyright Act 1978:
To copy any plan, diagram, drawing, specification, bill of quantities, design calculation, application software or similar document generated for and on behalf of Transnet Pipelines

- To make free and unrestricted use thereof for its own purposes, modify the same or have it modified by a third party for any reason
- To provide copies thereof to a third party (contractors or consultants) of Transnet Pipelines for the purposes of Tendering or Consultancy
- No separate or extra payment shall be due by Transnet Pipelines in respect of any non-exclusive licence granted in terms of this clause.

5.14.4.2. The Transnet Pipelines emblem included in the title block is subject to copyright law, and therefore, must in no way be altered, distributed, defaced or tampered with, or handled in any way that will be an infringement on the copyright thereof.

5.15. ALIGNMENT SHEETS

5.15.1. TYPE

5.15.1.1. Aerial Photo strip type alignment sheets shall be supplied

5.15.1.2. A minimum of 500 m of photographed area is to be recorded on either side of the pipeline

5.15.2. SCALE

5.15.2.1. Horizontal 1:5000

5.15.2.2. Vertical 1:500 (Profile / long section)

5.15.3. MEDIA

5.15.3.1. Hardcopy: Paper Minimum size A2 – 2 copies.

5.15.3.2. Electronic: 1 copy "PDF" Format

1 Copy in AutoCAD

1 Copy in Native format. (Where applicable)

5.15.3.3. Paper - Bond or similar – Min 80 gsm

5.15.3.4. Max size A0 (841 mm x 1189 mm)

5.15.4. CONTOURS

5.15.4.1. Contours at 2 m intervals are to be marked up on the alignment sheets

5.15.5. L.O. SYSTEM

5.15.5.1. Relevant co ordinate grids must be marked up on all alignment sheets

5.15.5.2. L.O. systems used must correspond with those used on the servitude diagrams produced by the Land Survey Office.

5.15.5.3. L.O. systems used must be noted in the title block or on the grid lines

5.15.5.4. Each alignment sheet shall bear an accurately determined North indicating arrow

5.15.6. PROFILE (LONG SECTION)

5.15.6.1. Each alignment sheet shall have a relevant land and piping profile drawn at the bottom of the sheet.

5.15.7. BOUNDARIES

5.15.7.1. All boundaries are to be recorded on alignment sheets, including, cadastral and municipal boundaries, and property boundaries adjoining the pipe servitude.

5.15.7.2. All farm names and numbers, lots, subs, erfs etc. are to be recorded on alignment sheets

5.15.8. CROSSINGS

5.15.8.1. All crossings of existing services are to be recorded on the alignment sheets, indicating the type of service e.g. road, 22 kV overhead power lines, rivers, etc. (roads must be identified by name and/or number).

5.15.8.2. Existing services crossed, are to be reference coded as ES1, ES2, ES3 etc.

5.15.8.3. Copies of all documentation with regard, to the crossing of existing services, such as, deeds, agreements, and way leaves etc., are to be bound into book form and indexed to correspond with the reference codes on the alignment sheets

5.15.8.4. Lengths and diameters of sleeves or culverts are to be indicated on the alignment sheets.

5.15.8.5. Any crossing reference drawing numbers are to be recorded in the space provided

5.15.9. MARKERS

5.15.9.1. The exact position of all route, distance, offset and street markers are to be recorded on alignment sheets

5.15.9.2. Route markers are to be numbered from the preceding distance marker e.g. between the origin of the pipeline and the first distance marker (km1) the route markers shall be numbered M0/1, M0/2, M0/3 etc. and between distance markers km13 and km14, the route markers shall be numbered M13/1, M13/2 etc.

5.15.9.3. Distance markers are to be placed so as to indicate the actual length of pipe

5.15.9.4. Distance markers are to be numbered sequentially from the origin, with the origin being 0 km

5.15.9.5. Offset markers are to be clearly marked as such, and their actual position, with relation to the centre line of the pipe, indicated.

5.15.10. PIPE PROTECTION

5.15.10.1. All pipe protection measures are to be indicated on the alignment sheets (e.g. wrappings, rock shield etc.), as to the full extent of such pipe protection

5.15.11. WALL THICKNESS

5.15.11.1. The pipe wall thickness is to be marked on each alignment sheet.

5.15.11.2. Changes in pipe wall thickness shall be clearly and accurately marked on the alignment sheets

5.15.12. BLOCK VALVES

5.15.12.1. Block valves will be numbered sequentially starting with BV1.

5.15.13. CATHODIC PROTECTION EQUIPMENT

5.15.13.1. The position of all cathodic protection equipment shall be clearly and accurately recorded on alignment sheets (e.g. rectifiers, test points, cross bonds, cable routes, anode beds etc.)

5.15.13.2. Rectifiers are to be numbered sequentially as, R1, R2, R3 etc., with R1 being the closest rectifier to the origin

5.15.13.3. Test points are to be numbered sequentially from the block valves e.g. the test point at block valve 3 shall be numbered 3/1 and the next test point between block valves 3 and 4 shall be numbered 3/2 etc.

5.15.14. GENERAL

5.15.14.1. Any reference drawings shall be noted in the space allocated on the alignment sheets

5.15.14.2. The type and position of all pipefittings is to be accurately recorded on the alignment sheets e.g. thread o rings, pig signals, stopple fittings etc.

5.15.14.3. Any cable routes (e.g. pig signal cables etc.) are to be accurately recorded on the alignment sheets

5.15.14.4. Each alignment sheet shall have a key to the symbols used on it

5.15.14.5. All road and river names, where affected by the pipeline, are to be recorded on the alignment sheets

5.15.14.6. All alignment sheets shall have "cut lines" at both ends, to enable the matching up of consecutive alignment sheets

5.15.14.7. Key plans of the pipe route shall be supplied on 1:50 000 scale topo cadastral maps. (Transparencies)

5.16. SPECIFIC REQUIREMENTS "AS-BUILT" DOCUMENTATION

5.16.1. SPECIFIC REQUIREMENTS

5.16.2. General: All Manuals (technical, operating etc.), Standards and Specifications:

ELECTRONIC COPY REQUIREMENTS:

One Electronic copy of the "As-built"/ Final in PDF Format (must be able to print copies), plus one Electronic copy in the Native original format (where applicable) in which it was produced. Both copies to be accessible (with the necessary controls) from the Electronic Document Management System provided for the specific project. E.g. SAP, Aconex etc.

5.16.3. ALL DRAWINGS AND DIAGRAMS:

ELECTRONIC COPY REQUIREMENTS:

One Electronic copy of the "As-built"/Final in PDF Format (must be able to print copies), plus one Electronic copy in "AutoCAD 2016 or earlier" (where applicable) and one Electronic copy in the Native original format (e.g., MS Office formats, AutoCAD drawings, etc.) in which it was produced. All copies to be accessible (with the necessary controls) from the Electronic Document Management System provided for the specific project. `E.g. SAP, Aconnex etc.

5.16.4. MECHANICAL ENGINEERING DOCUMENTS:

Certificates, tests and data packs

The original signed document of Conformance certificates, Test certificates, Material certificates and Data packs must be supplied together with one scanned copy in PDF format.

Manuals

Any Technical, Operating, Equipment or Maintenance Manuals received from Vendors in original Hardcopy (published, not scanned) format must be supplied in that format (4 originals) together with a scanned copy in PDF Format.

Any Technical, Operating, Equipment or Maintenance Manuals received from Vendors in original electronic format (i.e. published in electronic format) must be supplied as one electronic format copy and one printed copy. (Suitably bound and referenced

5.16.5. ELECTRICAL ENGINEERING DOCUMENTS:

Certificates

The original signed documents of "Certificate of Compliance" and "Hazardous area equipment certification" must be supplied together with one scanned copy in PDF format.

Manuals

Any Technical, Operating, Equipment or Maintenance Manuals received from Vendors in original Hardcopy (published, not scanned) format must be supplied in that format (4 originals) together with a scanned copy in PDF Format.

Any Technical, Operating, Equipment or Maintenance Manuals received from Vendors in original electronic format (i.e. published in electronic format) must be supplied as one electronic format copy and one printed copy. (Suitably bound and referenced).

Drawings and Diagrams

In addition to 5.16.3, the following site / pump station specific documentation must be supplied (2 As-Built Hardcopy Prints).

1. Single Line Diagrams.
2. Panel GA / Layout Diagrams – Internal & External.
3. Electrical Schematic & Wiring Diagrams.
4. Cable Block Diagrams.
5. Cable Routing Diagrams.
6. Earthing Single line diagrams.
7. Site and manifold Hazardous area classification drawings.

5.16.6. Handover of As-Built and Other Documents from Transnet Pipelines Technical Projects to Transnet Pipelines Drawing Office must be as per TPL-TECH-DO-WI-001. (See Appendice C).

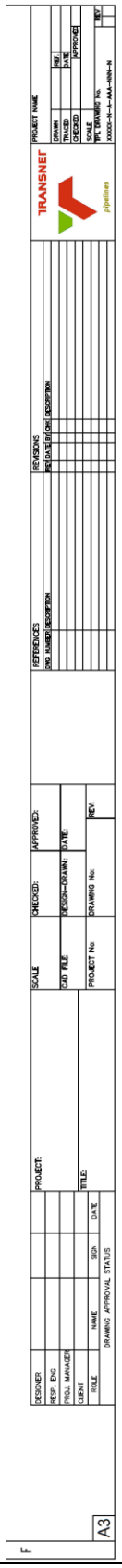
1. DOCUMENT CHANGE HISTORY:

The owner of this document is responsible for the revision and control of the document, including updating of the table below, which contains the history of the document with details of each revision.			
Date	Previous Rev No.	New Rev No.	Details of Revision
15.01.99	00	01	Document approved for distribution.
30.07.99	01	02	Additions made to Scope of Supply.
01.08.07	02	03	Additions made to Scope of Supply & deliverables. Transnet Pipelines logo added.
22.07.10	03	04	Additions made to Scope of Supply & deliverables. Specific requirements added.
12.06.2012	04	05	New Transnet Standard Template Adopted
07.06.2016	05	06	Document review & New Template
20.02.2024	06	07	Document update & Drawing numbering format changed
23.04.2024	07	08	Included Transnet Standard document & discipline codes, & TPL depot codes.

This table summarises what has been changed in the document so that it is easy to keep track of the effected changes.

7. APPENDICES

APPENDICE A: SAMPLE TITLE BLOCK



APPENDICE B:

DRAWING OFFICE STANDARD PL100

TRANSNET PIPELINES			
Document Name	Document Number	Revision Number	Page
Drawing Office Standard (PL100)	TPL-TECH-DO-STD-001	05	2 of 6

APPENDICE C:

HANDOVER OF AS-BUILT AND OTHER DOCUMENTS FROM TECHNICAL PROJECTS TO DRAWING OFFICE

TRANSNET PIPELINES			
Document Name	Document Number	Revision Number	Page
Handover of As-Built and Other Documents from Technical Projects to Drawing Office	TPL-TECH-DO-WI-001	00	2 of 6

ANNEXURE A

Table A1 – Discipline Codes (Technical & Non-Technical documents)

Code	Discipline Description
A	Architectural
B	Building & Infrastructure
C	Civil
E	Electrical
F	Process Engineering
G	General – non discipline specific (incl. Marine; Dredging; Light Houses; Aviation)
H	Geotechnical
J	Control and Instrumentation
K	Security / CCTV / ICT
L	Environmental
M	Mechanical
N	PERWAY
O	OHTE
P	Piping
S	Signals
T	Structural Steel
X	EPCM
Y	Professional Services Contract / Supplier / Supply Contracts
Z	Project Management

ANNEXURE A

Table A2 – Document Types

Code	Description	Additional (doc type) Descriptions	Class
ACC	Accruals		Commercial
ACT	ACT	Government ACT	General
ADD	Addendum	(for all 'general' documents)	Commercial
ADJ	Adjudication	Tender Adjudication & Evaluations	Commercial
ADV	Advertisements		General
AG	Agenda		General
AGR	Agreement	Non-Disclosure Agreements / Service Level Agreement	Commercial
AIA	Approved Inspection Authority		Technical
AL	Alignment Sheet		Drawing
ANX	Annexure	Appendix	General
AP	Access Permit	Permit to Work	Technical
		General Permits / Site Access	Technical
APP	Appointments	Key Personnel	General
AR	Arrangement Drawing		Drawing
ART	Article	News Articles	General
AS	Assembly Drawing		Drawing
ASS	Assessment	Control Self-Assessment (CSA)	General
		Organisational Transition Impact Assessment	General
		Social Impact Assessment (SIA)	General
		Socio Economic Impact Assessment (SEIA)	General
ATP	Advice to Procurement		Commercial
AU	Audits	Compliance Quality, Environmental & Safety Audits	General
AUC	Audio Clip		General
BC	Business Case	(Project specific)	General
BG	Bank Guarantee		Commercial
BoQ	Bill of Quantity	Bill of Material	Technical
BQ	Bill of Quantity (Drawings)	Bill of Material (Drawings)	Drawing
BoS	Basis of Schedule		Technical
BS	Bending Schedule		Drawing
BUD	Budget		Commercial
BUL	Bulletin	Newsletter	General
CAL	Calculation		Technical
CBA	Cost Benefit Analysis		General
CC	Contractual Claim		Commercial

CE	Compensation Event		Commercial
CF	Cash flow		Commercial
CHR	Charter (project specific)		General
CK	Checklist		General
CoC	Certificate of Compliance		Technical
CR	Concession Request		Commercial
CRQ	Change Request	Change Control	Technical
CRT	Certificate	Takeover / Handover / Completion / Payment	Technical
CS	Cable Schedule		Drawing
CT	Cable Termination		Drawing
CTA	Contract Addendum		Commercial
CTD	Contract Document		Commercial
CTN	Contractor Notification	***NEC Specific***	Commercial
CTV	Contract Variation		Commercial
DB	Data Book		Technical
DC	Design Criteria	Basis of Design	Drawing
DCF	Delegation Consent Form	Contract Value	Commercial
DCN	Design Change Notice	Engineering Change Request	Technical
DD	Daily Diaries		Commercial
DE	Detail Drawing		Drawing
DEV	Development		General
DIA	Diagram		Technical
DIC	Dictionary		General
DoA	Delegation of Authority		General
DoI	Declaration of Interest		General
DS	Data Sheet		Technical
EA	Environmental Authorization		Technical
EIA	Environmental Impact Assessment		Technical
EL	Equipment List		Technical
EM	E-mail		General
EMP	Environmental Management Plan		Technical
EMPr	Environmental Management Programme		Technical
EN	Enquiry(s)		Commercial
EOI	Expression of Interest		General
ES	Estimate		Commercial
EV	Earned Value	Earned Value Indicators	Commercial
EVA	Earned Value Analysis		Commercial
EVM	Earned Value Management		Commercial
EWI	Early Warning Incoming		Commercial
EWO	Early Warning Outgoing		Commercial
FAQ	Frequently Asked Questions		General
FAT	Forms and templates		General
FBS	Facility Breakdown Structure		Technical
FD	Fabrication Details		Drawing
FEQ	Field Engineering Query		Commercial

FS	Fact Sheet		General
FW	Frameworks	Critical Controls Framework	General
		Environmental Management Framework	General
		Governance Framework	General
		Long Term Planning Framework	General
		Port Development Framework	General
		Sustainable Development Framework	General
FX	Facsimile		General
GA	General Arrangement		Drawing
GL	Guideline	Guide	General
HAN	Hand-out	Leaflet	General
HD	Hook-up Diagram		Drawing
HF	Hydraulic Flow Diagram		Drawing
IN	Index	Instrument Index, various Indices	General
IND	Induction	Safety / Projects / General	General
INS	Instruction	Service Manager's / Employer's Agents / DSTI / Supervisor's / Work Instruction / Site Instruction	General
INV	Invoice		Commercial
IOM	Installation and Operating Manual		Technical
IP	Image and Photograph		General
IS	Piping Isometric Drawing		Drawing
TP	Inspection Test plan		Technical
JNL	Journals		General
JV	Joint Venture		General
LA	Layout		Drawing
LD	Loop Diagram		Drawing
LET	Letter		General
LIC	License		General
LIS	Lists		General
LL	Line List (drawings)		Drawing
LOG	Log (documents)	Action Log / Lessons Learned Log	General
LS	Load Summary Data Sheet		Drawing
LTI	Lost Time Injury		Technical
MA	Manual	Handbook	Technical
MP	Map		Drawing
MCA	Multi Criteria Analysis		Technical
MD	3D Model Drawing		Drawing
MEM	Memorandum		General
ML	Motor List		Drawing
MM	Minutes of Meetings	Projects / Contracts / Safety / General	General
MOU	Memorandum of Understanding		General
MR	Media Responses	General 'Responses'	General
MS	Method Statement		Technical
MTO	Material Take Off		Technical
MTX	Matrix	Approval Matrix	General
		Classification Matrix	General
		Deliverables Matrix	General
		Distribution Matrix	General

		PSO Tools Matrix	General
		RACI Matrix	General
		Regulatory Compliance Universe Matrix	General
		User Permissions Matrix	General
NCR	Non-Conformance Report		Technical
NDT	Non-Destructive Testing		Technical
NOT	Notification	Budget Change Notice / Notification	Commercial
		Credit / Debit Notes / Notification	Commercial
		Defects Notice / Notification	Technical
		Delivery Notes / Notification	Commercial
		Notice / Notification	Commercial
ORG	Organogram	Org Structure	General
ORS	Owner Requirements Specification	User Requirements Specification	Technical
P	Procedure		General
PAP	Payment Application		Commercial
PB	Performance Bond		Commercial
PBC	Programme Business Case	(Programme specific)	General
PBR	Programme Brief		General
PBS	Package Breakdown Structure	(note: lowest level components of WBS)	Technical
PCH	Programme Charter		General
PCI	Project Insurance Certificate		Commercial
PCN	Project Change Notice		Commercial
PD	Power Distribution Diagram	Power Distribution Layout	Drawing
PDO	Programme Dossier	(Programme specific)	General
PEP	Project Execution Plan		Technical
PES	Procurement Execution Strategy		General
PF	Process Flow (Diagram)		Drawing
		Flow Charts	General
		Process Flow Diagram	General
		Process Flow Map	General
		Various Management Processes	General
		Visio	General
		Workflow	General
PI	Piping & Instrumentation Diagram		Drawing
PL	Plans (drawings)		Drawing
PLN	Plans (documents)	Benefits Realisation Management Plan	General
		Closeout Plan	General
		Compliance Control Plan	General
		Construction Management Plan	General
		Development Plan	General
		Functional Execution Plan	General
		Health & Safety Management Plan	General
		Integrated Development Plan	General
		Issue Management Plan	General
		Legal and Regulatory Compliance Plan	General
		National Infrastructure Plan	General
		Occupational Management Plan	General
		Operational Readiness Plan	General
		Organisational Readiness Plan	General
		Preparation Plan	General
		Programme Assurance Plan	General
		Programme Benefits Sustainment Plan	General

		Programme Benefits Transition Plan	General
		Programme Change Management Plan	General
		Programme Closure Plan	General
		Programme Commissioning Plan	General
		Programme Contract Management Plan	General
		Programme Control Plan	General
		Programme Cost and Financial Management Plan	General
		Programme Design Blueprint and Design Principles Plan	General
		Programme Execution, Monitoring and Control Plan	General
		Programme Governance Plan	General
		Programme Independent Reviews Plan	General
		Programme Infrastructure Management Plan	General
		Programme Knowledge and Document Management Plan	General
		Programme Management Plan	General
		Programme Post Implementation Review Plan	General
		Programme Procurement Management Plan	General
		Programme Quality Management Plan	General
		Programme Requirements Management Plan	General
		Programme Resource Management Plan	General
		Programme Safety and Health Management Plan	General
		Programme Schedule Management Plan	General
		Programme Scope Management Plan	General
		Programme Stakeholder Management Plan	General
		Programme Sustainability Management Plan	General
		Proposals	General
		Project Quality Plan	General
		Risk Management Plan	General
		Strategic Alignment Plan	General
		Tranche Management Plan	General
		Transition Management Plan	General
		Transnet Infrastructure Plan	General
		Work Package Plan	General
		Work Plan	General
PLP	Project Lifecycle Process		General
PM	Process Map		General
PMB	Performance Measurement Baseline		General
PMD	Programme Mandate		General
PMI	Project Manager's Instruction	(ECC Contract) NEC specific	Commercial
PMN	Project Manager's Notification	(ECC Contract) NEC specific	Commercial
PO	Purchase Order		Commercial
POL	Policy		General
PPP	Procurement Package Plan		Commercial
PR	Press Release		General
PRM	Programme Roadmap		General
PRS	Presentation		General
PSA	Project Specific Agreement		Commercial
PSR	Project Status Report		General
QCP	Quality Control Plan		Technical

QD	Quality Dossier	Data Pack	Technical
		Environmental File	Technical
		Quality File	Technical
		Safety File	Technical
QRA	Quantitative Risk Analysis		Technical
QUO	Quotation		Commercial
RA	Risk Assessment	Risk Analysis(RA) / Safety Risk Assessment(SRA)	General
RCU	Regulatory Compliance Universe		General
RD	Reinforcing Details		Drawing
REG	Registers	Assumptions & Constraints Register	General
		Attendance Register	General
		Benefits Realization Tracking Register	General
		Decision Register	General
		Document Transmittal Register	General
		Drawing Register	General
		Equipment Requirements Register	General
		Governance Decision Register	General
		Issue Register	General
		Programme Asset Management Register	General
		Programme Integration Management Register	General
		Regulatory Compliance Tracking Register	General
		Risk Register	General
		Skills Requirements Register	General
		Stakeholder Register	General
REQ	Requisition	Engineering Requisition / Request	General
RFI	Request for Information		Technical
RFP	Request for Purchase		Commercial
RFQ	Request for Quotation		Commercial
RoD	Record of Decision		General
RPT	Reports	Assurance Report	General
		Cash Flow Report	General
		Closeout Report	General
		Contract Closeout Report	General
		Cost & Financial Report	General
		Environmental Audit Report	General
		Environmental Impact Report	General
		Factory Acceptance Test Report	General
		Final Report	General
		Financial Closure Report	General
		Gate Review Report	General
		Knowledge Transition Report	General
		Procurement Package Report	General
		Programme Closure Recommendations	General
		Programme Dashboard Report	General
		Programme Viability Report	General
		Project Closeout Report	General
		Quality Audit Report	General
		Safety Audit Report	General
		Safety Incident Report	General
		Safety Report	General
		Supplier Performance Review Report	General
SC	Schedule (Drawing)	Assemble / Design / Input-Output / Testing	Drawing

SCH	Schedule	Project Activity Program	Technical
SD	Schematic Diagram		Drawing
SDB	Sustainable Development Blueprint		General
SE	Sections	Cross Sections	Drawing
SES	Site Establishment		General
SI	Site Information		Commercial
SoW	Scope of Work	Works' information	Technical
SK	Sketch		Drawing
SL	Single Line Diagram		Drawing
SP	Specifications		Technical
SPN	Super's Notification	NEC specific	Commercial
SQ	Squad Check	Document Reviews	General
ST	Standard (Drawing)		Drawing
STD	Standard		General
STM	Statements	Final Statement / Financial Statement	Commercial
STR	Strategy	Commissioning Strategy	General
		Lessons Learned Strategy	General
		Market Demand Strategy	General
		Programme Management Strategy	General
		Regulatory Compliance Strategy	General
STU	Study		General
TE	Tender Evaluation		Commercial
TEA	Tender Addendum		Commercial
TML	Timeline	Programme Baseline / Programme Timeline	General
TN	Tender		Commercial
TO	Task Order	Works Order	Commercial
ToR	Terms of Reference		General
TQ	Technical Query		General
TRI	Transmittal (Incoming)		General
TRO	Transmittal (Outgoing)		General
VE	Value Engineering		General
VIC	Video Clip		General
VIP	Value Improvement Process		General
VL	Valve List		Drawing
WA	Warranty	Guarantee / Warrants	Commercial
WBS	Work Breakdown Structure		General

Annexure B

Depot Codes

DEPOT NAME	DEPOT CODE
Airport	APT
Alrode	ALR
Benoni	BIR
Bethlehem	BEM
Bethlehem TOP	BHT
Coalbrook	CBK
Durban	DNR
Duzi	Duzi
Empangeni	EMG
Fort Mistake	FTM
Fynnlands	FYN
Hillcrest	HLR
Hilltop	HTP
Howick	HWR
Island View	IVW
Jameson Park	JMP
Klerksdorp	KRP
Kendal	KDL
Kroonstad	KRO
Ladysmith	LAY
Ladysmith TOP	LST
Langlaagte	LLA
Magdala	MGA
Mahlabatini	MAT
Mnambithi	MBT
Mngeni	MGN
Mooi River	MRR
Newcastle	NCS
Pietermaritzburg	PZB
Pietermaritzburg TOP	PMT

DEPOT NAME	DEPOT CODE
Pietermaritzburg TOP	PMT
Potchefstroom	PCM
Pretoria West	PWT
Quagga	QGA
Rustenburg	RTR
Sasolburg	SBG
Scheepersnek	SCN
Secunda	SEC
Standerton	SNR
Tarlton	TLR
Twini	TNI
Van Reenen	VRN
Villiers	VLR
Volksrust	VRR
Vrede	
Waltloo	WAO
Warden	WDN
Wilge	WIL
Witbank	WIR
Transnet Pipelines Head Office	PHO9

Line Codes

AREA	CODE
IVW - JMP	PL1
JMP - ALR	PL2
ALR - LLA	PL3
KDL - WAO	PL4
SBG - KRO	PL5
JMP - APT	PL6