

Transnet Port Terminals

Port Elizabeth Bulk Terminal

<u>Document Title:</u>
SCOPE OF WORK

<u>Scope requirements:</u>
Upgrading the existing fibre optic component to a newer approved and compatible version, improving reliability, signal transmission and maintainability of the fibre optic communication system and PEBOT.

Provision for the Ore berth light repairs for Transnet SOC Ltd (reg no. 1990/000900/30) operating as Transnet Port Terminals (Hereinafter referred as "TPT") for Port Elizabeth Container Terminal.

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DOCUMENT PREPARATION

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Approved by		Engineering Manager		14/9/2026

1 BACKGROUND

The Port Elizabeth Multi-Purpose Terminal's core business is to export dry bulk manganese ore. This is achieved by utilizing various terminal infrastructure such as rail wagon Tippers, Conveyor belts, Storage facilities, Reclaimers, Ship loaders, and a network of mobile equipment such as Excavators and Bulldozers.

2 OBJECTIVE

The main objective of this Scope of work (SOW) is to upgrade the existing fibre optic components to a newer approved and compatible version, improving reliability, signal transmission and maintainability of the fibre optic communication system.

3. SCOPE OF WORK

3.1 Site Inspection and Verification

Prior to commencing the installation, the contractor shall:

- Inspect the existing fibre optic component and its installation arrangement.
- Verify the existing equipment identification, model and configuration.
- Confirm the number and type of fibre optic channels.
- Verify the type of fibre being used, including single-mode or multimode, where applicable.
- Verify fibre connector types and cable routing.
- Check the mechanical mounting arrangement and available installation space.
- Verify all existing connections and termination points.
- Confirm compatibility of the proposed replacement with the existing system.
- Identify any additional adapters, mounting brackets, couplings or accessories required for the new installation.

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- Record the existing condition of the equipment and associated fibre optic cables before removal.

3.2 Isolation and Preparation

Before removal of the existing component, the contractor shall:

- Obtain the required work permit and follow the site's safety procedures.
- Coordinate with the maintenance personnel responsible.
- Isolate the equipment/system as required.
- Apply the applicable Lock-Out procedures.
- Verify that the equipment is in a safe condition for work.
- Identify and label all fibre optic connections and associated cables.
- Record the existing connection arrangement before disconnection.
- Protect all exposed fibre optic connectors from dust, moisture and mechanical damage.

3.3 Removal of Existing Fibre Optic Component

The contractor shall:

- Disconnect the existing fibre optic connections.
- Disconnect any associated electrical/control connections where applicable.
- Remove the existing mounting hardware and fasteners.
- Carefully remove the existing Conductix-Wampfler fibre optic component.
- Ensure that existing fibre optic cables are not damaged during removal.
- Protect all disconnected fibre ends using suitable protective caps.
- Remove obsolete mounting hardware, brackets or accessories where these are no longer required.
- Clean the installation area prior to installation of the new equipment.
- Remove the old equipment from site or place it in the designated location as instructed by the client.

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3.4 Installation of New Fibre Optic Component

- The contractor shall provide and install the new approved upgraded fibre optic component.

The replacement unit shall:

- Be a current/new-generation equivalent or approved replacement.
- Be fully compatible with the existing fibre optic system.
- Have the required number of fibre optic channels.
- Match the required fibre type.
- Match or appropriately interface with the existing connector configuration.
- Be suitable for the environmental conditions in which it is installed.
- Be mechanically suitable for the existing application.
- Be installed in accordance with the manufacturer's installation requirements.

3.5. Fibre Optic Cable Installation and Termination

- Where existing fibre optic cables can be reused, the contractor shall inspect and test them before connection to the new component.

The contractor shall:

- Route the fibre optic cables correctly.
- Maintain the manufacturer's minimum bend radius.
- Prevent excessive mechanical stress on the cables.
- Ensure that cables are adequately secured.
- Clean all fibre optic connectors before connection.
- Inspect connector end faces where applicable.
- Ensure that connectors are correctly identified and connected to the correct ports.
- Maintain correct fibre polarity/channel identification.

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- Replace damaged connectors or fibre cables where required and approved.
- Ensure that unused fibre ports are suitably protected.
- All fibre optic connections shall be installed in accordance with the manufacturer's recommendations.

3.6 Fibre Optic Testing

The contractor shall perform suitable fibre optic tests, including where applicable:

- Fibre continuity test.
- Optical power measurement.
- Optical insertion-loss measurement.
- Fibre link attenuation test.
- OTDR testing where required.
- Verification of individual fibre channels.
- Verification of fibre polarity/channel allocation.
- Test results shall be recorded for each fibre channel.
- The contractor shall use calibrated test equipment appropriate for the installed fibre type.

3.7 Communication/Signal Testing

- After installation, the contractor shall verify the operation of the complete fibre optic communication path.

Testing shall include:

- Establishing communication between the connected devices.
- Verifying that all required fibre optic channels are operational.
- Checking for communication errors.
- Verifying signal stability.
- Confirming correct data transmission.

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- Checking the system during stationary operation.
- Checking the system during normal rotation/movement, where applicable.
- Confirming that no intermittent communication faults occur.

Where the fibre optic component forms part of a PLC, drive, control or monitoring system, communication shall be verified from the relevant equipment end-to-end.

Below are the pictures of the existing fibre optic system:



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4. TPT TO SUPPLY

- Temporary access to the plant

5. TPT REQUIREMENTS

Services as outlined in the scope of work within specified lead

5.1 Lead time

The service provider will be given a lead time **8days** for delivery of the services requested after received the Purchase order from our procurement department. The service provide is expected to keep the teams onsite until the last day of the shut

5.4 Project Plan:

Contractor to provide project plan before commencement of work. Contractor to show that the works are to be completed in 8 days. Plan is to be updated daily and presented at the daily 7am shut meeting.

6. Contractor to provide the following documents before starting with the work.

- Project Plan
- Indication of resource planning as per request.
- Letter confirming contractor will adhere to the shut down time frame and scope
- Letter confirming that contractor will adhere to the lead time as per requirements.
- Comprehensive risk assessment to be provided.
- Services as outlined in the scope of work
- Provide their own general rigging and lifting gear needed to perform tasks.
- All lifting gear and rigging equipment shall be safety certified.
- All electrical tools shall be safety checked and certified on a regular basis.
- Contractor shall practice "good housekeeping" and leave the site clean and tidy.
- Contractor to bring its own cleaning team to perform all cleaning duties required to perform all the activities as indicated on the resource requirements
- Contractor shall bring own means of storage for all tools and consumable needed for the period of the shut

8. Safety related items:

- Prior to start of the work a comprehensive safety file needs to be submitted to the TPT RISK Manager for approval.
- All artisans used must be qualified artisans – proof of qualifications to be included in safety file a copy to be submitted with a quote.
- Area of work activities must be suitably barricaded and sign posted with company name and responsible people to prevent unauthorized access.

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9. Safety file requirements:

For all safety file requirements please refer to Annexure A attached.

10. Environmental Requirements:

For all safety file requirements please refer to Annexure B attached.