

SUPPLY AND DELIVERY OF 63 MM RAILWAY BALLAST STONES WOODEN RAILWAY SLEEPERS, RAILWAY SLEEPER CHAIRS AND RAILWAY COACH SCREWS.

**DURBAN MAIN CENTRE, 311 SOLOMON
MAHLANGU DRIVE, ROSSBURGH.**

Document Number	MPE_DBN_SPEC_001
Reference Number	FAI_DBN_SOW_40
Revision	003
Effective Date	03 September 2026
Supersedes	Revision 002 dated 18 March 2023

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Effective Date	03 September 2026

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TABLE OF CONTENTS

1. Introduction and Purpose
 2. Scope of Supply and Delivery
 3. Applicable Standards and Technical Requirements
 4. Material Quantity Summary
 5. Specific Material Requirements
 6. Delivery Programme, Logistics and Offloading
 7. Quality Assurance, Inspection, Testing and Traceability
 8. Material Acceptance and Rejection
 9. Health, Safety and Environmental Requirements
 10. Source and Facility Inspection
 11. Documentation and Deliverables
 12. General Contract Requirements
 13. Definitions and Abbreviations
- Annexure B - Inspection and Test / Acceptance Plan

1. INTRODUCTION AND PURPOSE

This Technical Specification defines the minimum requirements for the supply, transport, delivery and safe offloading of railway permanent-way materials for use at the Durban Main Centre shunting yard and associated perway replacement locations.

All materials shall be new, unused, fit for railway service, traceable to the approved source and compliant with this specification. The Contractor remains responsible for the complete delivery obligation, including quality verification, transport, offloading, certification and replacement of rejected material.

1.1 Task Requirement

No.	Task	Required
1	Supply	Yes
2	Transport	Yes
3	Delivery	Yes
4	Safe offloading / stockpiling	Yes
5	Testing and certification	Yes
6	Documentation and traceability	Yes

2. SCOPE OF SUPPLY AND DELIVERY

The Contractor shall supply, transport, deliver and safely offload the following new materials at the identified Durban Main Centre delivery points:

- 63 mm nominal railway ballast stone;
- treated hardwood railway sleepers in the specified lengths;
- Type 3262 and Type E330 railway sleeper chairs; and
- 20 mm diameter x 150 mm long railway coach screws.

The complete scope includes material sourcing, manufacture or procurement, quality control at source, testing, certification, loading, transport, access arrangements, delivery, safe offloading, stockpiling where applicable, protection against damage or contamination, batch traceability, removal of rejected material and replacement of non-compliant material.

3. APPLICABLE STANDARDS AND TECHNICAL REQUIREMENTS

All materials and workmanship shall comply with the latest applicable editions of the standards and requirements stated in the tender documents, including:

- SANS 457 - Timber Preservation.
- SANS 10005 - The Preservation of Timber.
- SANS 1783 - Sawn Timber.
- SANS 121 - Hot-dip galvanized coatings.
- SANS 920 - Steel fasteners.
- SANS 657 - Hot-rolled steel sections, where applicable.
- SANS 1700 - Identification marking, where applicable.
- Transnet Freight Rail Permanent Way Specifications.
- Transnet Specification S406 - Ballast Specification (latest applicable version).
- SANS 1200 NB - Civil Engineering Construction: Railway Sidings (Trackwork).
- SANS 3001 AG series - Civil Engineering Test Methods for Aggregates.
- National Railway Safety Regulator Act, 2002 (Act 16 of 2002), where applicable.
- Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended, and applicable regulations.

Where a conflict exists between requirements, the Contractor shall notify the Transnet Technical Representative in writing before supply. No deviation shall be implemented without written approval.

4. MATERIAL QUANTITY SUMMARY

The following consolidated quantities have been reconciled from the Activity Schedule and form the controlled quantity summary for this specification. The detailed location schedule shall reconcile to these totals.

Material	Size / Type	Total Quantity	Unit
Railway ballast stone	63 mm nominal railway ballast stone.	2 500 m ³	m ³
Wooden railway sleepers	2.1 m	91	EA
Wooden railway sleepers	2.4 m	165	EA
Wooden railway sleepers	2.7 m	118	EA
Wooden railway sleepers	3.0 m	90	EA
Wooden railway sleepers	3.4 m	133	EA
Wooden railway sleepers	3.7 m	87	EA
Wooden railway sleepers	4.2 m	26	EA
Wooden railway sleepers	All lengths - total	710	EA
Railway sleeper chairs	Type 3262	109	EA
Railway sleeper chairs	Type E330	124	EA
Railway coach screws	20 mm x 150 mm	2 500	EA

5. SPECIFIC MATERIAL REQUIREMENTS

5.1 Railway Ballast Stone

- Nominal size: 63 mm railway ballast.
- Material shall be clean, dry, angular and free from clay, organic matter, sand and other deleterious material.
- Permitted rock type: suitable igneous or metamorphic rock such as granite, norite, quartzite or dolerite. Sandstone and shale are not acceptable.
- Relative density (SANS 3001-AG1): greater than 2.5 g/cm³.
- Flakiness Index (SANS 3001-AG4): less than 30%.
- Los Angeles Abrasion: less than 22% loss, as specified in the original technical requirement.
- Void content: greater than 40%.
- Water absorption: less than 1%, in accordance with the specified Transnet test method.
- Grading shall comply with the applicable limits in Transnet Specification S406.
- Ballast shall be sourced from an approved, licensed commercial quarry.

A certified SANAS-accredited laboratory test certificate demonstrating compliance with the applicable Transnet S406 requirements shall be submitted before the first delivery and thereafter for each change of source or material batch as directed by Transnet.

5.2 Wooden Railway Sleepers

Sleepers shall be suitable for railway turnouts, crossovers, shunting-yard trackwork and heavy axle-load service. They shall be fully treated and ready for installation.

- Approved hardwood species suitable for railway service, including Azobe, Jarrah, Ekki, Greenheart, approved African hardwoods or equivalent approved species.
- Minimum width: 250 mm.
- Minimum thickness: 150 mm.
- Lengths: 2.1 m, 2.4 m, 2.7 m, 3.0 m, 3.4 m, 3.7 m and 4.2 m, in the controlled quantities stated in Section 4.
- Length tolerance: ± 10 mm; width tolerance: ± 5 mm; thickness tolerance: ± 5 mm.
- Sleepers shall be straight, uniform in section and free from decay, termite or insect attack, excessive knots, through splits, rot, excessive warping, mechanical damage and burn marks.
- Moisture content at delivery shall not exceed 25% for treated hardwood sleepers.

- Sleepers shall be pressure treated in accordance with SANS 457 and SANS 10005 using an approved preservative such as creosote or CCA, as applicable.
- Treatment shall achieve penetration and retention suitable for severe outdoor railway exposure conditions. Treatment certificates and moisture-test records shall be submitted with each delivery batch and shall be traceable to the delivered sleepers.

5.3 Railway Sleeper Chairs

- Chair types: Type 3262 and Type E330 in the quantities stated in Section 4.
- Chairs shall be suitable for railway turnout and rail-support applications and compatible with the applicable rail section and timber sleeper arrangement.
- Chairs shall be manufactured from cast steel as specified in the original requirement.
- Material shall be sound and homogeneous and free from cracks, porosity and casting defects.
- Chairs shall be protected against corrosion by hot-dip galvanizing to SANS 121 or another approved equivalent system.
- Coating shall be continuous and free from defects.
- Dimensions and geometry shall match the applicable rail profile, provide the required rail cant and ensure correct fastening alignment.

Material certificates and galvanizing/coating certificates shall be submitted before delivery and shall identify the applicable batch or production lot.

5.4 Railway Coach Screws

- Terminology: 'coach screw' shall be used throughout the tender and contract documents.
- Nominal diameter: 20 mm.
- Nominal length: 150 mm.
- Fasteners shall be manufactured from high-tensile steel complying with SANS 920 and applicable ISO fastener requirements.
- Coach screws shall be suitable for securing the specified sleeper chairs to timber sleepers.
- Coach screws shall be hot-dip galvanized and free from coating defects.

Material and coating certificates shall be submitted with each batch and shall be traceable to the delivered fasteners.

5.5 General Material Requirements

- All materials shall be fit for railway service conditions and free from defects.
- All specified dimensions and tolerances shall be met.
- All material shall be produced or supplied under controlled quality arrangements.
- Production/source batches shall be traceable from source through delivery and acceptance.
- The Supplier shall maintain an ISO 9001-compliant quality management system or equivalent quality-management arrangements acceptable to Transnet.

6. DELIVERY PROGRAMME, LOGISTICS AND OFFLOADING

All materials shall be delivered within eight (8) weeks from the official Purchase Order date, unless a different written delivery instruction is issued by Transnet before commencement. The bidder's detailed programme shall demonstrate how this completion period will be achieved.

6.1 Ballast Batch Delivery

The 2 500 m³ ballast quantity shall be delivered in five (5) batches of approximately 500 m³ each. Unless otherwise instructed in writing, one batch shall be completed per week. Approved delivery dates shall be confirmed with the Transnet Technical Representative at least five (5) working days before each batch.

6.2 Other Perway Materials

Wooden sleepers, chairs and coach screws shall be delivered in coordinated batches aligned to the approved project programme and detailed location schedule. The Contractor shall prevent damage, mixing, contamination or loss of traceability during transport, handling and storage.

6.3 Transport and Offloading

- Provide all roadworthy vehicles, lifting/offloading equipment, labour and supervision required for the complete delivery.
- Secure loads to prevent movement, loss, spillage and dust during transport.
- Comply with site access, traffic-management and delivery instructions.
- Offload only at the designated and approved delivery or stockpile locations.
- Protect existing infrastructure, railway assets and personnel during delivery and tipping/offloading.
- Remove spillages and make good any damage caused by the Contractor.
- Do not assume that Transnet will provide offloading equipment or labour unless expressly stated in writing.

7. QUALITY ASSURANCE, INSPECTION, TESTING AND TRACEABILITY

The Contractor shall implement a documented quality-control system covering source approval, inspection, testing, certification, batch identification, transport, delivery and final acceptance. The inspection and test acceptance requirements shall, as a minimum, be in accordance with Annexure A of the Specification Document.

7.1 Source Identification

The bidder shall identify the proposed quarry, timber treatment facility, manufacturer and/or supplier for each offered material in its tender submission. Any proposed change of source after award requires prior written approval from Transnet.

7.2 Batch Traceability

Every delivery shall be traceable to the relevant source, batch/lot, certificate and delivery note. Certificates shall contain sufficient identifying information to link them to the delivered material.

7.3 Inspection Rights

Transnet or its authorised representative reserves the right to inspect material at the quarry, production facility, treatment facility, manufacturer's works, storage yard and delivery point. Inspection does not relieve the Contractor of responsibility for compliance.

8. MATERIAL ACCEPTANCE AND REJECTION

Material acceptance shall be evidence-based and subject to satisfactory inspection, documentation and testing. No material shall be deemed accepted solely because it has been delivered to site.

Deliverable	Minimum Evidence	Submission Point	Acceptance Authority
63 mm ballast	SANAS test certificate and grading results	Before first delivery and per source/batch	Transnet Technical Representative
Wooden sleepers	Treatment and moisture certificates	With each batch	Transnet Technical Representative
Sleeper chairs	Material and galvanizing/coating certificates	Before delivery / applicable batch	Transnet Technical Representative
Coach screws	Material and coating certificates	With each batch	Transnet Technical Representative

8.1 Rejection

- Materials may be rejected for defective workmanship, non-compliant dimensions or tolerances, unacceptable timber defects, inadequate corrosion protection, failed tests, incomplete certification, loss of traceability or any other non-compliance with this specification.

SUPPLY AND DELIVERY OF 63 MM RAILWAY BALLAST STONES WOODEN RAILWAY SLEEPERS, RAILWAY SLEEPER CHAIRS AND RAILWAY COUCH SCREWS.
DURBAN MAIN CENTRE, 311 SOLOMON MAHLANGU DRIVE, ROSSBURGH.

- Rejected material shall be clearly identified, removed from the delivery/stockpile area and replaced by the Contractor at no additional cost to Transnet.
- Where non-compliance is identified after delivery, Transnet retains the right to require replacement notwithstanding prior visual inspection.

9. HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS

The Contractor shall comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended, applicable regulations, site rules and all relevant legal requirements.

Before commencement of deliveries, the Contractor shall submit a delivery risk assessment and method statement covering, as a minimum:

- vehicle movements and site access;
- load securing;
- pedestrian and vehicle segregation;
- tipping and offloading operations;
- lifting and handling of sleepers, chairs and fasteners;
- dust suppression and control;
- prevention and clean-up of spillages;
- stockpile stability and access control;
- protection of railway infrastructure and adjacent operations; and
- emergency arrangements, communication and incident reporting.

Delivery activities shall be stopped where an unsafe condition exists until adequate controls have been implemented.

10. SOURCE AND FACILITY INSPECTION

Transnet reserves the right, before award or before the first delivery, to inspect the bidder's or proposed manufacturer's production, timber-treatment, quarry, storage or quality-control facilities relevant to the offered material. The bidder shall identify all proposed sources in its bid and provide reasonable access and written authority for Transnet to undertake such inspection where required.

The inspection provision applies equally to manufacturers, distributors, resellers and quarry suppliers and shall not be interpreted as requiring a bidder to own a manufacturing workshop.

11. DOCUMENTATION AND DELIVERABLES

The following documentation shall be supplied as applicable:

- Approved detailed delivery programme and logistics plan.
- Source identification and contact details for each material.
- Ballast laboratory certificates and grading results.
- Wooden sleeper treatment and moisture certificates.
- Sleeper-chair material and galvanizing/coating certificates.
- Coach-screw material and coating certificates.
- Delivery notes identifying material, quantity, batch/lot and delivery location.
- Batch traceability register.
- Delivery risk assessment and method statement.
- Quality-control and inspection records.
- Records of rejected material, corrective action and replacement where applicable.
- Any additional certificate or evidence required by the applicable standard or Transnet Technical Representative.

12. GENERAL CONTRACT REQUIREMENTS

- Any matter requiring a technical decision from Transnet shall be referred to the Transnet Technical Representative.
- The Contractor shall ensure that the offered materials are adequate for the railway service duty described in this specification.
- All unit rates in the Activity/Pricing Schedule shall include material, packaging, loading, transport, insurance, access requirements, delivery, safe offloading, stockpiling where applicable, testing, certificates, labour, equipment, removal of rejected material and replacement of non-compliant material unless an item is expressly listed separately.
- No variation or additional payment shall arise from an obligation expressly included in this specification and the Activity/Pricing Schedule.
- Where the detailed location schedule contains an unclear location description, the location shall be verified and issued by Transnet before delivery to that point. The Contractor shall not select an alternative delivery point without approval.

12.1 Environmental Operating Conditions

Condition	Requirement
Altitude	Sea level
Ambient temperature	0 °C to 45 °C
Relative humidity	50% to 100%
Atmosphere	Heavy saline

13. DEFINITIONS AND ABBREVIATIONS

Term	Definition
CLIENT	Transnet Engineering, Durban Main Centre.
TRANSNET TECHNICAL REPRESENTATIVE	The Project Manager, Perway Engineer or other person formally designated by Transnet to administer technical acceptance.
CONTRACTOR	The supplier appointed under this specification and the associated tender/contract.
COACH SCREW	20 mm diameter x 150 mm long hot-dip-galvanized high-tensile steel fastener intended to secure the specified sleeper chair to the timber sleeper.
BATCH / LOT	A traceable quantity of material produced or supplied under substantially uniform conditions and linked to the applicable test/certification records.
SANAS	South African National Accreditation System.

ANNEXURE A - INSPECTION AND TEST / ACCEPTANCE PLAN

Item	Inspection / Test	Evidence	Frequency / Stage	Hold / Review Point	Acceptance
Ballast	Source and grading / physical-property compliance	SANAS laboratory certificate and grading results	Before first delivery and per source/batch	Hold point before first delivery	Transnet Technical Representative
Ballast	Visual condition and quantity	Delivery note / receiving record	Each delivery batch	Review point	Transnet Technical Representative
Sleepers	Treatment compliance	Treatment certificate	Each batch	Review point before acceptance	Transnet Technical Representative
Sleepers	Moisture content / dimensional condition	Moisture record and inspection record	Each batch / sampling as directed	Review point	Transnet Technical Representative
Sleeper chairs	Material and coating compliance	Material and galvanizing/coating certificates	Before delivery / production lot	Review point	Transnet Technical Representative
Coach screws	Material, dimensions and coating	Material/coating certificate and inspection record	Each batch	Review point	Transnet Technical Representative
All materials	Batch traceability	Traceability register and delivery note	Each delivery	Review point	Transnet Technical Representative
All materials	Final delivery acceptance	Signed receiving / inspection record	Each delivery and final completion	Acceptance point	Transnet Technical Representative