

**PART C2**  
**PRICING DATA**

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## PART C2 Pricing Data

### C2.1 Pricing Instructions

#### 2.0 General

- 2.0.1 The agreement is based on the NEC Term Service Contract. The contract specific variables are as stated in the contract data. Only the headings and clause numbers for which allowance must be made in the Price List are recited.
- 2.0.2 Preliminary and general requirements are based on part 1 of SANS 1921, Construction and management requirements for works contracts. The additions, deletions and alterations to SANS 1921 as well as the contract specific variables are as stated in the contract data. Only the headings and clause numbers for which allowance must be made in the Price List are recited.
- 2.0.3 It will be assumed that prices included in the Price List are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders.
- 2.0.4 The Price List is not intended for the ordering of materials. Any ordering of materials, based on the Price List, is at the Contractor's risk.
- 2.0.5 The prices and rates in these Price Lists are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the scope of work and shall cover liabilities and obligations set forth or implied in the Contract data, as well as profit.
- 2.0.6 The quantities set out in these Price Lists are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in these Price Lists.
- 2.0.7 The short descriptions of the items of payment given in this Price List are only for purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
- 2.0.8 For each item in the Price List, the Contractor shall provide in the appropriate column the portion of the tendered sum (inclusive of labour and material) which has been sourced locally (Republic of South Africa).
- 2.0.9 The Contractor shall provide information related to imported content, i.e. equipment to be imported, value and applicable exchange rates. This information shall be provided as an Annexure to the Price Lists.
- 2.0.10 The total in the Price List shall be exclusive of VAT, and shall be transferred to form C1.1 (Form of Offer and Acceptance).

#### C2.1 Pricing Instructions

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<u>SECTION NO.</u>	<u>DESCRIPTION</u>
C2.1	Pricing instructions.
C2.2	Schedule of Machines and Labour Machine and Labour Schedules, Heavy Duty, High Production open line ballast tamping machine with stabilisation
C2.3	Price list  Price list, Heavy Duty, High Production open line ballast tamping machine with stabilisation

### MEASUREMENT AND PAYMENT FOR CONTRACT

This part C2 of the specification as well as any reference in part **C3 and C3.24** will apply to determine conditions under which payments for this contract are to be made:

The basis of payment of this contract is the equivalent km tamped. To ensure allowing sufficient time to achieve the km tamp, continuous record keeping of time utilisation is required. Time Tw, To and Tb, the totals for the month, are to be recorded and availability and productivity has to be recorded for the month.

#### 2.1 ITEM 1

An establishment payment will be made after the machine first attains a minimum availability of 75% over a period of 1 month.

#### 2.2 ITEM 2

2.2.1 Payment for a Standard km tamped shall be made per machine. This rate shall include for the full time availability of the machine including the provision and maintenance of the machine in full operational condition, and also including all maintenance and support staff and fuels.

Payment for work done shall be as follows:

Equivalent Standard km =

km Standard track tamped

+ km non Standard track tamped x Standard sleeper spacing / actual sleeper spacing

+ km Double tamp std spacing x 1.5

+ km Double tamp non Std spacing x Std spacing / actual spacing x 1.5

+ Time restricted track tamping (Twr) x tendered tamp rate per hour / std sleepers per km

All time and productivity records and calculations shall be recorded on every months payment calculations as per clause 9 of the Particular Specifications to monitor time allowed for the contractor to achieve the required output.:

- 2.2.2 Once the average equivalent km tamp for the month has been achieved, all additional equivalent km tamp will be paid for under this additional rate. The average quantity for the month will be calculated based on the workdays for the month in relation to the total workdays for the year. Each month's payment will provisionally be reconciled with the previous month, allowing for the exchange of the extra km tamped of a preceding month to cover for a shortfall of km tamped for a current month. A final reconciliation shall be done once per year to ensure that only the planned equivalent km as per item 2.1 is paid for against the rates allowed for under this item. All additional km will only be paid for under item 2.2.
- 2.2.3 If a machine is required to work for a breakdown or emergency call-out during the December break, payment will be made for the use of each day the machine is called out to work, whether the machine is actually working or standing. This call out rate only applies to the December break period and will not apply for any call-outs during the year. Call-outs during the year shall form part of the travel and km tamp as per items 2.2.1. 2.2.2
- 2.2.4 Planned travel days shall be considered as part of the total amount of TO day shifts planned for the year. (235 To days are planned per year)

### 2.3 ITEM 3 - OVERTIME PAYMENT

Item 3.1- Overtime payment will be made for occupation time **during week days** (Monday to Friday) in excess of the hours of maximum occupation time (TOM) of 8 (eight) hours per day.

Overtime payment will also be made for work performed on a **Saturday or week day** when in excess of 5 consecutive days out of every 7-day period or in excess of 10 consecutive days out of every 14-day period.

Overtime will also be paid on weekends of shift working after shift time exceeds the maximum hours allowed for Tom

Item 3.2 Overtime payment will be made for work performed on a **Sunday or Paid Public Holiday** when in excess of 5 consecutive days out of every 7-day period or in excess of 10 consecutive days out of every 14-day period.

Sunday time will also be paid on weekends of shift working after shift time on a Sunday or PPH exceeds the maximum hours allowed for Tom.

### 2.4 ITEM 4 - SHIFT ALLOWANCE

Item 4.1 A shift allowance payment will be made for work performed on a **Saturday** when working 5 days out of every 7-day period or 10 days out of every 14- day period.

Item 4.2 A shift allowance payment will be made for work performed on a **Sunday** or Paid Public Holiday when working 5 days out of every 7-day period or 10 days out of every 14-day period.

Item 4.3 A **night shift** allowance payment will be made when a 9 hour occupation or part thereof falls between 19h00 and 05h00, and will be paid in addition to any other shift or overtime payments.

## 2.5 ITEM 5 Day Labour rates.

When technological development required by Transnet Freight Rail necessitates modifications to the machine, an assessment of the time and cost of such modifications shall be submitted to the Project Supervisor as soon as possible.

Modifications in the field shall only be done on instruction by the Project Supervisor, for which the following shall apply:

- . for labour, the rates in item 5 of the Price list and prices.
- . a mark-up of 25% will be allowed on landed prices of imported parts or the delivered prices of locally manufactured parts and will be excluded from price adjustment described in clause 23 of Part C3/A

This item shall also be used as a provisional item for any required and approved day labour. (Refer applicable clause of Part C3/B for additional preparation work). The rates are to be for labour (including hand tools), supervision and transport for additional preparation work, approved by the Project Supervisor.

## 2.6 ITEM 6

Payment will be made per track kilometre for moving the machinery between work-site and work-site (See definition of moving time – Part C3/A Definitions). Tendered rates shall include for fuel as well as wear and tear while moving. No payment will be made when the machinery is hauled by Locomotive

## 2.7 ITEM 7

2.7.1 Lump sum item for payment of specific costs not covered in the existing specification. This Lump sum item is included for items such as:

- a) Payment of material and or services such as may be required for level crossing repair work during tamping or interim accommodation payments for which TFR may be responsible.
- b) Payment of plant hire or day labour not specifically covered by rates in the contract.

2.9.2 Payment of interim accommodation cost will only be applicable where wagons are agreed to be used and the contractor is required to work at the new moved site after a machine has moved and TFR has undertaken to assist with accommodation wagons and the accommodation wagons and train has been delayed, requiring the contractor to arrange for alternative additional accommodation.

2.9.3 Payment for late accommodation shall only apply if agreed on and specifically instructed by the Technical Officer.

2.9.4 Any agreement for the supply of an additional service required by TFR shall be between the contractor and supplier of the service. Transnet will only pay the contractor for this service on acceptance of the invoice, under the condition that the service and price was approved beforehand

by the Technical Officer.

2.9.5 Any approved invoice payable, shall clearly qualify the supplier, rate, quantity, cost and delivery detail, certified by the contractor for what purpose used, including reference to minutes or instruction from Technical Officer

2.9.7 ITEM 9.2

Provisional sum: Excess for Cell phone:

Payment will be made for the actual excess minutes used by authorised Transnet Freight Rail personnel for official use over and above the initial free minutes allowed on the Cell-phone contract as specified in clause 13.5.1 of the Part C3/A and the Schedule of Cell-phone contract.

2.10 ITEM 10

In the event that a Technical Officer requires a machine to be on standby during the December break, arrangements will be made for such standby for the core crew, operator, technician and direct support or as qualified by the tender. Payment will apply for each day for which the crew is required to be on standby. If an actual call out is however made, no standby will be payable for the days for which the machine is called out as all cost for actual call outs are to be part of the call out cost as per item 2.3. A travel allowance shall also be paid per kilometre actually travelled by the crews standby vehicle during the contractors Annual Holidays including travelling to respond to the call out. This item shall exclude travelling between temporary accommodation and work site as this shall included in the normal working rates allowed for under item 2.3.

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**Schedules of Machine/s**

**TAMPING PLAIN TRACK**

TYPE OF MACHINE OFFERED:

- 1 MAKE:.....
- 2 MODEL(YEAR) :.....
- 3 NOMINAL PRODUCTION RATE:.....  
(sleepers/min) (Minimum = 50 sleepers/min)
- 4 LIFTING AND SLEWING
- 4.1 MAXIMUM LIFT (mm) :.....
- 4.2 MAXIMUM SLEW PER PASS (mm) :.....
- 5 NOMINAL TRAVELLING SPEED (km/h)
- 5.1 LEVEL GRADIENT (minimum 80 km/h) :.....
- 5.2 GRADIENT OF 1:60 (minimum 45 km/h):.....
- 5.3 WHEN TRAVELLING AS PART OF AND COUPLED TO A TRAIN:.....  
(minimum 60 km/h)
- 6 TAMPING FREQUENCY (Hz) :.....

Note : Nominal in the schedule of machines indicates the maximum continuous production rate that the machine is capable of.

TYPE OF TAMPING	UNIT to be completed by Tenderer	SCHEDULED RATE/TIME	
Plain track	sl/min	Rp	=
Restricted track	sl/min	Rr	=
Maximum rate	sl/min	R max.	=
<b>Sets:</b>			
1:20 wood	Minute	R20w	=
1:20 concrete	Minute	R20c	=
1:12 wood	Minute	R12w	=
1:12 concrete	Minute	R12c	=
1:9 wood	Minute	R9w	=
1:9 concrete	Minute	R9c	=
1:8 wood	Minute	R8	=
1:6 wood	Minute	R6	=
1:7 or 1:4 diamond	Minute	Rd	=
Scissors	Minute	Rci	= NA
Single slip	Minute	Rss	= NA
Double slip	Minute	Rds	= NA
Splice joint	Minute	Rsj	=

Note: All scheduled rates must include the machine preparation time for turnout tamping.



**Schedule of Labour for full time support of machine operations**

**TAMPING PLAIN TRACK**

	A) Machine support Labour	B) Full time support Subcontract labour as part of machine activity.	C) Any other full time labour – (Functions to be specified.)
1. Contract supervisor			
2. Machine operators			
3. Machine maintenance support Technicians			
4. Machine Technician Trade hands supporting machines:			
5. Other Machine support Grades: Specify:			
6. Subcontractor supervisor / Track master for tamping support			
7. Subcontractors Trade hands for track support. Trackman etc.			
8. Bonders.			
9. Flagmen			
10. Workers (Track workers Un – skilled labour)			
11. Vehicle allowed for transport of workers & tools. (Type & Capacity)			
12.. Any other support allowed for execution of this function (Clarify)			

**Schedule of Rail wagons**

Wagons used for contract and intended to be continued to be used as part of offer.

Number of wagons	Type of wagon used / required	For what purpose is wagon used	Transnet Wagon Number of present wagon in use	Type of Wheel bearings of wagon & general condition (White Metal or roller bearing)	Motivation for wagon required and implication if wagon is not made available for contract
Example 1	DZ with built roof	Mass Fuel tank (10000l)		White Metal bearings Wagon good condition	

**SCHEDULE OF CELL-PHONE CONTRACT (REFER CLAUSE 3.8.5.1 OF THE C3 )**

Name of Service Provider (i.e. Vodacom / MTN) & Type of Contract (i.e. Talk 500 / Pinical 600)

Cellular Telephone \_\_\_\_\_





Price list : **(High Production Tamper & Stabiliser TAMPING PLAIN TRACK**

ITEM	DESCRIPTION	QUANTITY	UNIT	RATE	AMOUNT
1.	Establishment	-	sum		
2.	Tamping payment				
2.1	Equivalent standard km track tamped	1450	Eqv km		
2.2	Additional equivalent km tamped	250	Eqv km		
2.3	Additional time based use of machine for emergency call out work over holiday periods (Provisional)	10	Work Day		
3.	Overtime				
3.1	Overtime hours outside Tom of 8 hours per day & Overtime payment for Saturdays when in excess of 5 out of 7 or 10 out of 14 days are worked consecutively & OT on shift days in excess of 8 h		hour		
3.2	Overtime payment for Sundays & PPH when in excess of 5 out of 7 or 10 out of 14 days are worked consecutively & ST for shift days on Sunday & PPH in excess of 8h.		hour		
4.	Shift allowance				
4.1	Shift payment for Saturdays when working 10 out of 14 days		hour		
4.2	Shift payment for Sundays & PPH when working 10/14 shifts.		hour		
4.3	Night shift payment for night shifts between 19h00 and 05h00. (This shift payment is in addition to shift payments in items 3.1 and 3.2 and / or 4.1 – 4.2)		hour		
5.	Day Labour rates (Provisional)(if required) (Man day = 8 hours) (Normal hours)				
5.1	Supervisor or Artisan (Technician or Fully qualified Track Master)		Man Day		
5.2	Skilled labour (Trade hand, Trackman, driver)		Man Day		
5.3	Unskilled labour (Track worker, assistants etc.)		Man Day		
	Enhancement for overtime (extra over items 5.1, 5.2 and 5.3)				
6.4	Weekdays and Saturdays		percent		-
6.5	Sundays and public holidays		percent		-
6.6	LDV to transport additional small work gang if required.		Day		
6.7	Additional Truck to transport additional day labour (+10), hand tools and material.		Truck Day		
8.	Moving Machine	3000	km		
9.1	Provisional lump sum		Prov. sum	-	R100,000.00
9.2	Extra over for Cell-phone costs in excess of 500 minutes per month and for material such as bagged bitumen pre-mix for repair of level crossings. (Provisional sum)		Prov. sum	-	R2,000.00
10	Standby for crew of machine for emergency call out over December break (Provisional)	35	Day		
<b>TOTAL AMOUNT (EXCLUDING VAT)</b>					

Tender date: Escalation base date:

Base:

Escalation base indices: Lo =

Po =

Mo =

Do =

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## Part C3: Scope of Works

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## PART C3

### SERVICE INFORMATION

#### MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MACHINERY

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	Annexure 16 Sheet 4 of 5 (Amendment) Destressing and working temperature ranges.
	Annexure 16 Sheet 5 of 5 (amendment) Destressing and working temperature ranges.

## **MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MACHINERY**

### **3.1. EMPLOYERS OBJECTIVE**

Permanent track, Country-wide are to be maintained by mechanized means and or on-track machinery to ensure safe, reliability and stability of permanent way infrastructure.

Any clause in this specification contradictory to requirements elsewhere in this contract except for particular specifications part **C3.24.2**, shall take preference.

Any reference in this Specification to “Contractor” will imply the Principal Machine Contractor, any subcontractor appointed by the Principal contractor for support of the contractor.

Where reference is made to any output which may be subcontracted by the principal contractor or Labour controlled by the principal contractor, this will also imply to the control of the output, performance or labour from a nominated sub contractor where and if such a nominated subcontractor is separately appointed for support service for a principal machine contractor.

### **3.2 DESCRIPTION OF THE WORK**

The contract covers the maintenance of permanent track by the Contractor with on-track machinery, which he shall provide, maintain and operate subject to the terms of the succeeding clauses, and the specifications and schedules embodied in the contract.

### **3.3 EXTENT OF THE WORK**

The Contractor would be required to maintain the permanent track anywhere in the Country on any lines owned or maintained by Transnet Freight Rail for the period as specified in the Contract Data. Maintenance of permanent track will be required on open lines, tunnels, platform lines, and loop and yard lines. It will be required that all different types of activities are performed as prescribed in the various particular specifications.

### **3.4 LOCATION OF THE WORKS**

3.4.1 The Supervisor where the Work shall be performed. Maintenance of permanent track will be required on open lines, tunnels, platform lines, and loop and yard lines. This shall include, but not limited to, the Coalline, Ore line, Natal mainline, Western mainline, Eastern mainline, Cape mainline, Port Elizabeth mainline, Beitbridge corridor, and any branch line.

3.4.2 The Contractor may be required to work in areas where varying degrees and types of security situations are prevailing such as may occur in remote rural areas through to densely populated metropolitan areas. This could require the contractor to work inside any of the Infrastructure Depot areas at any time of the year for any period of time.

3.4.3 The Supervisor shall make the necessary arrangements to move the machinery by rail from one work site to another, and shall give the Contractor written notice of the date and time of departure. Major movements will be planned and the time allowed should be a minimum of 14 days or such shorter period as agreed.

3.4.4 Any delay to an announced move caused by the Contractor will render the machinery non-available for the period of such delay, excluding overnight stops.

### 3.5 **CARE OF MATERIAL SUPPLIED BY TRANSNET FREIGHT RAIL**

3.5.1 Any material supplied by Transnet Freight Rail shall be used in the most economical way, and the Contractor shall take all reasonable care to prevent loss or damage thereof. Any material lost or damaged through negligence on the part of the Contractor or his employees shall either be made good by the Contractor or Transnet Freight Rail will replace it.

3.5.2 The value of the material replaced by Transnet Freight Rail, including the cost of transport at normal tariffs applicable to the public, will be deducted from any money due to the Contractor or recovered in any other way.

### 3.5 **PROPERTY PROVIDED BY TRANSNET FREIGHT RAIL**

Transnet Freight Rail will provide the following free of charge: -

3.6.1 Water to operate the machinery, where available. The quality of water cannot be guaranteed.

3.6.2 Where available, at campsites as in clause 3.6.1, water for drinking and domestic purposes and hot water for ablutions.

3.6.3 Free traffic consignment notes for the conveyance by rail from one area of operation to another or from the Contractor's workshop or depot to the area of operation and vice versa will be issued for the machine (whether under own power, coupled to a train or loaded onto a railway truck), spares, caravans used with the machine and either of one spares trailer or one light delivery vehicle.

3.6.4 Transnet Freight Rail will be responsible for the safety of the machinery in so far as train working is concerned and will provide a qualified employee for each machine or group of machines, who will be in charge and who will -

- travel in the cab of the machinery whenever it moves as a train outside occupation areas.
- arrange protection for and supervise the operation of the machinery within the zone of protection, whether it is working, moving or standing idle.
- supervise all on-tracking and off-tracking operations and ensure that the machinery is made secure when parked at the staging point.
- The Contractor shall appoint one suitably qualified person as his representative at each occupation.

- 3.6.5 Before work is commenced, the Supervisors Deputy's will enter in the work book the approximate positions of underground or hidden electrical conductors that may affect, or be affected by, the Work to be done under the Contract, or alternatively, endorse in the work book that no such conductors exist.
- 3.6.5 Nothing contained here in shall detract from the Contractor's obligation to exercise care in all respects in carrying out his duties under the Contract.
- 3.6.6 Any rail wagons that may be provided by Transnet Freight Rail will provide in terms of any specific requirement as specified in the Particular Specifications C3.24.2

### 3.7 **TO BE PROVIDED BY THE CONTRACTOR**

- 3.7.1 Except where otherwise specified the Contractor shall at his own cost provide all machinery, labour, transport, consumable stores, equipment, tools, services, materials, spare parts and ingredients of every description required for the performance and completion of his contractual obligations.
- 3.7.2 The Contractor shall provide and deliver to the place of Work all fuels and water required for the machine operations.
- 3.7.3 The Contractor shall maintain and operate the machinery, direct his own personnel and perform all work required.
- 3.7.4 During track occupations, the Contractor shall ensure that sufficient mechanics, operators and labour are present to ensure efficient operation of the machinery.
- 3.7.5 At least one qualified and experienced mechanic shall be in attendance at all times during track occupations and when the machinery travels as a train.
- 3.7.6 The Contractor shall appoint one suitably qualified person as his representative at each occupation.
- 3.7.7 The Contractor and the Supervisor shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.
- 3.7.8 Failure to comply with the provisions of 3.7.1 to 3.7.7 shall render the machinery non-available.

### 3.8 **MACHINERY AND EQUIPMENT REQUIRED**

#### 3.8.1 Mechanical and motive aspects

- 3.8.1.1 All machinery provided by the Contractor shall be in good mechanical condition and he shall maintain the machinery in good mechanical condition for the duration of the Contract.
- 3.8.1.2 Axle loads shall not exceed 20 tons.
- 3.8.1.3 The machine shall be self-propelled.

- 3.8.1.4 The machine shall have service brakes and independent emergency brakes capable of providing minimum retardation of 12,5% and 6% of gravitational acceleration respectively, on dry rail.
- 3.8.1.5 At the start of each occupation the Contractor shall, in the presence of the Supervisor's Deputy's, perform the daily tests laid down by the Supervisor. The brakes shall be briefly applied at low speed when traveling on level track or upgrade. If in the opinion of the Supervisor's Deputy the brakes do not function satisfactorily, the machinery shall be removed immediately to a staging point. Machinery staged due to defective brakes will be regarded as non-available.
- 3.8.1.6 At approximately one-month intervals, the Supervisors Deputy will test the brakes with a brake efficiency test meter and record the results in the workbook.
- 3.8.1.7 The machine shall actuate all signalling equipment used by Transnet Freight Rail for traffic control.
- 3.8.1.8 Regular checks shall be made for pressure loss on brake cylinders and circuits, wear and set of brake shoes, proper functioning of sirens and mechanical locks on hydraulic components.
- 3.8.1.9 The machine shall have an adequate lighting system for operation at night. Lights shall be provided for traveling in both forward and reverse directions. The trailing end headlights and leading end red lights shall not be switched on during motion.
- 3.8.1.10 The machine shall be capable of being hauled in both directions as the last vehicle of a train if required to clear the section after breakdown. The Contractor shall provide towing equipment.
- 3.8.1.11 Where specified, machinery shall have off-tracking equipment suitable for use on either of the off-track stand types shown in Annexure D. Should these stands not be suitable, Transnet Freight Rail will construct stands to the Contractor's requirements and at his cost, subject to the particulars of such requirements being submitted with his tender.

### 3.8.2 Wheel flanges, tyres and axles

- 3.8.2.1 The condition of the flanges and treads of wheels of all machines shall be carefully examined. Should any appear to be excessively worn, they shall be tested by means of the wheel flange thickness and skid limit gauge and the tyre wear limit gauge.
- 3.8.2.2 Wheels shall comply with the following requirements:
- The thickness of a flange shall not be less than the minimum indicated by the wheel flange thickness gauge.
  - Hollow wear on the tread shall not exceed 6mm.
  - The flange height shall not exceed 35mm.
  
  - The angle of the flange shall not be less than 15° and the radius at the

tip of the flange not less than 6mm.

3.8.2.3 Axles shall comply with the following requirements:

- Ultrasonic testing: to specifications laid down by Transnet Freight Rail, done for new axles and every time an axle is replaced after fitting new wheels.
- Distance between wheel flanges: 988mm  $\pm$  2mm.

3.8.3 Fuelling and maintenance

3.8.3.1 The Contractor shall not re-fuel, service or repair the machinery, during track occupations.

3.8.3.2 The Contractor may repair and adjust the machinery during stoppages caused by Transnet Freight Rail. The machinery will be regarded as available during such repairs or adjustments, provided that the required working of the machine is not delayed thereby.

3.8.4 Recording instruments

3.8.4.1 Each machine shall be fitted with an approved tacho-graph, a mechanically operated event recorder and a speedometer.

3.8.4.2 The Contractor shall be responsible for inserting recording cards in the tacho-graph and event recorders, and for synchronising these instruments.

3.8.4.3 The Supervisors Deputy will be responsible for setting the event recorder.

3.8.4.4 The Supervisors Deputy will test the tacho-graph and event recorders at least once a week in the presence of the Contractor. The Contractor shall either repair or replace any device, which is inaccurate by more than 1%. Failure to repair or replace an inaccurate device within 72 hours of the test will render the machinery non-available.

3.8.4.5 Should the tacho-graph or the event recorder break down, the Supervisors Deputy will keep a complete written record of the starting and ending times of all events occurring during a track occupation. The Contractor shall sign this record if he agrees, and if he disagrees, he shall indicate on the record the reasons for the disagreement and then sign the document. Such disagreement shall be settled by negotiation between the Supervisor and the Contractor.

3.8.5 Radio equipment

3.8.5.1 During track occupations the Contractor shall provide a cellular telephone for communication between the Work place and the controlling office on either side of the Work place or the area CTC office.

The cell-phone for the official use of Transnet Freight Rail shall be provided with a talk time contract of not less than 500 talk minutes per month. If this allowed talk time is exceeded, Transnet Freight Rail shall pay the excess. This excess shall only be paid after all previous monthly account credits have



been brought into consideration. The Supervisors Deputy shall certify detail account excess.

This Cell-phone shall also be available for the use of the Transnet Freight Rail signal's or electrical technician involved if required for work directly related to the tamping work. Use of this phone by any other Transnet Freight Rail official than the Track inspector with the machine, may only be with his permission. The Track inspector with the machine shall be responsible for controlling the number of calls on this phone.

- 3.8.5.2 The Contractor shall provide and maintain walkie-talkie radio transceivers with a minimum range of 5km in open country. The Supervisor, in consultation with the Contractor, will allocate suitable frequencies within the 450MHz to 470MHz band for configuration of the radio equipment. The Contractor will be given seven day's written notice when additional radios are required.
- 3.8.5.3 All of the above-mentioned radio equipment shall operate on 12,5kHz channel spacing, and shall comply with specification SABS-1069.
- 3.8.5.4 The Contractor may operate the radio equipment only for trackside protection. The use of the allocated frequencies must be terminated when the contract expires.
- 3.8.5.5 When walkie-talkie communication fails due to faulty equipment, the machinery will be deemed as non-available.
- 3.8.5.6 When radio and or cellular telephone communication between the place of Work and the controlling stations or the protection flagmen fails, the Contractor shall remove the machinery from the track as soon as possible.
- 3.8.5.7 Transnet Freight Rail will provide, install and maintain a radio in the cab of the machine for train control purposes. The Contractor shall indicate the position in which the radio shall be installed, and provide a suitable power supply point for the radio equipment when requested. The machine will not be allowed to operate without this radio.
- 3.8.6 Warning devices
- 3.8.6.1 The machine shall be fitted with a hooter for use during traveling.
- 3.8.6.2 The machine shall be fitted with a separate warning system used solely for and on the approach of a train. The pitch and intensity shall make it discernable from other sounding devices and easily heard above the working of the machine anywhere within 100m from the machine. The warning system shall be activated by an appointed employee of the Contractor.
- 3.8.6.3 The Contractor's appointed employee shall be in continuous radio communication with Transnet's protection flagmen who will warn the Contractor's employee of approaching trains on adjacent lines.
- 3.8.6.4 A rotating amber flashing light shall be fitted to the top of the machine's cab, for use during travel.

### 3.8.7 Machinery Specifications

Machinery shall be suitable for use under the following conditions and dimensional limitations:

- 
- 3.8.7.1 Vehicle gauge: 1,065mm gauge track shown in Annexure 2 (Sht 1 of 2). Should the machinery exceed the vehicle gauge in any respect, this shall be clearly indicated by the Contractor by means of suitable drawings.
- 3.8.7.2 Track gauge: nominal 1,065mm, with a range of - 10mm to + 45mm.
- 3.8.7.3 Minimum structure gauges: as shown in Annexure 1 (Sht 1, 2, 3 and 5 of 5).
- 3.8.7.4 Single lines or multiple lines with a minimum distance of 4m between track centres.
- 3.8.7.5 Maximum track gradient: 1 in 30.
- 3.8.7.6 Minimum curve radius: 125m.
- 3.8.7.7 Work place altitude range: 0 to 2,000m above sea level.
- 3.8.7.8 Ambient temperature range: - 5°C to + 50°C.
- 3.8.7.9 Mass of rail: 60kg/m, 57kg/m, 48kg/m, 40kg/m, 30kg/m or 22kg/m.
- 3.8.7.10 Maximum mass per sleeper: Sets - 750kg; other - 300kg.
- 3.8.7.11 Types of sleepers in track: timber, steel, monolithic or tie-bar concrete.
- 3.8.7.12 Sleeper-spacing: 500mm to 900mm.

### 3.8.8 Unknown / Alternative / Substitute Machines

- 3.8.8.1 Transnet Freight Rail will, in the case where alternative or substitute machines or machines with characteristics which are unknown to Transnet Freight Rail are offered by Tenderers or the Contractor, require that such machines, before they are accepted, be subjected to trials under the prevailing working conditions of the contract area(s) to demonstrate their compliance with the contract specifications. Machines that do not comply with the specifications will not be accepted.

### 3.9 **COMPLIANCE WITH STANDARDS OF WORKMANSHIP AND ACCURACY**

- 3.9.1 The Contractor shall work to the track dimensions required by the Supervisors Deputy. These dimensions shall either be marked with chalk marks on the sleepers by the measurement gang of the contractor or by means of the approved measurement system operated on the high speed machines.

3.9.2 The Contractor shall continuously monitor and evaluate measurements of the track and shall ensure compliance with the specified standards of workmanship and accuracy.

3.9.3 Where, in the opinion of the Contractor, the condition of the track or any site condition is such that the specified performance standards cannot be achieved, he should record all relevant information before and after working in conjunction with the Supervisors Deputy. The Supervisors Deputy may, if he concurs with the Contractor's contentions, adapt the specified standards of workmanship and conformance to suit the track and/or site conditions.

### 3.10 **PROCUREMENT**

#### 3.10.1 Definitions and interpretation

In this Contract, unless inconsistent with the context: -

**ACTUAL PREPARATION TIME (Tp)** means the period between the actual commencement of the track occupation and the actual commencement of the work by the machinery, plus the period of time between the actual end of the work by the machinery and the actual time when the machinery is secured at its staging point, clear of the occupied track. Preparation time excludes all periods of delay by Transnet Freight Rail.

**ANNUAL HOLIDAYS** means the annual holiday with duration of 15 consecutive working days plus statutory public holidays, Saturdays and Sundays that may fall within in this period, when no Work will be performed by the Contractor.

**AVAILABLE** means when required to do work, a machine is able to produce work to the standards specified.

**BREAKDOWN TIME (Tb)** means all periods during which the machinery is non-available.

**CANT** means the difference in elevation between the running surfaces of the two rails.

**CURVE LOCATION POINTS** means the four points, which locate the transitions of the curve, or the two points, which locate the circular curve, where no transitions are provided.

**DAY** shall mean a calendar day. Where a specific number of days is allowed in the Contract for the performance of any act or is stipulated for the extinction of any right or the duration of any event or circumstance the days between the commencement and last day of the Annual Holidays (both days included) and the day from which the period is stated or agreed to commence, shall be excluded from the calculation of the number of days concerned.

**DOUBLE SHIFT WORKING** means the working of two consecutive shifts of 8 hours, which may each be non-continuous and scheduled at any times during a 24 hour day.

EXECUTIVE OFFICER means the person appointed by Transnet Freight Rail from time to time as the EXECUTIVE OFFICER to act according to the rights, powers held by, and obligations placed upon him in terms of the Contract. In terms of this contract the EXECUTIVE OFFICER is the employer representative.

FREE-ON-RAIL implies allowing the contractor to move an On Track machine from one track destination to another with no track usage cost levied on the contractor. Transnet provides the right of passage and the pilot required for the machine to the contractor, without cost and at times whereby such a passage and pilot can be made available by Transnet. Free-on-rail passage will normally be allowed for at the start of a contract to deliver a machine to the starting place of work and at the end of the contract to return a machine to the contractor's depot if required or by the contractor. Free-on-Rail movement of a machine during a contract for major workshop repairs required of a machine may only occur if specifically agreed to by the Service Manager. Such a move shall then occur in the contractor's time.

IDLE TIME ( $T_i$ ) means all periods of 15 consecutive days or longer during which Transnet Freight Rail does not require work to be performed by the machinery. This excludes the stoppage of work during the annual holiday.

JOINT ASSEMBLIES means all types of joints, including flash-butt and thermit welded, fishplate and block-joints.

LINE means the maximum rate of deviation of the running edge of one rail from a straight line between two points on the same rail of tangent track. Measurements will be taken 15mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

MACHINERY means the on-track machinery provided complete with all fittings, accessories and ancillary equipment including trailers, caravans and spare parts, as may be required to comply with the requirements of the specifications.

MAXIMUM OCCUPATION TIME ( $T_{om}$ ) means the total occupation time, non-continuous, on a normal working day, not exceeding a total net period stated in the particular specifications.

MONTH means the continuous period from the first day to the last day of any calendar month, both days included.

MONTHLY WORKING TIME ( $T_{wm}$ ) means the targeted average monthly working time.

MOVING TIME ( $T_m$ ) means the period required to move the machinery from work site to work site as a train, as part of or on a train. Moving time will commence at the announced time of departure and will end when the staging point at the new work site is reached. Periods of overnight stops when the machinery is traveling as a train, as part of or on a train will be excluded from moving time. Moving time will be included in occupation time for payment purposes.

**NIGHT SHIFT ALLOWANCE** means an allowance paid for any time worked between 19h00 and 05h00 (Night shift allowance is additional to either overtime or normal shift time, if applicable)

**NON-AVAILABLE** means when required to do work, the machinery or the operation thereof is unsafe, or the machinery is not able to produce work to the standards specified, due to any reason other than a stoppage of work caused by Transnet Freight Rail.

**NORMAL WORKING DAY** means a total shift of 8 hours, which may be non-continuous, out of every 24 hours for 5 consecutive days out of every 7-day period, or for 10 consecutive days out of every 14-day period. The Supervisors Deputy will determine the daily starting time, which may vary to suit seasonal changes or train timetables.

The Supervisors Deputy shall decide when 10/14-day work shifts will be worked. When a machine works further than 600km away from the machine's base depot, the contractor may request working a 10/14-day shift if occupation conditions allow. Transnet Freight Rail will consider such working shifts and the additional Saturday and Sunday shift payments will then apply.

**OCCUPATION** means a closure of the line on which work is to be performed for a specified period.

**OCCUPATION DAY (To-day)** means any day that the machinery will be required by the Supervisors Deputy to be available.

**OCCUPATION TIME (To)** means the period(s) between the announced commencement time of an occupation and the time when the machinery is secured at its staging point for the last time.

**OVERTIME** means any time worked in excess of the hours of a normal working day and any time worked on Saturdays, Sundays and statutory public holidays in excess of 5 consecutive days out of 7-day period or in excess of 10 consecutive days out of 14-day period, all on the written instruction of, or as approved by the Supervisors Deputy.

**PLAIN TRACK** means all track excluding sets and restricted track.

**SERVICE MANAGER** means the person appointed by Transnet Freight Rail from time to time as the Service Manager to administer the Contract according to the powers and rights held by and obligations placed upon him in terms of the Contract. Any reference made in any document of this contract of Service Manager shall imply or refer to the Service Manager.

**PARTICULAR SPECIFICATION** means any document titled Particular Specification, Special Conditions and Specifications, or Special Conditions, forming part of the documents constituting the Contract and which stipulates the special contract provisions and specifications pertaining to the Contract.

QUOTED PREPARATION TIME (Tq) means the combined period, as quoted by the Contractor in the Schedule of Machinery (for one complete cycle), to move the machinery from its staging point, travel to the point of work, to prepare it for work, and on completion of the work to return and secure it at the staging point, clear of the occupied track.

RESTRICTED TRACK means that portion of plain track where locking bars, guard rails and check rails are not removed prior to working or where sleepers are skewed by more than 75mm (measured at the rail's centre line) or where Dowty retarders and boosters are fitted which prevent the machine from producing work at the scheduled rates as defined in the Special Conditions and Specifications.

SETS mean all types of turnouts, including crossings, single and double slips.  
SHIFT ALLOWANCE (normal) means an allowance paid for time worked on a Saturday, Sunday or statutory paid public holiday when working 5 consecutive days out of 7-day period or 10 consecutive days out of 14-day period (Payment for shift allowance ceases when overtime is paid)

SPLICE JOINT means a prefabricated rail expansion device. The thermit welds at either end demarcate the extremities of the splice joint.

SPLIT OCCUPATION means an occupation on any one-day, divided into 2 periods, the sum of which does not exceed 9 hours, with a 2 hour break in between and the total period not exceeding 11 hours.

STANDING TIME (Ts) means a stoppage of work caused by Transnet Freight Rail.

SUPERVISOR means the person appointed by the SERVICE MANAGER from time to time as the Service Manager's representative on a depot to administer the Contractor's performance and execution of the Work according to the powers and rights held by and obligations placed upon the Supervisor in terms of the Contract.

SUPERVISORS DEPUTY or SUPERVISOR means the person appointed by Transnet Freight Rail under the control of the SUPERVISOR from time to time to take occupations for the machines for the contract, pilot machines to and from site and to supervise the execution of the workload and ensure safe and quality work being done by the contractor and the machine..

TIME WORKED IN (Twi) means any day a machine is agreed to be available and works outside of and in lieu of a normal working day. Such Twi as well as production statistics and all relevant times must be reflected against the day for which the time was worked in.

TOP means a change of gradient of one or both rails.

TRACK means and includes plain track, restricted track, sets, splice joints and all joint assemblies.

TRAVELLING TIME ( $T_t$ ) means the time for the machinery to travel between work site and staging point.

TWIST means the algebraic difference between adjacent cant measurements.

VERSINE means the offset measurement at midpoint of a 10m chord taken at any location on curved track. Measurements will be taken 15mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

WORK means the work to be carried out in terms of the Contract.

WORKING TIME ( $T_w$ ) means the periods during which the machinery is actually engaged on the operation or function for which it was provided.

### 3.10.2 Subcontracting procedures

No part of the contract may be sub-contracted without written approval from Transnet Freight Rail

### 3.11. **AVAILABILITY**

3.11.1 The machinery shall be available, warmed up and at the place of Work on the date and at the time indicated by the Supervisors Deputy.

3.11.2 Machinery will be regarded as available when moving from one Work place to another.

3.11.3 Moving to effect initial delivery, and final removal after completion of the Work, as well as moving requested by the Contractor (i.e. for maintenance or temporary storage of the machine at locations other than the Work place) will not be included when determining availability.

3.11.4 The Supervisors shall give the Contractor a minimum of 14 days written notice to stop work temporarily for a period exceeding 14 consecutive days and a minimum of 14 days written notice to resume work after such temporary stoppage. Such idle time shall not be included in measurements for availability.

### 3.12 **NON-AVAILABILITY**

3.12.1 The Contractor shall advise the Supervisors as soon as possible when any machinery is not available for work at its appointed place of Work and shall indicate the estimated time when it will be available for work.

3.12.2 Should any of the specified components or functions of the machine be non-available, the machine will be regarded as non-available.

3.12.3 Machinery will be regarded as available after breakdown when it is declared available and placed on the track for the purpose of testing, resetting or working, unless after the period of testing and resetting the machinery is still non-available. In the latter case, breakdown time will commence from the time that the machinery previously became non-available.

- 3.12.4 The provisions regarding productivity and standards of workmanship and accuracy shall apply during periods of testing or resetting.
- 3.12.5 When the machine is not available at all for Work on a day because of a breakdown on the previous day, occupation time and non-availability will both be equal to Tom hours.
- 3.12.6 Should a single stoppage of Work due to a breakdown of a machine exceed or be likely to exceed 60 minutes, the Supervisors Deputy may require the machine to be removed to a staging point as soon as possible. Such traveling, whether from or returning to the point of breakdown, will not be included in Tt, but will be included in Tb.
- 3.12.7 If the Contractor is instructed to work either overtime or more than Twm, non-availability due to breakdown occurring in such time will not be penalised. Occupation time will also not be measured during such breakdown.

### 3.13 **UNSATISFACTORY PERFORMANCE OF THE MACHINERY**

- 3.13.1 The Service Manager or Supervisors may terminate the Work and/or order the machinery to be moved to another place of Work and/or order the removal of mechanic(s) and/or operator(s), and/or order the temporary or permanent removal and replacement of a machine under the following conditions:
- When the output of the machinery is less than 70% of the required minimum productivity for a period of two consecutive months, or
  - when the percentage availability of the machinery (as described in the Special Conditions of Contract and Specifications) is less than 75% for a period of two consecutive months.
- 3.13.2 The Contractor may substitute, either temporarily or for the duration of the Contract, other machinery in place of that listed in the Schedule of Machinery offered. The substitute machinery shall be subject to all the terms and conditions of the Contract and shall in no way be inferior to the original machinery. The Service Manager and Supervisors shall be advised of any proposed substitution, which shall be subject to his approval.
- 3.13.3 Should the Service Manager or Supervisors at any time, be of the opinion that the machinery provided by the Contractor is performing defectively or is incapable of achieving the specified output and availability the Service Manager or Supervisors may notify the Contractor in writing, but the Contractor shall not be relieved of any of his contractual obligations if such notification is not given.
- 3.13.4 The Contractor shall there-upon take steps to improve the output and availability of the machinery to specified performance levels or to replace the machinery with machinery capable of achieving the specified performance, failing which the Employer may act in terms of **Clause Z.5.9 of Contract Data**.

### 3.14 **MACHINE MOVEMENTS**

- 3.14.1 The Contractor shall deliver the machinery in full operational condition, with all operatives, to the initial place of Work, as directed by the Service Manager or Supervisor.



- 3.14.2 The Contractor shall not place the machinery onto the track or remove it there from, or use it in any way, except when authorised to do so by the Supervisor or his deputy.
- 3.14.3 The Contractor is responsible for movement of his machines in the occupation area.
- 3.14.4 Machinery shall not be operated as a train unless a representative of Transnet Freight Rail, appointed by the Supervisor, who is authorised to give instructions regarding the movement of the machinery, travels on the machinery to its destination. The Contractor shall assist Transnet Freight Rail in all matters concerning the safety of trains, persons and the machinery.
- 3.14.5 The Contractor shall ensure that the off-tracking rails are correctly placed and fastened before lowering or moving the machinery onto them.
- 3.14.6 The Contractor shall point out to the Supervisors deputy any part of the track or off-track stand where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the work book. The Contractor shall however repair off-track platforms where work can reasonable be expected to be done by the labour provided with the machine as per the schedule of labour.
- 3.14.7 The Contractor shall load and unload all machinery to be transported by rail truck and shall be responsible to properly secure all machinery to be so transported.

### 3.15 **MEASUREMENT AND PAYMENT**

- 3.15.1 The quantities in the Price List are estimated and may be more or less than stated. The Supervisor will measure all the work done and certify payment therefore in accordance with the Price List. The absence of stated quantities is no guarantee that none will be required.
- 3.15.2 Payment for establishment of a machine at the commencement of the Contract will only be made after the machine has attained the required minimum availability over a period of one month.
- 3.15.3 Should the Contract not be completed for any reason whatsoever, due to the Contractor, he shall refund to Transnet Freight Rail a percentage of the establishment cost. The refund shall be proportional to the uncompleted period of the Contract.
- 3.15.4 In the case of unknown, alternative or substitute machines, establishment payments will only be made after successful completion of the trials and only for the initial machine establishment.
- 3.15.5 Measurement and payment for the hire and operation of the machinery will be made as specified in the Particular Specification. The following general payment provisions shall apply:
- 3.15.5.1 A machine-hire rate per day for each production machine that is available and operational. The rate shall include for all accessory labour, tools, equipment, etc.,

and every thing whatsoever pertaining to the operation and maintenance of the machine.

- 3.15.5.2 A production-rate for each unit of time worked or work produced by the machine during actual working time. The rate shall include for all labour, fuels, consumables, materials, etc. and every thing whatsoever, pertaining to the production output of the machine. The rate shall apply to all work performed on a "normal working day" as defined and to all Double-Shift working.
- 3.15.5.3 An extra-over payment will be made for overtime worked or production units produced during overtime working, i.e. time worked in excess of the maximum daily occupation time (Tom) on a normal working day and on Saturdays, Sundays and statutory public holidays. The overtime payment will not apply to Double Shift working.
- 3.15.5.4 Contractor shall submit, with their tenders, full particulars of the labour task crews, allowed for in the rates tendered in respect of **clause 3.15.5.1 and 3.15.5.2**, to undertake the tasks and functions specified in the Particular Specifications. Such particulars shall include the details of crew strengths i.e. numbers of labourers and supervisors or technicians, etc. Additional payment will be made when the machine is required to work outside the contract area described in the particular specifications.
- 3.15.5.5 No payment whatsoever will be made for periods of non-availability.
- 3.15.5.6 No payment will be made if a machine is unable to work as a result of an accident to the machine, regardless of the cause of such accident.
- 3.15.5.7 When two or more machines work in tandem and as an interdependent production system, the entire group of machines will be deemed to be non-available if the non-availability of one or more machines renders the entire production system substantially unproductive.
- 3.15.5.8 The Contractor shall be paid at the hourly rates in the Labour Payment Schedule when the Supervisor approves a temporary increase in labour to perform the tasks and functions specified in the particular specification, at particular workplaces.

### 3.16. **PAYMENT CERTIFICATES**

- 3.16.1 On or about the last day of each month, the Supervisor will make a progress measurement of the work done in conjunction with the Contractor.
- 3.16.2 Thereafter the Service Manager will issue a certificate authorising payment of such sum of money as he may consider represents the value of the work referred to in **clause 3.16.1**.
- 3.16.3 The Contractor shall be entitled to receive payment of the amount authorised in the said certificate within 45 days from the date of the Contractor's month-end statement. Such payment will be regarded as an open payment, and both the certificate and payment will be subject to revision and adjustment by the Service Manager if at any time he is of the opinion that the certificate does not represent

accurately the value of work completed or to correct previous over or under payments.

- 3.16.4 In the event of failure by Transnet Freight Rail to make payment within the time stipulated in **clause 3.16.3**, he shall pay to the Contractor interest at prime overdraft rate as certified by the Contractor's bankers upon all overdue payments of such certified amounts, from the date on which such payments should have been made. Interest payments shall not be applicable to corrections made in respect of previous over- or underpayments.
- 3.16.5 The Service Manager shall, within 28 days after completion of the Contract, authorise the release of Performance Bond, and submit for approval by the Employer a final payment certificate which, after approval by the latter, shall be issued to the Contractor, thereby certifying both the final completion of the Contract Work and the amount due to the Contractor. The Service Manager may deduct from the Final Payment Certificate any money then due by the Contractor to Transnet Freight Rail under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and Transnet Freight Rail, as is deemed necessary by him.
- 3.16.6 The Service Manager shall, within 14 days after approval by the Employer and subject to **clause 3.16.5**, send the final payment certificate to the Contractor who, by countersigning thereof, shall certify his acceptance of the amount shown due to him as being full and final payment, subject only to the resolution of outstanding disputes.
- 3.16.7 Within 30 days after the receipt of the Contractor's certification, Transnet Freight Rail will remit to the Contractor the balance of all money so due under the Contract in terms of the final payment certificate.
- 3.16.8 Where the Contractor fails to certify the final payment certificate or has not disputed the correctness thereof within three months after its receipt by him, Transnet Freight Rail will deem the Contractor to be in agreement with the final payment certificate and will effect payment in terms thereof.
- 3.16.9 Transnet Freight Rail will not consider or admit any claim arising from the final payment certificate or in connection with the Contract, which has not been lodged with the Service Manager within a period of three months after receipt by the Contractor of the final payment certificate, and the Contractor accepts and acknowledges that by his failure to lodge a claim within the above-stipulated period of three months, he waives such claim and relieves Transnet Freight Rail of responsibility for such claim.
- 3.16.10 Neither the issue of the final payment certificate nor any payment made there under shall release the Contractor from any liability to indemnify Transnet Freight Rail against, and to reimburse it in respect of, any claim made or to be made against it by a third party for damage or loss sustained by such third party in consequence of any wrongful act or omission of the Contractor, or his employees or agents.

### 3.17 **DAILY RECORDS AND INSTRUCTION BOOK**

The Contractor shall submit such returns as may be required by the Supervisor. He shall also provide and keep on each machine a duplicate carbon copy book, A4 size, the Workbook, in which instructions and events concerning the contract work shall be recorded, signed and dated by the Supervisor or his deputy, and the Contractor.

### 3.18 **FORMAT OF COMMUNICATION**

- 3.18.1 The Contractor and the Supervisor shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.
- 3.18.2 Before work is commenced, the Supervisor's deputy will enter in the work book the approximate positions of underground or hidden electrical conductors that may affect, or be affected by, the Work to be done under the Contract, or alternatively, endorse in the work book that no such conductors exist.
- 3.18.3 The Supervisor shall make the necessary arrangements to move the machinery by rail from one work site to another, and shall give the Contractor written notice of the date and time of departure. Major movements will be planned and the time allowed should be a minimum of 14 days or such shorter period as agreed.
- 3.18.4 The Supervisor shall give the Contractor a minimum of 14 days written notice to stop work temporarily for a period exceeding 14 consecutive days and a minimum of 14 days written notice to resume work after such temporary stoppage. Such idle time shall not be included in measurements for availability.
- 3.18.5 The Contractor shall point out to the Supervisor any part of the track or off-track stand where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the work book. The Contractor shall however repair off-track platforms where work can reasonable be expected to be done by the labour provided with the machine as per the schedule of labour
- 3.18.6 Should the tachograph or the event recorder break down, the Supervisor's deputy will keep a complete written record of the starting and ending times of all events occurring during a track occupation. The Contractor shall sign this record if he agrees, and if he disagrees, he shall indicate on the record the reasons for the disagreement and then sign the document. Such disagreement shall be settled by negotiation between the Supervisor and the Contractor.
- 3.18.7 The Contractor shall provide and maintain walkie-talkie radio transceivers with a minimum range of 5km in open country. The Supervisor, in consultation with the Contractor, will allocate suitable frequencies within the 450MHz to 470MHz band for configuration of the radio equipment. The Contractor will be given seven day's written notice when additional radios are required.

### 3.19 **KEY PERSONNEL**

- 3.19.1 Service Manager is the person appointed by the Employer (Transnet Freight Rail) from time to time to administer the Contract according to the powers and rights held by and obligations placed upon him in terms of the Contract.

- 3.19.2 Machinery shall not be operated as a train unless a representative of Transnet Freight Rail, appointed by the Supervisor, who is authorised to give instructions regarding the movement of the machinery, travels on the machinery to its destination. The Contractor shall assist Transnet Freight Rail in all matters concerning the safety of trains, persons and the machinery.
- 3.19.3 At least one qualified and experienced mechanic shall be in attendance at all times during track occupations and when the machinery travels as a train.
- 3.19.4 The Contractor shall appoint one suitably qualified person as his representative at each occupation.
- 3.19.5 The Contractor and the Supervisor shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.
- 3.19.6 At the start of each occupation the Contractor shall, in the presence of the Supervisor's deputy, perform the daily tests laid down by the Supervisor. The brakes shall be briefly applied at low speed when traveling on level track or upgrade. If in the opinion of the Supervisor's deputy the brakes do not function satisfactorily, the machinery shall be removed immediately to a staging point. Machinery staged due to defective brakes will be regarded as non-available.
- 3.19.7 The warning system shall be activated by an appointed employee of the Contractor. The Contractor's appointed employee shall be in continuous radio communication with Transnet's protection flagmen who will warn the Contractor's employee of approaching trains on adjacent lines.

### 3.20 **MANAGEMENT MEETINGS**

- 3.20.1 On or about the last day of each month, the Supervisor will make a progress measurement of the work done in conjunction with the Contractor.

### 3.21 **FORMS OF CONTRACT ADMINISTRATION**

- 3.21.1 The Service Manager shall, within 28 days after completion of the Contract, authorise the release of Performance Bond, and submit for approval by the Employer a final payment certificate which, after approval by the latter, shall be issued to the Contractor, thereby certifying both the final completion of the Contract Work and the amount due to the Contractor. The Service Manager may deduct from the Final Payment Certificate any money then due by the Contractor to Transnet Freight Rail under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and Transnet Freight Rail, as is deemed necessary by him.

### 3.22 **PROFESSIONAL INDEMNITY INSURANCES**

- 3.22.1 The Contractor shall take every precaution not to cause damage to property or injury to any person as a result of his execution of the work.
- 3.22.2 Transnet will insure in the joint names of Transnet Freight Rail and the Contractor against all legal liabilities which may arise from the accidental death

of or injury to third party persons and/or accidental loss of, or damage to third party property in the course of the Contractor's execution of the Work.

3.22.3 The insurance policy will be for an indemnity limit as stated in the policy and will be maintained in force during the entire period of the Contract.

3.22.4 The Contractor shall in the case of a liability arising out of a negligent act or omission on the part of the Contractor is responsible for payment of the amount(s) stated in the policy as being the deductible.

3.22.5 The insurance to be provided in terms clause 6.2.2 of Contract Data will have a cross liabilities cover in respect of which each party shall be separately indemnified in respect of claims made by any one of them against the other as though a separate policy has been issued to each of them.

3.22.6 The Contractor shall insure against loss of or damage to his own machinery, tools, equipment, materials and site establishments and any consequential financial losses arising from such damage. This insurance is to be maintained in force during the entire period of the Contract. The Contractor shall likewise arrange his own insurances in respect of motor vehicle liabilities and employer's common law liabilities of the Contractor.

### 3.23 **HEALTH AND SAFETY REQUIREMENT AND PROCEDURE**

3.23.1 The Contractor shall comply with all applicable legislation and the Transnet safety requirements. The cost of such compliance shall be borne by the Contractor and shall be deemed to have been allowed for in the rates and prices in the Contract.

3.23.2 The Contractor shall, in particular, comply with the following Acts: -

3.23.2.1 The Compensation for Occupational Injuries and Diseases Act, (Act 130 of 1993); The Contractor shall produce proof of his registration and good standing with the Compensation Commissioner in terms of the Act.

3.23.2.2 The Occupational Health and Safety Act (Act 85 of 1993); The Contractor is in terms of section 37(2) of Act 85 of 1993, deemed to be an employer in his own right with duties as prescribed in the Act and agrees to ensure that all work will be performed or machinery and plant used in accordance with the provisions of the Act in respect of all persons in his employ, other persons on the premises or the site or place of the Work or on the Work to be executed by him and under his control in terms of the Contract. The agreements in this Contract and all documents attached or referred to, form an integral part of the arrangements and procedures stipulated in the aforementioned section.

3.23.3 The Contractor shall comply with the current Transnet Specification E.4E, Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act, Act 85 of 1993 and Regulations as applicable, and shall, before commencement with the execution of the Contract, submit to the Supervisor,

- documentary proof of his procedural compliance with the Act and
- particulars of his Health and Safety Policy and Programme to be implemented on the Work in accordance with Specification E.4E.

The Contractor's Health and Safety Policy and Programme will be subject to the agreement of the Supervisor, who may order supplementary and/or additional safety arrangements and/or different safe working methods to ensure compliance by the Contractor with his obligations as an employer in terms of the Act.

- 3.23.4 The Contractor shall comply with the current Specification for Work On, Over, Under or Adjacent to Railway Lines and near High Voltage Equipment - E7/1, where applicable, and shall take particular care of the safety of his employees working on or in close proximity to a railway line during track occupations as well as under normal operational conditions.
- 3.23.5 He shall also comply with all other safety requirements, regulations and guidelines of Transnet applicable to the nature of Work carried out under the Contract and shall obtain the particulars thereof from the Supervisor.
- 3.23.6 In addition to compliance with clause 3.23.2 hereof, the Contractor shall report all incidents contemplated by Section 24 of the Act in writing to the Supervisor. Any incident resulting in the death of or injury to any person on the WORK shall be reported within 24 hours of its occurrence and any other incident shall be reported within 48 hours of its occurrence.
- 3.23.7 The term "safety rules" is used in a generic sense and refers to all Transnet arrangements, procedures and requirements, pertaining to safety, specified or incorporated by reference in the contract documents, such as the Specification for Work On, Over, Under or Adjacent to Railway Lines and near High Voltage Equipment, E7/1, the Electrical Safety Instructions - High Voltage Equipment. (Copies of these documents are available for inspection at the offices of Transnet Freight Rail.)

### 3.24 **PARTICULAR SPECIFICATIONS**

Project specification

#### 3.24.1 **Generic specifications:**

- E4B(November 1996): Minimum communal health requirements in areas outside the jurisdiction of Local Authority.
- E4E(August 2006) – Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act.
- Specification E7/1(May 2011) for works on, over, under or adjacent to railway lines and near high voltage overhead lines.

#### 3.24.1 **Project specifications**

- Particular specifications for Machines and service required

**PART C 3.24.2**  
**PARTICULAR SPECIFICATIONS**  
**MAINTENANCE OF PERMANENT WAY COUNTRY WIDE WITH ON-TRACK HEAVY DUTY**  
**OPEN LINE TAMPING MACHINES WITH STABILISATION**

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## PART C 3.24

### PARTICULAR SPECIFICATIONS

## MAINTENANCE OF PERMANENT WAY WITH ON-TRACK HEAVY DUTY , HIGH PRODUCTION OPEN LINE BALLAST TAMPING MACHINE WITH STABILISATION

### SCOPE OF THE WORKS

#### 1.1 Nature of work

- 1.1.1 This Contract includes the maintenance of track by the Contractor with a heavy duty, on-track ballast tamping machines with stabilization
- 1.1.2 This tamping contract shall include the supply of a high production tamping machine with stabilization ability, the maintenance and supply of all consumables and the support services and equipment necessary for the execution of the work to full meaning and intent of the contract. ,
- 1.1.3 The following types of tamping and machine capacity is required:
- 1.1.3.1 High production Tamping with Stabilisation to optimise track possession time.
- Open line production tamping with stabilisation, with tamping at highest production rate available to limit track possession time.
  - Open line corrective tamping with stabilisation
  - Restricted track tamping
- 1.1.3.2 The machines capacity will be required mainly on the Orex Line and the Western and/or Central Region. The Project Manager, however reserves the right to deploy the machine wherever it is needed.
- 1.1.4 The work time indicated is the expected work time to be achieved as shown in table 1 below.
- 1.1.5 Full time Machine presence is required in the geographic area indicated.
- 1.1.6 TFR shall compile the schedule of work for the Tamper.
- The deployment of the capacity of the Tamper and the priority of work site shall be determined by TFR.
  - The capacity distribution as per Table 1 is an indication and is intended to be the basis for the calculation of time to be expected to execute workload per depot. TFR may change this allocation to balance capacity offered and awarded with workload.
- 1.1.7 The rate of tamping for all offers and will be considered in the award of contracts. Track Possession time and total time required to execute the work load shall therefore be considered for the contract award and be monitored and managed throughout the duration of contracts.
- 1.1.8 Occupations will be arranged to allow the contractor to achieve the required equivalent km of tamp. The Technical Officer and his deputy will set as goal the work time indicated in Table 1, enhanced by a maximum of 5% to allow for possible breakdown time.
- 1.1.9 More work than planned may be done per depot per machine per year, only if instructed so by the Technical Officer and confirmed as allowable within the total value of the contract by the Service manager or Project Manager.
- 1.1.10 Any clause in this particular specification contradictory to requirements elsewhere in this contract shall take preference

Machine and / or Type of Machine output required	Planned depot or area where machine is required to work	Capacity of machine required	Estimated Effective Work time per month on Depot (Tw per month)	Equivalent km of standard track # to be tamped for the Depot for 1 year (Ekv km)
High Production Open line Tamping with Stabilisation	Orex Line and mostly Western/Central region	Tamp rate of at least 50 sleepers/ min	60	1450

• Table 1: Required machine capacity and estimated working time

## 1.2 Contract area.

- 1.2.1 The contract area per machine is mainly as indicated in the Table 1 above.
- 1.2.2 Any machine may however be required to work over a broader area, mostly into the adjacent depot area, should workload or capacity require such a utilisation.

## 1.3 Duration of Contract and Work days per year

- 1.3.1 The contract shall commence on the 1<sup>st</sup> February 2012 or on the date stated in the letter of acceptance of tender.
- 1.3.2 If the Contractor cannot commence work as required above, the Contractor shall specify in his tender submission the earliest commencement date after award.
- 1.3.3 The contract period shall be twelve (12) months.
- 1.3.4 The planned work days for each machine of this contract, including days required to travel, shall be 235 To days. This shall imply 48 work weeks during the year with allowance for 5 days of the work weeks off or occupations not called for. The work shifts may either be 5 days out of 7 or where work and staff requirements justify, 10 work days out of 14. The annual break shall be for a period of at least 15 work days and shall normally be arranged for over the December holiday period.
- 1.3.5 The Contractor may be required to be available during Annual Holidays for emergency work (See item 11 of pricing Instruction)

## 2. DEFINITIONS

The following definitions shall apply in addition to those of the C3 (Old E160 Technical) specification attached.

### # Equivalent km of standard track tamping:

Equal to open track tamping with one standard tamp @ 700mm Sleeper spacing (All other tamping different from this standard shall be converted as per definition # # to this measurement) (Each daily measurement for production and payment purposes shall include all basic tachograph recordings to verify the conversion calculations)

## ## Definition for the conversion of all non standard tamping:

### Conversion for Sleeper spacing different from standard:

Standard Equivalent km = Length of track calculated as: Actual km tamped x Actual sleepers per km / Standard number of sleepers / km (Eg: 1 km tamped @650mm spacing =  $1 \times 1538/1429 = 1.077$  Standard km)(This implies that length is linked to actual sleepers tamped)

### Conversion for Restricted track Tamping:

Standard Equivalent km = Length of track calculated as: Actual time spent on restricted tamping area x tendered rate of tamping of standard km of track divided by sleepers per km of standard track at 700mm spacing. (Example: 40 minutes restricted track tamping with a machine tendered to tamp at 20 sleepers / min =  $40\text{min} \times 20 \text{ sleepers} / \text{min} / 1428 \text{ sleepers} = 0.56$  Eqv km.)

### Conversion of Double Tamping to Equivalent km track tamped:

Every sleeper double tamped shall count for 1.5 times the distance tamped calculated for single tamping.

### Conversion of Turnout Tamping:

Standard Equivalent km = Length of track calculated as: Tendered time for a specific type of turnout tamping x tendered rate of tamping of standard km of track divided by sleepers per km of standard track at 700mm spacing. (Example for 30 minutes tendered to tamp a 1:12 turnout: for a machine tendered to tamp at 20 sleepers / min: The Equivalent km tamp payment shall be =  $30 \text{ min} \times 20 \text{ sleepers} / \text{min} / 1428 \text{ sleepers} = 0.42$  Eqv km.)

(Where tamping actually takes longer than time tendered for per turnout, the actual work time will still be recorded as Tw time and be taken into consideration during the course of the contract to monitor that the contractor had sufficient time to achieve the targeted work load. The payment for equivalent km tamp will however still only be limited to rates tendered as indicted above)

**SINGLE TAMP:** A tamper passes over the track and tamps every sleeper once.

**DOUBLE TAMP:** A tamper passes over the track and tamps every sleeper twice in succession. For every tamp, the tines are lifted clear of the ballast.

**SINGLE PASS:** A tamper passes over the track once and tamps every sleeper (single or double tamp).

**DOUBLE PASS:** A tamper passes over the track, tamps every sleeper (single or double tamp), returns with tines in the raised position and again passes over the track, tamping every sleeper (single or double tamp).

**RESTRICTED TRACK:** That portion of plain track where locking bars, guard rails and check rails are not removed prior to working or where sleepers are skewed by more than 75mm (measured at the rail's centre line) or where Dowty retarders and boosters are fitted.

**TAMPING POSITION:** Both sides of every sleeper-to-rail fastening.

**Free- on- rail:** Free on rail implies allowing the contractor to move an On Track machine from one track destination to another with no track usage cost levied on the contractor. Transnet provides the right of passage and the pilot required, without cost and at times whereby such a passage and pilot can be made available by Transnet. Free-on-rail passage will normally be allowed for at the start of a contract to deliver a machine to the starting place of work and at the end of the contract to return a machine to the contractors depot if required by the contractor. Free-on-Rail movement of a machine during a contract for major workshop repairs required of a machine may only occur if specifically agreed to by the Project Manager. Such a move shall then occur during the contractors time.

### 3. TYPE OF MACHINE AND FUNCTIONS REQUIRED

#### 3.1 Tamping functions:

3.1.1 The machine shall be able to tamp plain track, restricted track, all types of sets listed in the schedule of machines, splice joints and all joint assemblies.

- a). Signalling and electrical equipment such as axle counters and connecting rods will not be removed.
- b). Where the machine may be required to tamp track with "DOWTY" plungers, Transnet Freight Rail will remove this equipment.
- c). Bonds and cables will not be removed unless connections are bolted to the rail. Where bolted connections have to be removed for tamping, this shall be done by the Contractor where he is permitted to do so. Where removed, the Contractor then shall replace the connections after the tamping operation.

3.1.2 The Contractor shall specify and state in his submission the optimum tamping process (application of: hydraulic pressure range, tine vibration frequency, squeeze time, tine amplitude, tine size and tamping depth below the sleeper in clean and fouled ballast), that will ensure long-term durability of track geometry.

3.1.3 The turnout portion of a set, up to the "end of turnout", shall be tamped during the same pass as the straight.

The Contractor shall indicate, on the set diagrams in Appendix B hereto, which tamping positions his machine cannot tamp, and the extent to which the curved (turnout) portion can be tamped with the machine on the straight (through) line.

3.1.4 The machine shall be capable of lifting the track up to 100mm per pass and of slewing the track up to 50mm per pass.

The Contractor shall loosen and after tamping re-instate joints of diamond and scissors crossings, single and double slips, and crossovers between adjacent tracks, if required, to correct the alignment with the tamping machine. All cutting or welding of the rail will be done by Transnet Freight Rail, if necessary.

3.1.5 The machine shall be capable of tamping between 230mm and 440mm below rail level with the top of the tines adjusted to be 10mm below the underside of the sleeper.

3.1.6 The squeezing time shall be within a range of 0.8 to 1.0 seconds.

3.1.7 The tamping assembly for one sleeper shall consist of at least 16 tines. Individual control of the tamping assembly for each rail must be possible. When tamping the portion between SRJ and ES/ETO in sets and 25m on either end of the set, the tamping assembly shall consist of at least 8 tines.

Contractors may offer machines of a different tine configuration. Provision shall be made for the outer rows of tines to be replaced by cranked tines for tamping steel sleepers.

3.1.8 The method of tamping shall provide for an equal positive horizontal force between opposing tines. The tine closing force shall be applied hydraulically and the system shall be fitted with an adjustable pressure control. Pressure gauges shall be fitted in such a way that the Supervisor's deputy can easily monitor it.

3.1.9 The machine shall lift the track, tamp the ballast under the sleeper(s) and align the track to an automatically determined line and level, in one continuous action.

The tamping cycle shall be automatic. Once initiated by the operator, the closing and extraction of the tines and synchronisation thereof with the track lifting and levelling operations shall follow automatically. By-pass switches to engage manual operation will not be permitted.

3.1.10 Each tamping tine's tip size (frontal surface area) shall not be less than 7000 mm<sup>2</sup> when using 16 tines/sleeper or 9000 mm<sup>2</sup> when using 8 tines/sleeper. The Supervisor's deputy shall perform measurement by tracing the tine on graph paper and determining the area.

3.1.11 The machine shall have automatic lifting and lining systems for use on all track and in addition shall have "design" lifting and lining instruments for use on tangent track. The Contractor shall move, position and align the instruments to beacons provided by Transnet Freight Rail.

The non-availability of either the design lining or lifting system will render the machine non-available. The design lifting and lining instruments shall be repositioned during Ts (Standing time caused by Transnet Freight Rail).

Contractors shall qualify under what conditions alignment equipment cannot function accurately (i.e. Laser in misty conditions).

### 3.2 Specification for stabilisers required to work with Tampers.

3.2.1 A heavy-duty on-track dynamic track stabiliser machine is required to work in conjunction with high production tampers called for in this specification.

3.2.2 Stabilisers are required to consolidate track in a controlled manner while maintaining the track geometry.

3.2.3 Each stabiliser shall have regulating blades to regulate the shoulders of the ballast profile, and these shoulder ploughs shall be individually controllable from the operators cabin.

3.2.4 Sweeper rubber tines, required to clean the top surface of the sleepers (rail ties) will also be required. The transfer of ballast will not be required.

### 3.2.5 Stabilising Functions required

3.2.5.1 Signalling and electrical equipment such as axle counters and connecting rods will not be removed. "DOWTY" plungers will be removed by Transnet Freight Rail. Bonds and cables will not be removed unless connections are bolted to the rail. Bolted connections shall be replaced by others after the stabilising operation.

3.2.5.2 The Contractor shall specify and state in his submission the optimum stabilisation process (application of: pressure range, vibration frequency, machine speed) that will ensure long-term durability of the track geometry.

3.2.5.3 The type of machine provided shall consist of:

Option "A" :

One two-axle stabiliser unit, permanently linked to the Tamper. The machine may either be powered by it's own motor or by the tamper.

Option "B"

A two-axle stabiliser unit, which is self-propelled. Such a unit may be allowed to work independently from the tamper while working, but must under all circumstances be coupled with the tamper for travel to and from site and for machine moves.

3.2.5.4 The total mass of the machine shall be not less than 33 tons

3.2.5.5 The machine shall have axle mountings, which ensure continuous contact of all running wheels with the track at all times.

3.2.5.6 The machine shall activate colour-light signals at all times whilst on the track, and move within the standard structure gauge.

3.2.5.7 The machine shall have pneumatic block brakes on all axles capable of causing a deceleration of 12,5%. The machine shall have an emergency fail safe brake system working on at least two axles with a decollation capability of 6%.

3.2.5.8 The machine shall stabilise the track by applying a vertical load of up to 240 KN simultaneously with horizontal vibrations and amplitude of variable frequency between 0 and 50 Hz.

3.2.5.9 One stabiliser unit shall be employed, which must induce both vertical and horizontal forces into the track in a continuous action.

3.2.5.10 The contact assembly shall be capable of being lowered in a controlled manner, and raised and locked while travelling free. The vertical and horizontal forces applied during stabilisation shall be separately controllable to ensure an even settlement.

3.2.5.11 The machine shall be fitted with a measuring device to record work speed, vibration frequency, amplitude of vibrations, and the degree of settlement to the right and left and the cross level.

3.2.5.12 The machine will also be utilised to stabilise completed new track with full ballast depth. For new track clean ballast will be used. Where track of which the ballast is not clean is stabilised, the contractor shall qualify what optimal process of utilisation of stabilisation will be required and support the Technical Officer in the planning of work for such a section of track.

3.2.6 Stabilising rate.

3.2.6.1 The tendered nominal production rate in metres/hour must be maintained over a calendar month.

3.2.6.4 The stabilising rate shall be maintained within 100 metres per hour (+-) of the actual stabilising rate at all times during stabilising. The nominal stabilising rate will be taken into consideration during adjudication of the tenders.

3.2.6.5 The stabiliser should not cause delays to the ballast tamping machine with which it will be working. If stabilisation is required for a section of track tamped and for any reason the stabiliser delays tamping the delay will be measured as Tb of the Tamper and be calculated as part of the time allowed for tamping.

- 3.2.6.6 The Contractor shall be advised immediately when the ballast tamper has been stopped due to the stabilising production rate.
- 3.3 Mechanical and motive aspects of Tamping Machines
- 3.3.1 Off-tracking equipment will normally not be required for this contract. Contractors to however qualify whether machine offered is equipped with this facility.
- 3.3.2 Any machine offered shall be capable of maintaining the travelling speeds as required in the schedule of machines.
- 3.3.3 The machine shall be equipped with a third rail auxiliary lifting device for tamping turnouts. Alternatively, Contractors are to qualify their tenders, stating how the turnout part of the turnout will be lifted during tamping of the turnout.
- 3.4 Preparation work for tamping operation and protection duties.
- 3.4.1 Level crossings:
- a). The Contractor shall open up level crossings in front of the machine and restore it after tamping. (This may include bitumen paved level crossings.)
  - b). Repair of level crossings may include replacement of damaged sleepers and fastenings.
  - c). Where required, Transnet Freight Rail will arrange, beforehand, with the road authority, for permission for the opening up of paved level crossings and for the final repair of the damaged paved part thereof.
  - d). The Contractor will be required to repair paved level crossings by an approved method, using an approved type of bagged pre-mix bitumen. The method and material will be subject to the approval of the Supervisor. The repair shall provide sufficient compaction of the damaged area and allow for an evenly adjusted alignment of the road surface to ensure safe passage of road traffic. Where required, the final alignment and repair of the road surface may be arranged by Transnet Freight Rail to be done by the road authority.
  - e). Material required for the level crossing repair will either be provided by Transnet Freight Rail or may be provided by the Contractor. Where material is to be provided by the Contractor, such as bagged bitumen pre-mix, payment for such material shall be made under the item included in the schedule of quantities with the provisional lump sum.
  - f). An inspection before work and thereafter shall be done of the level crossing including the cattle guards. A list of material needed shall be handed to the Supervisor's deputy. Each level crossing including the cattle guards shall be signed off by the Supervisor's deputy within 48 hours after been opened if it has been restored correctly.
  - g). The Contractor shall take appropriate control measures for the period when a level crossing is opened and provide sufficient traffic warning signage.
- 3.4.2 The Contractor shall remove all track lubricators in front of the machine and replace it after tamping.
- 3.4.3 The Contractor shall measure and evaluate curves and turnouts to be tamped; to help him restoring the track to the initial design standard or to a new design decided upon by the Supervisor. Curve beacons, indicating beginning and end of circular and transition curves, shall be replaced and fixed by Transnet Freight Rail according to the latest design.

- 3.4.4 The Contractor is responsible for the preparation work with regard to stability and geometry on the turnouts to be tamped. Material replacement to be done by the Contractor shall only include bolts, nuts or screws. The Supervisor must be informed, one month in advance, of all turnout bolts, nuts or screws required by the Contractor.
- 3.4.5 The Contractor shall also inform the Supervisor one month in advance when the required standards cannot be met because of fouled ballast or rotten or bent sleepers. The clamp-locks on the sets have to be removed, restored and adjusted by Transnet Freight Rail
- 3.4.6 The Contractor shall also be responsible for the preparation work with regard to the stability of the track to be tamped. Material replacements to be done by the Contractor shall be limited to that what is required to ensure a proper tamping job. The Technical Officer or his deputy shall inform the Contractor one month prior of what work shall be required and what material will be provided. This work may include the repair of off-track platforms and the boxing in of ballast, all within the capacity of the labour listed as per clause 3.4.7
- 3.4.7 The Labour, supervision and vehicle, normally required to do the work as required in clause 3.4.1 to 3.4.6 and clauses 3.5 and 3.6, must be listed in the "Schedule of labour and plant for preparation for tamping." The labour shall be provided with the necessary hand tools such as measuring equipment, beaters, forks, spanners, bars and levers for sleeper clip and spring fastenings. The cost of this labour listed in this schedule shall be included in the machine hire rates tendered. This labour shall be utilised fully for all work related to the items listed above.
- 3.4.8 Where the volume of work required as per clause 3.4.1 to 3.4.5 and 3.5 and 3.6, exceeds that what can reasonably be done by the labour listed in the schedule as per clause 3.4.7 the Supervisor may request the Contractor to provide additional labour and / or supervision and transport for the execution of the additional preparation work. Additional supervision and transport will only be requested where the additional labour exceeds three men. This additional labour shall also be provided with the necessary hand tools such as measuring equipment, beaters, forks, spanners, bars and levers for sleeper clip and spring fastenings. This additional labour, supervision and transport will be paid for separately under item 5 of the Bill of Quantities. (Day labour).
- 3.4.9 Additional work required by the Supervisor, may also be done by the labour specified in 3.4.7 as overtime, separate from the machine occupation time or overtime and paid for under item 5 of the Bill of Quantities. (Overtime payment for labour under item 8 cannot be paid when overtime is paid for under item 4 or item 5.)
- 3.4.10 Reasonable work volume for the labour as specified in clause 3.4.7 will be agreed on between the Contractor and the Supervisor. (Man hours for each separate labour task).
- 3.4.11 Flagmen  
The Contractor, for each shift for protection duties, shall provide two Flagmen. Provision of the flagmen shall include the provision of three two-way radios as well for all housing and transport of the flagmen. The cost of the flagmen shall be included in the rates tendered.
- 3.5 Traction and signal bonds.
- 3.5.4 The Contractor shall repair all bonds / cables removed or damaged or broken off during tamping or ballast regulating operations during the period of the occupation.
- 3.5.5 Transnet shall supply all the material required for repairing of broken bonds and cables on a one to one exchange basis (used material for new material.)



- 3.5.6 The Contractor shall provide labour and equipment (inclusive of Expanded Collar fastening consumables and lugs) required to remove, repair new bonds where required and replace signals and electrical bonds.
- 3.5.7 If holes are required for bonds on tamping contracts, a rail drill shall either be supplied by Transnet Freight Rail or the holes shall be drilled by Transnet Freight Rail.
- 3.5.8 Where cables are required to be cut, the cut cable shall be cut to the correct lengths and be the crimping of lugs onto cables be done by the Contractor. No splices will be allowed in bonding cables.
- 3.5.9 This shall include track feeder bonds (painted red), which may only be worked upon under supervision of a Competent Electrical Officer. Transnet Freight Rail shall only provide the cable for bonding. All bonding shall be completed during the period of the occupation.
- 3.5.10 Bonding shall be performed by a bonder qualified to Transnet Freight Rail's standard manual for "Earthing and Bonding for 3kV DC, 25kV and 50kV AC bonding" B\_023 Issue 3 and B\_028 Issue and subsequent instructions which includes the steel wire standard in lieu of existing copper bonds, and the expanded collar fastening system. The cables shall be correctly buried in the ballast as per instruction.
- 3.5.11 Signalling bonds may not be removed without the consent of the Supervisor or the authorised Transnet Freight Rail Signalling representative. Where signalling bonds are damaged or removed, the Contractor shall provide the support labour to re instate the bonds. Transnet Freight Rail will however be responsible to ensure the correct method of re-connection so as to ensure the correct functioning of the signalling system.
- 3.5.12 Huck Bolting will not be done in future. If however required, Transnet Freight Rail will provide the Huck Bolt machine.
- 3.6 Quality measurements.
- 3.6.1 Geometry measurements done by the Contractor behind the tamper in accordance with Appendix C, shall be handed in hard copy to the Transnet Freight Rail representative on the same day that the work has been performed.
- 3.6.2 Measurements shall be done manually and/or electronically before the passage of the first train.
- 3.6.3 The standards for structural gauge shall be adhered to (See E7/1 specification). The Contractor shall verify the structural gauge parameters himself and adhere to the specified standards.
- 3.6.4 The height of the contact wire shall be measured on both sides of all overhead bridges as well as level crossings after the final tamp. Heights below or above the allowable limit quoted in the E7/1 specification will be unacceptable.
- 3.6.5 The stagger of the contact wire, (offset from the perpendicular on the track centre line) shall be measured at all support structures, pull-off and knuckle points, as well as at mid-span on all curves, after the final tamp. Where more than one contact wire exists, the stagger of the innermost wire shall be measured. When sets of points are tamped, the stagger on both the through and the turnout contact wire shall be checked.
- 3.6.6 Contact wire height and stagger measurements shall be reported to the Supervisor's deputy in writing (or computer printout) at the end of each shift.

Measurements exceeding the allowable limits quoted in the E7/1 specification shall be immediately reported to Transnet Freight Rail for rectification or adjustment by Transnet Freight Rail electrical staff. Each measurement shall indicate the mast location number as well as the relevant track section number.

3.6.7 The Contractor will not be allowed to use a contact system for the measurement of the electrical overhead wire height and stagger.

### 3.7 Training of contractors staff and compliance with safety requirements.

#### 3.7.1 General.

- a) The Contractor shall ensure that all staff working on or with the contract are adequately qualified and trained, so as to comply with any relevant safety and quality requirements. This applies for both the contractors own staff or any staff of a sub contractor employed by the contractor.
- b) This responsibility of the Contractor's to ensure that his staff is qualified and trained implies that:
  - i) Specific graded staff shall be qualified and sufficiently experienced and in possession of a qualified certificate for the required position or responsibility.
  - ii) All staff shall also possess any other relevant induction or safety qualifications.
  - iii) The contractor shall ensure that a complete up to date record is kept of safety qualifications or training and certification of all staff for all the relevant qualifications and safety requirements.
  - iv) The record of the qualifications and or training kept by the contractor shall also be available on site.
  - v) All relevant requirements for refreshment training shall be adhered to and the contractor shall ensure that the refreshments training and certification required is provided for the relevant staff.
- c) At the commencement of the contract, Transnet Freight Rail shall assist the contractor with the initial on-the-job training for the staff as specified below, so as to assist the Contractor to qualify the worker's / staff. The assistance for training shall apply only for the types of training listed in the Training Table 1, inserted below.
- d) The contractor shall ensure that all qualifications, training, and certification for all other requirements such as Machine Operators, Technicians / Fitters, Track Masters or Machine Track maintenance supervisors, Drivers, Crane and Earthmoving operators, Rail disc cutter operators, etcetera, are in place and are valid and that record is kept of such qualifications. This implies that the contractor shall ensure that proof of qualifications are kept when required..
- e) Where training is required by the Contractor for other than normal track work functions and Transnet Freight Rail has undertaken to provide this training, the following shall apply:
  - The number of staff requiring training for a specific qualification or activity is to be provided by the contractor in good time to allow for arranging such training.
  - Training will normally only be provided only at a depot's headquarters
  - Arrangements for the training and/or testing must be made with the appropriate depot Technical officer or Transnet Freight Rail depot Production manager (Perway or Electrical)
- f) For critical work outputs as well as specific activities, the contractor shall ensure that he has a core group of workers with sufficient previous experience to take the lead in undertaking maintenance tasks to ensure experience of safe and productive working.
- g) Where any training is provided by Transnet at a depot or centrally at Esselen Park, the contractor shall be responsible for transport, accommodation and meals. Where the training is provided by Transnet, the lecture hall with facilities and handout material will be provided by Transnet.

- h) Where the contractor will be required to provide an accredited trainer, paid for by Transnet under the “Day Labour” rate, or where the contractor arranges his own staffs re training or refreshing training, Transnet will make available, free of charge, any of the existing depot venues if so required by the contractor. Arrangements for the venue for training shall be made by the contractor with the depot through the Technical Officer.
- i) When training is conducted by a representative of the contractor, the basic specifications and content of what is required to conduct the training, will be supplied by Transnet. Where Transnet cannot supply duplicate copies of this content, the copies may be duplicated by the contractor with the approval of the Technical Officer. The cost of the copies will then be re-funded to the contractor after the approval of the invoice. Payment will be made under the Lump Sum item in the contract.

3.7.2 Training to be provided by Transnet Freight Rail or by hired accredited trainers:

- a) The intention is that Transnet shall provide, where required, the training for the qualifications or certification as listed below at the start of this contract. Where Transnet cannot provide the training, the required accredited trainer shall be hired by the contractor and be paid for under the provisional day labour item.
- b) During the course of the contract any required alternative or follow up or refreshment training for new recruits or replacement staff, shall be undertaken by the contractor as part of the contract responsibility and at the cost of the contractor.
- c) For the purpose of pricing, where an accredited trainer is required to be provided by the contractor, the following assumption must be used:
- o The content of Training course material required by Transnet will be provided by Transnet.
  - o The trainer will need to be sufficiently qualified and then be tested by Transnet and be accredited by Transnet to conduct the training and testing and certification of candidates trained. Such a testing of a trainer shall be done by Transnet free of charge as part of a group of contracts but transport and accommodation cost of such a trainer shall be for the account of the contractor.
  - o Depot facilities such as venues for training may, on appointment with the depot, be used free of charge by such a trainer to conduct training for the contract.
  - o For any training, the Transport, accommodation and meals of any candidates being trained, shall be for the account of the contractor. This shall also apply at the start of the contract.

Training: Table 1: Training on TFR contracts: List of types of training

Type of Training	Staff required to undergo training	Estimated duration of training	Location of training	Trainer to conduct training at start of contract	Alternative trainer to conduct training at contract start	Future Refreshment training
Induction	All contract staff including new entrants. Start of work at any new depot	+/- 2 hours	Depot where work starts	TFR Technical officer or Track inspector	New recruits: Contractors accredited representative	Contractors accredited representative.
Electrical awareness	All contract staff including new entrants	+/- 2 hours	Depot where work starts	TFR Depot’s electrical officer or accredited trainer	New recruits: Contractors accredited representative	Contractors accredited representative.
PWC (Electrical)	Supervisors, Operators, fitters, Technicians &	2 days	Depot where work	TFR, Esselen Park or Depot accredited trainer, or TFR hired	Replacement/new staff: Contractors	Contractors accredited representative.

	Workers supporting fitters, working in risky OHTE areas.		starts	accredited trainer : By appointment at depot*	accredited representative	
Competency (Electrical)	Supervisors (Follow up training in PWC)	1 day	Depot where work starts	TFR, Esselen Park or Depot accredited trainer, or TFR hired accredited trainer : By appointment at depot*	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.
Flagmen Training	Flagmen and standby flagmen	5 days		TFR, Depot neighboring depot accredited trainer, or TFR hired accredited trainer : By appointment at depot	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.
Bonder Training	Bonder	5 days		TFR, Esselen Park or Depot accredited trainer, or TFR hired accredited trainer : by appointment at depot*	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.

### 3.7.3 Track maintenance (Workers):

If required at the commencement of the contract, assistance with the training, to qualify the Contractors workers to perform the following tasks shall be given. This assistance shall be limited to showing the contractors Track master how work is to be done. Tools and repeat training must be provided by the contractor

Track work as mentioned in the appropriate clause (Level crossing's and blocks, cattle guards, sleeper & Clip replacement / fastening, lubricators, ballast boxing etc.).

Quality measurements as required per the quality control clause.

### 3.7.4 Training of Track Inspectors, Track Masters and or Trade hands (Perway):

- a) This training shall be solely the responsibility of the contractor. Only qualified people, qualified for the type of work required for the support required for the contract, shall be used by the Contractor for these positions. The Contractor shall ensure that staff used, do comply with requirements for the industry for the type of work required for the contract.
- b) The Contractor's Track Master/Track Inspector shall take full charge of the Contractor's resources on the work site. Such a contractor's Track Master or Track Inspector shall be responsible to ensure performing Track work safely and to the standard of the industry for the relevant type of work and line traffic conditions. An employee / agent appointed by the contractor, will not act as, or be allowed to take on any responsibility as, the **person-in-charge-of-the-occupation**. The function of **person-in-charge-of-the-occupation** is restricted to any currant standard Transnet policy in place at the time of the work being performed. At present this is restricted to a competent Transnet Freight Rail Track Masters and or Track Inspectors used for On Track contract work.
- c) The **person-in-charge-of-the-occupation** for an On Track machine shall be a competent **Transnet Freight Rail employee**, reporting to the Transnet Freight Rail Depot Engineer. This person shall be responsible for the following on a work site:
  - Taking occupations
  - Placing and controlling the flagmen

- Declaring the track safe for the passage of trains
- Cancelling the occupation and recalling the flagmen
- Communication with train traffic control with regard to occupation matters.
- The issue and control of all flags, warning boards and detonators

### 3.7.5 Training of Flagmen:

- a) Flagmen used, may be either Transnet Freight Rail employees or employees of the Contractor.
- b) For this contract, flagmen are required to be provided by the contractor.
- c) Any flagmen provided will be subject to control testing by the Track Inspector of the section to ensure compliance of protection duties relevant for the section of track to be worked as well as the activity required to be performed, eg protection of Tamper work. The testing of flagmen proficiency by Transnet Freight Rail Track Inspectors is only a safety and quality control and does not exonerate the contractor of the responsibility to ensure the proficiency of the any flagmen used.
- d) The appropriate training for the flagmen can be provided once off for the contract by Transnet Freight Rail. Any extra training of Flagmen as well as any refreshment training required shall be paid for or be provided by the contractor.
- e) Where Transnet Freight Rail requires flagmen to be trained, the pre-requisites for such persons to qualify to be trained, shall be basic literacy skills and Basic English language ability as well as any physical requirements required for this work such as good sight and hearing ability..
- f) Flagmen must be officially trained, evaluated and certified competent, (Transnet Freight Rail 407 – Item Number 37/270451 - "Certificate of Competency") by a designated competent person, before being used on protection duties. This certificate of competency shall remain valid for one (1) year only after, which re-testing and re-certification of competency will be required.
- g) In cases where a person was not performing flagmen duties for a period of 6 months or longer, he must be re-tested and again be re-certified competent, before he may be re-used for Protection Duties.
- h) The Transnet Freight Rail Depot Engineer remains ultimately responsible in terms of the requirements of Act 85 for the safe working environment of his own personnel as well as contractor's personnel within the track maintenance environment on his depot.

The Depot Engineer is therefore also responsible for ensuring that any changes in the Protection Procedures that may occur over time are effectively communicated to any flagmen prior to them being used for Protection Duties. Where such a change occurs and is communicated to a contractor, the contractor shall ensure that flagmen used by him are informed and trained to carry out the changed requirements.

### 3.7.6 Training of bonders.

- a) Bonders removing, replacing or repairing damaged bonds, shall be trained to ensure that only work, which they are trained and allowed to do, is done by them.
- b) The initial initialization training of bonders for this contract can be arranged for with the Transnet Freight Rail accredited electrical trainer, through the technical officer as specified above in this clause.

c) Bonders shall be required to be trained for Electrical Permanent Way Competency and be trained to do WHAM bonding and bonding according to electrical specifications, instructions and drawings manual CEE 0059.84 and CEE0060.84, where applicable.

d) Follow up training of bonders shall be responsibility of the contractor.

**3.7.7** Electrical awareness, Educational and competency training:

a) The following training shall be arranged for the following Contractors staff:

Course	Objective	Duration & trainer	Grade to attend
A) Awareness (Electrical)	To inform all contractors staff working near a machine and on the line on electrified sections of the dangerous situations of high voltage OHTE	Two-hour on-the-job lecture and training. Accredited Electrical trainer / Depot's Electrical technical officer.	<ul style="list-style-type: none"> <li>All workers and staff working on the contract</li> </ul>
B) PWC Educational (Electrical)	For the safe working on and with On-track machinery in the vicinity or near exposed High voltage OHTE.	Lecture room training = 1,25 d On-the-job training = 0,25 d Criterion test = 0,5 d Total = 2 days Accredited Electrical trainer	<ul style="list-style-type: none"> <li>Workers working on a machine (High risk area's)</li> <li>Operators</li> <li>Machine fitters</li> <li>Area supervisors</li> <li>Contract supervisors</li> </ul>
C) COM Competency (Electrical) (to follow A) (PWC)	Work permits safe working procedures under the direct supervision of a responsible representative.	Lecture room training = 0,25 d On-the-job training = 0,25 d Criterion test = 0,50 d Total = 1 day Accredited Electrical trainer	Supervisor (Responsible person in charge at machine working)

b) The electrical awareness training must be arranged for beforehand on-the-job.

c) The electrical educational and competency training may be arranged for at either a depot's lecture room's (Transnet Freight Rail property), or at a venue of the Contractors choice (Contractors cost).

d) The Accredited Electrical trainer from Transnet Freight Rail required at the start of the contract, will be provided by Transnet Freight Rail at Transnet Freight Rail cost, provided that an arrangement for the training session required, is done beforehand and will fit in with the trainers training program for the year. This shall not include transport, accommodation and meals for candidates to be trained

**4. STANDARDS OF WORKMANSHIP AND ACCURACY**

4.1 The A-standard given in Appendix C hereof shall apply at all measuring stations except if, prior to tamping:

4.1.1 Any one of the TOP, CANT or LINE measurements at the measuring station exceed the C standard, or if the measuring station is one of more than three consecutive VERSINE measurements which exceed the B-standard to one side in a curve, or

4.1.2 The running top is such that the depth of the worst slack is more than the required lift, or

4.1.3 The lift for a single pass or the final lift of a multiple pass is less than 10mm or exceeds 25mm, or



- 4.1.4 The amount of slew, due to LINE or VERSINE errors is more than the maximum slew the machine can achieve per pass, or
- 4.1.5 The rail temperature is above the maximum temperature in the working (B) range as determined from Appendix E to the Part 3/A, or
- 4.1.6 Due to bent sleepers in a set, the required standards for vertical alignment cannot be achieved on both the straight and turnout lines. (In such cases the required cant on the straight (through) portion of the set will be specified, or
- 4.1.7 The horizontal alignment of the curved (turnout) line of a set cannot be corrected by the machine (see clause 4.8), In such cases the straight (through) line of the set shall be aligned correctly, or
- 4.1.8 The composition of the set is such that the required geometric standards cannot be achieved,
- 4.2 The standards of workmanship and accuracy apply to the tamping and aligning of established track and the final tamp of multiple passes on all track. The Supervisor will inform the Contractor when a different standard shall apply.
- 4.3 On transition curves the cant is to be increased proportionately along the length of the transition curve, or as otherwise directed, to the required cant of the butting circular curve.
- 4.4 The cant to be applied to curves will be as determined from the radius of the curve or as directed by the Supervisor.
- 4.5 On tangent track, reference points will be installed by Transnet Freight Rail where repeatable alignment is important. These will be a maximum of 200m apart.
- 4.6 The running top of the track and the alignment may need adjustment where adherence to the minimum structure gauge is essential or at tie points such as platforms and level crossings. Details of adjustments, which may be required, will be provided by the Supervisor.
- 4.7 The straight (through) line of a set shall normally be tamped first. Should it be necessary, to obtain the required standards, the curve butting to the turnout portion of a set, will be referenced by Transnet Freight Rail at 5m intervals. (The obtainable accuracy is influenced by the direction of travel during tamping, and this will only apply if the machine is working in the direction from ETO towards the crossing).
- 4.8 Turnout sleepers longer than 3 meter must be supported on the far end during tamping.
- 4.9 Measurement of the standards of workmanship and accuracy for sets will be taken over the lengths shown in Appendix B.
- 4.10 The accuracy of contact wire height measurements shall be 10mm and contact wire stagger measurements shall be 20mm.

## 5. EVALUATION OF MACHINE PERFORMANCE

- 5.1 Machine performance will be evaluated by measurement of the track geometry behind the machine operation. Defective machine performance is indicated by a measurement that fails to meet the specified geometry standard i.e. a failed measurement.

- 5.2 The performance of the machine will be acceptable if the number of failed measurements does not exceed the specified number shown in Appendix C. Plain track and restricted track will for this purpose be divided into 500m sections, while sets will be measured as shown in Appendix B. If the terms of clauses 4.2 exclude a portion of track from measurement or the 500m section is not complete (e.g. if a set occur within the section) the tolerance will be reduced proportionally.
- 5.3 Should any geometry measurement exceed the C-standard or if the structure gauge be violated, the fault shall immediately be rectified by the machine.
- 5.4 The Supervisor's deputy will decide (before completion of the next 500m section or set) if re-tamping shall be done in case of non-conformance to clauses 5.2 or 5.3. In all instances where re-tamping is required, the working time will be recorded as part of the total work time allocated to the contractor to execute the work load.
- 5.5 Should re-tamping according to clause 5.4 not be possible because of a lack of occupation time, and it is acceptable for the Track Master or Track Inspector to leave the line as it is as being safe for the running of trains, 30% of the length of track tamped will not be recorded as track km tamped for payment. The Track inspector however retains the rite to have the section of track re-tamped to standard whereby the total time used will be recorded as time allowed for tamping but only the final length of track correctly tamped be accepted for payment.
- 5.6 The tachograph or event recorder will be marked and/or set and certified by the Supervisor's deputy to indicate:
- . Sections that are double tamped (Twd),
  - . Where re-tamping was done (Tbr),
  - . Other tamping functions.
- 5.7 The Supervisor's deputy will do a daily check of the machine's performance in accordance with clause 3.1.2. Should any measurement deviate from the accepted standard, the machine will be non-available until the fault is corrected.

## 6. PROVIDED BY THE CONTRACTOR, PLANNING OF WORK AND EMERGENCY STANDBY

### 6.1 To be provided by the contractor.

The Contractor shall in addition to what is stipulated in Part C3 / A General Technical Specification, Maintenance of Track with On Track Machinery (Old E 160), provide the following facilities and support for the:

#### 6.1.1 Lighting of the Work Site

The Contractor shall provide lighting on and with a machine should the machine be required to work at night. Where a machine is required to work at night, the contractor will be required to provide lighting for the support labour required to work with the machine. This will apply to all workplaces in tunnels and other work places where work is to be taking place during darkness hours between 18:00 and 06:00. Transnet Freight Rail will notify the Contractor at least one week prior of lighting arrangements to be made. The lighting shall be of intensity and spread to satisfy safe work and efficiency requirements.

The Contractor's lighting will not be required on the workplaces where Transnet Freight Rail labour is employed. The Contractor may also utilise the existing lighting power supplies (where available) to assist him in lighting the workplace.

#### 6.1.2 Flagmen.



The contractor shall provide two flagmen to ensure protection of the site at all times for occupations. The flagmen shall be included in the rates tendered for the machine. In the event that additional flagmen are required for a separate worksite if required for a stabilizer working independently, the contractor shall also provide these additional flagmen. These additional flagmen will then be paid for under day rates.

### 6.1.3 Support labour and tools:

The contractor or his subcontractor shall provide all equipment, tools and support required to support the tamping activity, including the control measurements to control quality and safety of work.

### 6.1.4 Accommodation and other use of Transnet Freight Rail wagons.

6.1.4.1 The intention is to discontinue the use of wagons unless absolutely essential. The intention is to have a machine move from one staging site to the other under its own power and to not have the need to move camps separately by train. Where it is however essential or impractical or not possible to implement such a change over with the start of this contract, TFR may consider a period of changeover.

6.1.4.2 Wagons that may be considered as essential for a contract.  
No such wagons are foreseen to be part of a tamping contract.

6.1.4.3 Wagons that may required for the contract but are not absolutely essential.  
These are wagons that may be critically important for the execution of the contract but can be replaced by road transport at relatively high cost and or effectiveness. Any such wagons if provided or allowed as part of the contract shall under all circumstances be limited. Examples of such wagons are:

- a) Fuel bowser wagon.
- b) Storage wagons for machine parts of large contracts.
- c) Critical accommodation wagons with contract such as:
  - i. Caboose on grinder as part of grinder.
  - ii. Wagon or caboose for guards with train to ensure security of machines when moving, stopping and when staged
- d) Any other critically required wagon specifically being part of a machine package. (Tenderers to clearly specify what wagon and for what critical process used as well as consequence if wagon is not available.)

6.1.4.4 Transition period for use of wagons already part of existing contracts.  
Certain wagons may at present be used as part of an existing contract. If a follow up or new contract is awarded to a contractor and the contractor requires the use of such wagons to enable a continuous service, the use of the wagons may be considered for such a transition period. Such wagons may form part of the non – essential group of wagons. The wagons may then be used for the interim period until such time as when other alternative housing and or vehicles and other equipment can be provided to replace accommodation wagons.

If applicable, tenderers shall list and define these wagons and qualify tenders stating when they can be replaced and what the difference in costs shall be at the date at which the replacement will occur.

6.1.4.5 Only wagons linked to contracts at present in use may be available. Tenderers shall indicate in the schedule of wagons, what wagons are required as essential and motivate each wagon required as well as what the implication would be in the event that the wagon is not made available for this contract or not allowed to be used for the contract. Any of the wagons intended to be used in a contract shall be qualified in the tenders submitted, providing wagon number, type and intended use.

6.1.4.6 Cost of wagons:

Tenderes are required to clarify tenders to clearly indicate what cost has been allowed for and the difference in cost to Transnet of all possible options included in the pricing for any of the following or any other allowed for wagon usage options allowed for in the submitted tenders:

- i) **Transition period for some non essential wagons: Wagons Transnet owned and maintained.** If any, what cost change will occur and when, when wagons are with drawn and no longer allowed. This option only allows for wagons supplied and maintained by Transnet as on previous similar contract. (Transition period only)
- ii) **Transition period for some non essential wagons:** Wagons Transnet owned but day to day maintenance done by contractor. (This option may only be valid if agreement for standard of safety and accreditation of contractors maintainer is agreed on with TFR wagon fleet maintaining management.) Cost of wagons as per qualified list, if continued to be supplied by Transnet as on previous similar contract, but part of wagon maintenance be done by contractor, excluding wheel replacement or wheel cutting. (Transition period only)
- iii) **Full time use of some wagons supplied by contractor:** Wagons supplied and maintained by contractor.
- iv) **Full time use of some wagons supplied by Transnet:** Wagons supplied by Transnet and partly maintained by Contractor as in ii) above. The cost of maintenance arranged by the contractor may be paid for by:
  - An allowance by the contractor and included as part of price tendered, or
  - Allowing for a provisional lump sum in the contract and paid for by Transnet on approved invoice.

6.1.4.7 This clause on wagon usage shall replace any other reference to the supply or use of wagons mentioned or specified elsewhere in this specification.

6.1.4.8 Tenderers may offer different options to Transnet for the use or not of wagons which they consider important or critical to execute the contract.

6.1.4.9 All intended wagon use shall be clearly qualified in an annexure covering wagon requirements. From any submission, it must also be clearly qualified what costs will be involved and at what stage where no TFR wagons and traction will be involved for moving a machine and the camp of the contractor. This clause therefore implies that tenderes shall allow for provision of certain facilities such as accommodation without the use of wagons

6.1.4.10 Tenderes shall also qualify tenders stating what costs shall be involved if one or more wagons allowed for in the offer is later withdrawn or is not provided.

6.1.4.11 Where wagons are used as part of a contract, the contractor will under all circumstances be required to keep the wagon clean and safe and control security of the wagon. This shall include preparing basic safety cases for all forms of use of wagons and ensuring management thereof.

6.1.4.12 Any wagon supplied by Transnet and used by the contractor remains the property of Transnet and shall be returned to Transnet after the expiry of the contract.

## 6.2 Planning of Normal Working

6.2.2 The following will be determined and recorded jointly by the Supervisor's deputy and the Contractor at a monthly site meeting, scheduled to suit both parties:

- (a) The previous month's production and quantities for payment purposes.
- (b) The next month's detailed programme and the necessary inspections required.
- (c) Material requirements e.g. turnout Groups, fastenings or ballast.
- (d) Welding required.
- (e) Occupations.

6.2.3 The weekly progress and revisions to the monthly programme will be determined by the Supervisor's deputy and the Contractor's representative at a weekly site meeting. Decisions made will be recorded in a designated site book provided by the Contractor. The weekly site meeting will be held during occupation time, but must not interfere with working time (Tw).

### 6.3 Emergency Work Standby during December break.

6.3.1 TFR shall notify the Contractor, 3 months prior to Contractor's Annual Holidays, of the requirement of standby staff for emergency work during Contractors Annual Holidays.

6.3.2 TFR will normally always require tampers on the Heavy Haul lines and some of the General Freight lines to be available and to be staffed during December breaks.

6.3.3 When required, the Contractor shall supply standby staff (fitter, operator and plant assistant) for emergency work.

6.3.4 The Contractor shall supply 2 contact phone numbers for emergency call out purposes (the standby staff shall be available 24 hours a day, 7 days a week)

6.3.5 The call out reaction time shall not exceed 24 hours from time of the call out to the time the machine is at staging point. Consideration must be given in respect of the standby staff getting sufficient rest before commencing work.

6.3.6 The Contractor shall make the necessary arrangements for accommodation of standby staff and all costs shall be included in the rates tendered.

6.3.7 The mutually agreed time the machine shall be available at its staging point, shall be the start of the occupation time (To) for that contract, therefore arriving late shall be breakdown time (Tb)

6.3.8 An inconvenience allowance shall be paid per person per day for the duration of the Contractor's Annual Holidays whether working or on standby. This item shall include transport to be able to respond to the callout.

6.3.9 Travel allowance shall be paid per kilometre actually travelled by the standby vehicle during the Contractors Annual Holidays including travelling to respond to the call out. This item shall exclude travelling between temporary accommodation and work site as this shall included in the normal working rates.

## 7. RECTIFICATION

7.1 Where the C standards are not attained before the end of an occupation (see clause 5.3), or should the Contractor damage the track or any visible equipment, the Supervisor may arrange to rectify such defects. Costs will be recovered from the Contractor, at Transnet Freight Rail's rates.

7.2 The Supervisor's deputy will check the condition of the bonds/cables at the end of each occupation, and should the condition or quality of weld not be acceptable, repairs shall be carried out at the expense of the Contractor.

7.3 Transnet Freight Rail's rates will be as below, and will be subject to price adjustment described in clause 12.3 of part C3/A. Labour rates will be enhanced by 50% for Saturdays, and 100% for Sundays and paid public holidays.

Artisan/Platelay	=	R 120/hr
Skilled labour	=	R 80 /hr

Unskilled labour	=	R 40/hr	
LDV	=	R 400/hr	} Excluding driver
Lorry	=	R 800/hr	

Material prices will be determined as and when applicable, subject to a 15% mark-up.

## 8. PRODUCTIVITY OF MACHINE, TAMPING RATE AND RECORDING OF TIME UTILISATION OF MACHINE

### 8.1 Monitor of time utilisation and production of machine.

The intent of this contract is to only pay for the equivalent work load produced by the contractor. As time available to do work forms the basis to allow the contractor to achieve the workload with the capacity tendered per machine, it is essential to monitor and record all time and productivity.

For this purpose time shall continuously be recorded for all work performed.

The following types of time activity shall continuously be recorded so as to clearly define what time is available for working.

To = Total Occupation time for the day.

Ts = Standing time because of TFR reasons, not related to any fault of the contractor.

Tx = Standing time due to Train crossing time

Tt = Travel time from staging site to work site and back to staging site or to clear for for train crossing.

Tm = Time allowed to move one staging area to another when machine is required to move to new depot or area.

Tp = Time required to for preparation of track to allow working. (Only preparation that is purely related to machine on site that could not be phased apart from machine can be recorded for this purpose. This item may not be used for any problem related to the machine or staff inefficiency)

Tb = Breakdown of machine

Tw = Working time (As specified below)

#### Where:

(Totals for the month)

$$T_w = T_{wps} + T_{wpls} + T_{wr} + T_{w20} + T_{w12} + T_{w9}$$

$T_{wp}$  = Time spent on tamping plain track (Standard 700mm spacing).

$T_{wpls}$  = Time spent on tamping plain track (Spacing different).

$T_{wr}$  = Time spent on tamping restricted track

$T_{w20}$  = Time spent on tamping 1:20 turnouts.

$T_{w12}$  = Time spent on tamping 1:12 turnouts.

$T_{w9}$  = Time spent on tamping 1:9 turnouts.

$S_{aps}$  = Actual number of plain track sleepers tamped.(700mm spacing) (Excluding all sleepers tamped in turn-outs)

$S_{apls}$  = Actual number of plain track sleepers tamped. (Spacing different)(Excluding all sleepers tamped in turn-outs)

$W_{20a}$  = Actual number of 1:20 turnouts tamped.

$W_{12a}$  = Actual number of 1:12 turnouts tamped.

$W_{9a}$  = Actual number of 1:9 turnouts tamped.

A productivity factor, **P** shall be calculated every month to continuously monitor whether the machine consistently produces at the rates of production tendered.

Monitoring of machine availability will be calculated as: 
$$\text{Availability (A)} = \frac{T_o - T_b}{T_o}$$

- 8.2 The tendered nominal production rate in sleepers/minute must be maintained over a calendar month.
- 8.3 If the Technical Officer requires double tamping on plain track, the number of sleepers counted towards  $S_a$  will be  $0.75 \times S_d$ , where  $S_d$  is the number of tachograph registrations. This will only apply when sections longer than 700 sleepers are double tamped.
- 8.4 The joints of thermit welds at the stock rail joint (SRJ) and the last standard turnout sleeper outside the end of set (ES) and end of turnout (ETO) will be regarded as the extremities of the turnout for the scheduled working time required to tamp turnouts as well as for payment purposes.
- 8.5 The times quoted are to be according to the tamping sequence developed for each type of turnout. Quoted times for tamping of sets shall be for one pass of the complete set (through straight as well as turnout lines simultaneously). Double tamping may be required when the ballast is extremely fouled and / or lift exceeding 25mm is required.
- 8.6 The tendered nominal production rate R in sleepers/minute must be maintained over a calendar month.
- 8.7 The tamping rate shall be maintained at R plus or minus 3 sleepers/minute at all times during tamping. The nominal tamping rate and times for tamping of sets will be taken in consideration during adjudication of the tenders.

## 9. BREAKDOWN TIME (TB)

- 9.1 All  $T_b$  shall be recorded at all times.
- 9.2 Where a machine becomes unreliable and continues breaking down and results in train delays or occupations having been taken with insufficient production, the Technical Officer or his deputy may decide on placing a machine on breakdown until such time that the contractor can prove that the machine can be consistently available. The machine will always be required to produce the required standard of work required at full production rate. Where the machine is placed on breakdown, it implies that the breakdown down time will add up to allow for the targeted time to allow the contractor to achieve the work volume tendered for.
- 9.3 TFR may only if work conditions allow, strive to allow for additional time to allow the contractor the chance to make up for lost time due to breakdown. Such extra work time will only be arranged by the Technical Officers deputy (Track Inspector or Track Master) if he can arrange and reach agreement with the sections controlling operations centre. This may only be when train service allows planned occupations to be extended.

## 10. PROVISION OF ELECTRONIC PRODUCTION DATA TO TRANSNET FREIGHT RAIL.

The Contractor shall provide Transnet Freight Rail daily with the daily production statistics of the work.

- 10.1 The production data shall be in an agreed on format providing the following basic type of information:
- $T_o$ ,  $T_w$ ,  $T_t$ ,  $T_s$ ,  $T_b$ , etc. of each machine applicable.
  - Length of work completed for the day.
  - Start & final km and GPS coordinate of length and line description / name.

- Reasons / comments on production shortfall.
- Graphical presentation of data as and where agreed on.

- 10.2 The data shall be e-mailed daily to the Supervisor at the depot as well as the Service Manager or his representative and the Technical Officer.
- 10.3 Where problems exist of actually transmitting the data, the Contractor shall state what measures shall be taken to ensure transmission of data as soon as possible.  
All data shall be summarised per week and then per month. Data may be used as a preliminary indication of payment but shall not be used specifically for payment purposes. Final payment data shall be dealt with as specified elsewhere.

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TRACK STANDARDS

APPENDIX C

Track Geometry Measurements				Number of permissible disallowed measurements								
Type	Position	Method	Frequency	Before train traffic		Under a train		Standard A	Standard B	Standard C	Unit	
				500m sections	Each set	500m sections	Each set					
<u>VERTICAL PLANE</u>												
TOP	All track	Geismar	Any position	3	1	3	1	1:1000	1:250	1:180	-	
CANT	All track	Geismar	5m intervals	10	10%	3	10%	3	12	16	mm	
TWIST	Transition curves	Calculated from cant	5m intervals	5	10%	3	10%	1:500 (" 10)	1:400 (" 12,5)	1:288 (" 17,5)	- mm	
TWIST	All other track	Calculated from cant	5m intervals	5	10%	3	10%	1:1000 (" 5)	1:400 (" 12,5)	1:288 (" 17,5)	- mm	
<u>HORIZONTAL PLANE</u>												
VERSINE	<u>Curves</u> :	10m chord	5m intervals	8	10%	-	-	2,5 mm + 5% of the correct/ave. versine.	2,5 mm + 20% of the correct/ave. versine	2,5 mm + 30% of the correct/ave. versine	mm	
LINE	<u>Tangent track</u> :											
	All	10m chord	any deviation	8	10%			1:2000	1:500	1:360	-	
	Between beacons	70 - 250m optical baseline	1/instrument set up	0	0	-	-	1:5000	n.a.	n.a.	-	
CURVE LOCATION	Curve markers Longitudinal Transverse	Survey	4 each curve	-	-	-	-					

\* These standards are the difference between specified (design) and actual measurements, except for TWIST, which are absolute values.  
\* Sets will be measured for TOP, CANT, TWIST and LINE at the positions indicated in Appendix B.