

TECHNICAL SPECIFICATION FOR TRACK WORKS

1. This Contract shall be governed by the Southern Railway's General Conditions of Contract, Indian Railways P.Way Manual, Indian Railway Track Manual, Schedule of Dimensions and the standard specifications for track works . In case of contradictions, the clauses under these Special Conditions shall prevail. All the latest correction slips for the above is also applicable.
2. The Tenderer in his own interest should visit the site of work with the concerned JE/SE/SSE/AXEN or with their authorized representatives after fixing up an appointment with them in advance and ascertain the nature and quantum of work, site conditions, availability of approach roads, availability of labour, water, electricity, land for labour camps, availability of P.Way materials, accessories, speed restrictions, market rate for various raw materials transport etc. before quoting the rates for this tender.
3. The Contractor shall not start any work on the track under traffic conditions without the presence of the Railway's supervisor at site. In case the contractor or his representative starts any work in the absence of the supervisor, it shall be treated as unauthorized and illegal tampering with the track and shall be liable for action under the Railway's Act.
- 4(a) In case trains are detained at or on the approach of the work spot or at station due to the reason that the work spot is considered unsafe on account of bad workmanship by the contractor or the track parameters being unsatisfactory for safe passage of trains or due to contractor leaving the work unfinished or due to the work being delayed beyond the allotted time, due to inadequate labour, then, under such situations Railway is at liberty to impose a penalty on the contractor on this account. However, the total amount of penalty thus imposed during the entire currency of the contract shall not exceed 10% of the agreement value. The penalty thus determined by the Railway shall be final and binding on the contractor.
- 4(b) Further, in case train accident occurs at a work spot and the Enquiry Committee set up by the Railway Administration to investigate the cause of the accident or Commissioner of Railway Safety decides that the cause of the accident is due to the contractors negligence or due to poor workmanship and if the contractor is held responsible, the contract is liable to be terminated forthwith notwithstanding the provision of clause 62 of the GCC. In addition, the amount of damages as decided by the Accident Enquiry Committee/ Commissioner of Railway Safety is liable to be recovered from the contractor. This amount of damage will be over and above the penalty specified under item 4(a) above.
5. Traffic blocks if required to carry out certain track works will be arranged by the Railways. Actual availability of block would depend on flow of traffic and there may be variations in availability of block vis-a-vis those planned. The labour should be judiciously deployed for other activities wherever block planned is not available and no compensation is payable in case block planned is not available. No claim on such account shall be considered.

6. The Contractor shall proceed with the work in a systematic manner so as to ensure that the stretch of track under speed restriction and its duration are kept to a minimum. The decision of the Engineer in this respect shall be final and binding. The Engineer may regulate certain activity / item of work till the track is attended to restrict the length under speed restriction. No compensation is payable when such restrictions are imposed on the progress of certain activity / item of work.

7. The work shall be so carried out that there is no infringement to the Railway's Schedule of dimensions and it should be ensured that no loose materials are left near the track without watch and ward.

8. The Railway shall arrange for protection of track(s) by their staff. In addition, the Contractor shall arrange for "Lookout man" for protection to warn his workers of any approaching train. No compensation will be paid by Railway in case of injury or death to the Contractor's labour. The contractor, shall indemnify the Railways of any responsibility in this regard. The Contractor may obtain Group Insurance in respect of his workers.

9. At each site of work, the Contractor shall employ and post one technical supervisor who should have adequate experience in execution of track works and safety rules. The name, technical qualification and details of experience of the technical supervisor as employed shall be advised to the Engineer. If in the opinion of the Engineer, the Supervisor is not fit to be in-charge of the work, he shall be forthwith replaced. In this matter, the decision of the Engineer shall be final and binding on the contractor.

10. The Contractor's technical Supervisor shall be present at the site, at all times when the work is being executed. The Contractor shall employ adequate number of qualified & experienced workers to give consistent and desired progress every day. The labour strength is to be suitably maintained as desired to match with the desired progress/availability of materials for works etc.,

11(a). For executing the works, the contractor has to arrange his own tools, plant and equipment.

11(b) The contractor has to arrange the following p.way tools required for the work with operators in sufficient quantity depending upon the number of sites the work is taken up and also according to the labour force.

- i. Rail tongs
- ii. Crow bar
- iii. Spanners including box spanners
- iv. Hammer
- v. Beater
- vi. Shovel
- vii. Track lifting jack
- viii. Gauge cum level

- ix. Rail cutting machine with consumables including appropriate size of rail cutting blade.
- x. Rail drilling machine with consumables including drill bits etc.,
- xi. Wire brush ; Wire claws
- xii. Painting brush
- xiii. ERC extractor

However, Railway will issue at the depot (free) under acknowledgment, the jim crow as and when required and the contractor is responsible for collecting the same from the depot and return back the same at the depot under acknowledgment.

12(a) The contractor shall arrange safe custody of the materials supplied / hired to him. In case of loss of Railway materials or damage, the Railway will recover the cost of the lost material or penalty for damage as per Rules. Once the Railway materials are issued to the contractor, he shall not move the materials to other workspot. Any violation in this regard will be viewed seriously.

12(b) Loose materials / tools shall not be allowed to be scattered along the line and these materials shall always be neatly stacked and watched with contractor's watchmen.

12(c) Issue of materials to the contractor or his nominated representative will be on vouchers and the materials thus issued are to be accounted for by the contractor either in the track as fitted or as surplus materials having been returned to the Railway under proper acknowledgment. He shall be responsible for any shortage till the track is taken over by the Engineer-in-charge.

Similarly, when ever any p.way is to be dismantled the inventory of the existing p.way material shall be jointly taken and signed by both the parties. Payment for dismantling item in the schedule will be considered only after handing over / reconciliation of the released materials.

13. Site Order Books, progress registers and materials issue registers shall be maintained at site and entries shall be recorded on day-to-day basis in the registers and signed jointly by Railway's Supervisor and by the contractor or his authorized representative. All details of various stages of work, impose and removal of speed restrictions, measurement of track parameters, accountal of released materials, etc., shall be recorded therein.

14. The contractor shall always comply with the instructions / directives issued by the Engineer's representative from time to time. In the event of non-compliance with the instructions / directives, apart from and in addition to other remedies available to the Railways as specified hereinabove, the Engineer's representative may employ at the worksite, the required workers with necessary equipment as considered appropriate and adequate by him to provide the requisite conditions for the safe and unhampered movement of railway traffic. The decision of the Engineer's representative in regard to the need, appropriateness and adequacy of the deployment of the required workers with necessary equipment shall be intimated in writing by the Engineer's representative to the

contractor, soon after such deployment and the charges for the same shall be payable by the contractor.

15. If the contractor persistently does not comply with the instructions / directive of the Engineer's representative, apart from and in addition to the remedies available to the Railway as specified hereinabove without prejudice to the Railway's rights in this regard, the Engineer's Representatives which for the purpose of this contract shall also include the Inspector / Section Engineer, Junior Engineer of Civil Engineering Department appointed by the Railway, can suspend the contractor's work till the Engineer's representative is satisfied that the contractor has taken necessary steps to comply with the instructions / directives issued by the Engineer's representative. The decision of the Engineer's Representative in this regard shall be final, conclusive and binding on the contractor. The contractor shall not have any claim whatsoever against the Railway for such suspension of the work.

16. During such period of suspension of work, the contractor shall not in any manner attempt to carry out any work at the worksite. Any such attempt on the part of the contractor shall tantamount to tampering of the Railway track for which the contractor shall be liable for appropriate action under relevant provisions of the Railway's Act.

17. All items such as Rails, sleepers, cotters, Pandrol clips, rubber pads, liners, fish plates, bolts, check blocks, bolts and nuts, keys, bearing plates, plate screws, other fittings etc. will be supplied at the nearest construction stores depot unless otherwise expressly specified in the respective items of Annexure. The contractor has to lead the materials to the site of linking at his cost and the rate quoted shall include this.

18. Dip lorries to the extent available will be supplied by the Railway free of charge at the nearest construction stores depot and these shall be returned by the contractor at his own expenditure to the same depot as directed by the Engineer-in-charge.

19. For drilling holes in rails and cutting rails the contractor should make his own arrangements for using drilling and cutting machines, rail cutting blades, drill bits etc. The department will not supply any of these items. Cutting of rails and drilling of holes by JIM CROW OR GAS IS NOT PERMITTED unless mentioned otherwise in the items for dismantling of track.

The fish bolt holes drilled for running rails shall be invariably chamfered by proper tools as per standard specification.

20. No extra payment will be made for crossing the tracks, or for lifts/descends while unloading, leading and stacking the materials.

21. Permanent way materials should be handled carefully without causing any damages. If any damage is caused, due to negligence of contractor which make these materials unfit for use on track, or for shortages, the cost thereof will be recovered from the Contractor as per extant orders. Decision of the Engineer-in-charge regarding damage or shortage will be final and binding on the Contractor.

22. The cost of Permanent way materials when got broken in handling/transport, except for negligence of Contractor, will not be recovered, but broken ones should be handed over to the Railway depot as nominated already or as may be directed. Whether the breakages have occurred due to negligence of the Contractor or not will be decided by the Engineer-in-charge and his decision is final and binding on the Contractor.

23. Materials liable to breakage, or damage by being dropped or thrown, shall be unloaded carefully by hand or other suitable means. All materials shall, after unloading, be stacked sufficiently clear of the track or the road, as the case may be and in the former case, shall remain without any possibility of infringing the minimum fixed structure dimensions when work is done near opened yards/lines.

24. The entire work will be done under the strict guidance of the Engineer-in-charge or his authorised representative. The daily progress of the work will be watched and any suitable corrective measures as directed by the Engineer-in-charge or his representative should be immediately carried out wherever necessary at no extra cost.

25. After each stage of lifting, in case the schedule involves lifting of track under traffic conditions, the ballast has to be properly packed and the level, gauge alignment and other track parameters are to be attended to ensure safe passage of trains.

26. Prior to commencement of work, the section Engineer-in-charge and the representative of the Contractor will jointly inspect the work spot and take note of missing fittings, if any. The contractor will be responsible for any further losses till the work is completed in this length. The cost of such fittings at Railway's rates will be recovered from Contractor's bills.

27. Wherever rails are unloaded they should be handled and stacked properly. The rails should be made to rest on the bottom flange and not on the sides. Support points should be fairly in one level not more than 6m apart. This will avoid permanent kinks and the need for cropping and welding of such kinks.

28. The tenderer/ contractor shall arrange to provide the in-section gadget (gauge-cum-level etc.) as in PIE-Roorkee kit (PWI tool Kit) or similar for the purpose of department officials to inspect and to check the quality of the track linking. One set of such TOOL kit should be handed over to Railway after the completion of the work wherever the agreement value of the work exceeds Rs.25 lakhs.

29. Rails, check rails, fish bolts and nuts, PSC/ST/CST-9/Wooden sleepers, pandrol clips, rubber pads, fish plates, check blocks, bolts and nuts and all other P.Way materials shall be supplied by the Railway as mentioned in the schedule. These materials will have to be led by the contractor by head loads or any other approved means at his cost.

30. Rails and other permanent way materials including fittings shall be issued to the contractors progressively as the work proceeds taking care to see that the contractor shall have atleast one week's stocks in hand at any time.

In case certain items are not available contractor has to suitably stagger/ regulate the activities duly redeploying the labour for other activities and no compensation is payable due to non-availability of P.Way materials/ fittings.

31. Consumable stores like graphites, grease, oil etc., of approved quality required for the work will be arranged by the contractor at his cost.

32. On new track and diversion, spreading 50mm stone ballast to 150mm cushion (thickness) has to be done first and then rolling of ballast with contractors rollers shall be carried out. Sleepers are to be assembled and laid over the ballast to correct spacing. Rails shall be connected by means of a pair of fish plates using in the first instance only with two fish bolts and nuts, one in each rail or alternately with welding gap with single bolt. Before fishing the rail ends the fishing edges of fish plates and bolts shall be lubricated with grease, graphite and oil as directed. Correct expansion gap according to the rail temperature at the time of laying as directed by the Inspector / Engineers shall be ensured between ends of rails by inserting the liners supplied by the Railways. Cut rails will have to be used on inside of curves and drilling of fresh bolt holes in these rails shall be done by the contractor.

33. Rails shall be laid in such a way that arrows on the web face, face the direction of traffic, where so directed.

34. Paint marks shall be made on the rails with contractor's yellow paint as directed by the Inspector / Engineer to indicate the spacing of sleepers to be adopted.

35. On the track with PSC sleepers, wooden block with A.C bearing plates with keys shall be inserted under rails at every fish plated joints one on either side of the joint at close interval as directed and the rails fastened to the A.C/M.S bearing plates with plate screws/ rail screws or spikes. In the event of railway deciding not to use wooden blocks at the joints, PSC sleepers shall be provided at the joints. Railway wooden sleepers will be made available free of charge. Cutting & transportation & fixing is to be at contractor cost.

36. In the case of PSC sleepers, rails shall be laid on sleepers along with grooved rubber pads, fastening the rails to sleepers with elastic rail clips and grooved rubber pads GFN/Metal liners, shall be done by the contractor.

37. The track shall be lifted with crow bars and the sleepers thoroughly packed. The lifted portion of the track shall be properly eased out at both ends so as to achieve a longitudinal gradient not steeper than 1 in 360 degree and to the desired cross level as directed by Engineer-in-charge. Further lifting will also be done in similar manner until the track is lifted to correct rail levels as per level marks marked on the level pegs fixed along the alignment before the commencement of lift as directed by the Engineer-in-

charge. At each stage, the alignment, gauge and cross levels will be checked and defects rectified.

38. The ballast shall be packed under the sleepers to the approved ballast cushion below each rail seat and 45cm on either side of the rails and the middle of the sleepers shall be packed loosely.

39. The alignment of the rails shall be finally corrected, the sleepers squared, the gauge adjusted as directed, cross levels checked, lifted and repacked wherever necessary.

40. The ballast section shall then be dressed to specified profile duly boxing the ballast as specified. Contractor shall ensure that sleeper top is visible while boxing.

40(a) Ballast section shall be uniform in height, width and side slopes and brought to standard section as directed by the Inspector with the quantity of ballast made available at site. No ballast shall be left in the cess, side slopes of bank or near toe of bank.

41. The initial packing and picking up sags after rolling by locomotive or otherwise is part of assembling and linking item in the schedule. Additional packings required, if any, will be decided by the Engineer-in-charge and executed under appropriate schedule items.

42. Any packing done earlier to rolling by locomotive/packing machine and rectification of defects developed subsequent to rolling shall be accounted as initial packing.

Wherever additional packing is ordered such item will be operated and paid only after the track is rolled with locomotive and the defects developed after rolling such as sags, cross level, alignment etc., are attended and rectified satisfactorily as certified by Engineer/PWI in-charge of the work.

43. Any sleepers which got shifted from its position or gone out of square shall be moved back and squared after loosening of the fastenings. The fastenings shall be tightened again after squaring. To correct all the above defects no extra payment is permissible.

44. The track shall be slewed to correct alignment by sighting along the rail head of the base rail. It should be ensured that track does not get lifted in the process of slewing.

45. Any defects developed in gauge and alignment shall be rectified. Re-gauging of PSC sleepers shall be done duly pushing the sleeper from ends under specific directions of the Inspector.

46. Any dip or low joint lifted correctly and packed duly packing the adjacent sleepers fully. After the base rail is thus packed for two or three rails length the cross levels

shall be checked and opposite rail lifted wherever necessary and sleepers under the rail seat packed fully.

47. For SWP track the joint and shoulder sleepers shall be repacked and cross levels adjusted.

48. WITHOUT THE USE OF TRACK MACHINES the following laying standard of track geometry measured in floating condition should be achieved by the Contractor after rolling/testing of track with the help of locomotives / track machines.

a.	Gauge	Sleeper to sleeper variation	2mm
b.	Expansion gap	Over average gap worked out by recording 20 successive gaps.	+2mm
c.	Joints	Law joints not permitted.	-
		High joints not more than	+2mm
		Squareness of joints on straight.	+10mm
d.	Spacing of sleepers	With respect to theoretical spacing.	+20mm
e.	Cross level	To be recorded on every 4th sleeper	+6mm
f.	Alignment	On straight on 10m chord	+4mm
		On curves or radius more than 600m on 20 m chord variation over theoretical versines.	10mm
		On curves or radius less than 600m on 20 m chord variation over theoretical versines.	20mm
g.	Longitudinal level	Variation in Longitudinal level with reference to approved longitudinal sections.	100mm

49. Gauge: Will be checked with standard gauge and should be 1676 mm on straight.

On curves: The gauge on curves shall be to the following standard:

On new lines gauge conversions, doublings and on lines where complete renewal or through sleeper renewal is carried out the track should be laid to a uniform gauge to the following standards.

Radius in metres

Gauge

- i) Straight including curves of 400m radius : 3mm tight i.e. 1673 mm.
- ii) On curves less than 400m radius : Upto 5mm stack i.e. upto 1681 mm.

