

SECTION 8B

EMPLOYER'S REQUIREMENT – TECHNICAL SPECIFICATIONS

1. GENERAL

NAME OF WORK: Baiyyappanahalli – Hosur Doubling Project

Linking of BG track with allied works from km.173/784 to km.182/338 between Anekal Road(Excl.) & Heelalige (Excl.) Stations and from km.197/900 to km.205/500 between Belandur Road(Excl.) & Baiyyappanahalli "A" Cabin (Incl.) Section in Bengaluru Division of South Western Railway.

The tendered work is part of the, Track Doubling Work between Baiyyappanahalli – Hosur Doubling Project. It is proposed to execute the Linking of BG track with allied works from km.173/784 to km.182/338 between Anekal Road(Excl.) & Heelalige (Excl.) Stations and from km.197/900 to km.205/500 between Belandur Road(Excl.) & Baiyyappanahalli "A" Cabin (Incl.) Section which comes under the Jurisdiction of BENGALURU DIVISION OF SOUTH WESTERN RAILWAY.

1.1 TECHNICAL SPECIFICATION FOR TRACK WORKS

1. This Contract shall be governed by the Indian Railway's General Conditions of Contract, Indian Railways P-Way Manual, Indian Railway Standard 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 DGM/Senior Manager/Manager/Deputy Manager/Assistant Manager/Civil 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 total period of the contract execution is basically a period of validity of the contract. It needs to be understood that the actual execution period for the work has to be much less. The contractor should be able to complete the P-Way works within a period of 3 months from the date of supply of major chunk of long rails.
4. During the core-working period, i.e. after supply of long rails, the contractor should be able to mobilise adequate number of labour for various track activities till the section is finally commissioned and even beyond that for completing the remaining jobs if any and for removing / complying deficiencies noticed during joint inspections.
5. The contractor should be able to expeditiously link the Turnouts as soon as the Turnout sleepers are allotted. It is quite possible that supply of Turnout sleeper sets is completed only a month before the target date of commissioning. Thus, the contractor should mobilise adequate number of batches who can independently take up the job of linking of Turnouts, assembling of SEJs etc.,
6. During pre-NI/NI works, contractor should mobilize adequate number of labour apart from rail lorries, JCBs, Poclains , Cranes, etc.
7. Immediately after commissioning of section, the contractor should keep adequate labour at each yard, so that all leftover works and balance works are completed, speed restrictions are relaxed to normal speed within 15 days to 30 days from date of commissioning.

8. Contractor should mobilise the required resources to execute the work as per the bar chart attached to the tender document.
9. The Contractor shall not start any work on the track under traffic conditions without the presence of the K-RIDE/PMC/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.
10. No road vehicle/machines/road cranes should be allowed to work without safety barricading adjacent to the running track for carrying out works of doubling or any works adjacent to running tracks.
11. Barricading concrete posts if available at site along the track are to be used as protective fencing /barricading while carrying out track linking/ballasting works duly providing nylon rope, repainting the posts .This barricading shall be maintained in good condition throughout the contract period. No extra payment shall be paid for this.
12. If barricading is required to be provided in any stretch where no barricading posts were provided earlier, payment for providing barricading in such stretches only shall be made as per relevant item.
13. Dumping of ballast and spreading of ballast can be done only after carting of sleepers. The pace of dumping of ballast needs to be expeditious. Ballast required for the cribs and shoulders need to be dumped on the sides so that after linking of track, the extra ballast dumped on the sides can be brought into the cribs and on the shoulders. Thus, any additional topping / carting of the ballast should generally be avoided after linking of the track.
14. The lifting of PSC sleepers once allotted needs to be done expeditiously within a short period as it effects the allotment of PSC sleepers further. The contractor should complete the transportation of PSC sleepers within a period specified by the Engineer in-charge. The contractor shall make adequate transportation arrangements on day to day basis to the extent of loading capacity of Sleeper Factories for transportation of PSC Sleepers.
15. The contractor should complete the transportation of Class-II / Service Rails within a period specified by the Engineer in-charge. Class-II / Service Rails will be made available generally at the loading points where trailer can reach., However, this may involve some leading, contractor should make arrangements for leading of Rails.
16. The progress of works in station yards should match with the progress of works in mid-section to complete all the required works for presenting the section for CRS inspection.
17. Mobilisation for execution of civil works should be in line with the mobilization of track linking works so that both the works should be completed at same time.
18. 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 & binding on the contractor.

19. 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 not with standing 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 relevant clause.
20. 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.
21. 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.
22. 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.
23. The K RIDE 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 K RIDE in case of injury or death to the Contractor's labour. The contractor shall indemnify K RIDE of any responsibility in this regard. The Contractor may obtain Group Insurance in respect of his workers.
24. 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.
25. 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.,

26. For executing the works, the contractor has to arrange his own tools, plant and equipment.
27. 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 in which the work is taken up and also according to the labour force.
 - i) Rail tongs/Hooks
 - ii) Crow bar
 - iii) Spanners Double end including box spanners
 - iv) Hammer Sledge
 - v) Ball-Pen hammer
 - vi) Beater iron
 - vii) Shovel
 - viii) Pan Mortar steel/similar for ballast
 - ix) Track lifting jack
 - x) Gauge cum level
 - xi) Rail cutting machine with consumables including appropriate size of rail cutting Discs.
 - xii) Rail drilling machine with consumables including drill bits etc.,
 - xiii) Wire brush
 - xiv) Wire claws (Powrah Ballast)
 - xv) Painting brush/Mammoty Fork Ballast
 - xvi) ERC extractor
 - xvii) Chamfering Kit for holes
 - xviii) T-Square steel
 - xix) Linen Tape 30m,5m
28. However, K RIDE 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 & return back the same at the depot under acknowledgment.
29. Contractor should mobilise 2 Nos of Blacksmith batches per yard.
30. The contractor shall arrange safe custody of the materials supplied / hired to him. In case of loss of K RIDE materials or damage, the K RIDE will recover the cost of the lost material or penalty for damage as per Rules. Once the K RIDE materials are issued to the contractor, he shall not move the materials to other workspot. Any violation in this regard will be viewed seriously.
31. 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.
32. 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 K RIDE under proper acknowledgment. He shall be responsible for any shortage till the track is taken over by the Engineer-in-charge.
33. Similarly, whenever 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.

34. 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 K RIDE 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, accountable of released materials, etc., shall be recorded therein.
35. 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 K RIDE 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.
36. 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 K RIDE as specified hereinabove without prejudice to the K RIDE rights in this regard, the Engineer's Representatives which for the purpose of this contract shall also include the Executive, Senior Executive, Assistant Manager, Deputy Manager, Manager, Senior Manager appointed by the K RIDE, 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 K RIDE for such suspension of the work.
37. 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.
38. All items such as Rails, sleepers, cotters, Elastic Rail 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.
39. Dip lorries to the extent available will be supplied by the K-RIDE 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.

40. 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.
41. The fish bolt holes drilled for running rails shall be invariably chamfered by proper tools as per standard specification.
42. No extra payment will be made for crossing the tracks, or for lifts/descends while unloading, leading and stacking the materials.
43. 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 & binding on the Contractor.
44. 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 K RIDE 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.
45. 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.
46. 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.
47. 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.
48. 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 K RIDE rates will be recovered from Contractor's bills.
49. 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.
50. 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 K RIDE after the completion of the work wherever the agreement value of the work exceeds Rs.25 lakhs.

51. Rails, check rails, fish bolts and nuts, PSC/ST/CST-9/Wooden sleepers, Elastic rail clips, rubber pads, fish plates, check blocks, bolts and nuts and all other P.Way materials shall be supplied by the K RIDE 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.
52. 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 at-least one week's stocks in hand at any time.
53. 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.
54. Consumable stores like Paint Enamel, Grease 'O' Graphite oil etc., of approved quality required for the work will be arranged by the contractor at his cost.
55. On new track and diversion, spreading 50mm stone ballast to 250mm 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 K RIDE. Cut rails will have to be used on inside of curves & drilling of fresh bolt holes in these rails shall be done by the contractor.
56. Rails shall be laid in such a way that arrows on the web face, face the direction of traffic, where so directed.
57. 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.
58. 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 K RIDE deciding not to use wooden blocks at the joints, PSC sleepers shall be provided at the joints. K RIDE wooden sleepers will be made available free of charge. Cutting & transportation & fixing is to be at contractor cost.
59. 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.
60. 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.

61. 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.
62. 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.
63. 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.
64. Ballast section shall be uniform in height, width and side slopes and brought to standard section as directed by the Engineer – in – Charge with the quantity of ballast made available at site. No ballast shall be left on the cess, side slopes of bank or near toe of bank.
65. 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.
66. Any packing done earlier to rolling by locomotive/packing machine & rectification of defects developed subsequent to rolling shall be accounted as initial packing.
67. 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.
68. 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.
69. 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.
70. 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.
71. 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.
72. For SWP track the joint and shoulder sleepers shall be repacked and cross levels adjusted.

73. 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	Low 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 4 th sleeper	±3mm
f.	Alignment	On straight on 10m chord	±2mm
		Variation over theoretical versines on curves of radius more than 600m (On 20 m chord)	5mm
		Variation over theoretical versines on curves of radius less than 600m (On 20 m chord)	10mm
g.	Longitudinal level	Variation with reference to approved longitudinal sections.	50mm

74. 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.

Sl. No.	Radius in metres	Gauge
1	Straight including curves of radius upto 350m and more	-5mm to +3mm
2	For curves of radius less than 350m.	Upto +10mm

1.2 TECHNICAL SPECIFICATIONS FOR TRANSPORTATION OF P.WAY MATERIALS - SPECIAL CONDITIONS OF CONTRACT

- The rails are to be handled carefully by hand or other suitable means without causing any damage and the contractor is solely responsible for the same while in

his custody. Any loss or damage to the K RIDE materials will be recovered from the contractor's bills.

2. Whenever the rails are required to be pulled across the Railway tracks, the contractor has to arrange for lookout men to ensure safety of men & materials for which no extra rate will be paid. The work is to be done under traffic block under the supervision of K-RIDE supervisors and contractor's competent supervisors.
3. Lookout men should be posted at the site of work by the contractor at his own cost to warn the labourers' of approaching trains, etc. If the contractor fails to do so, the K-RIDE will arrange for lookout men and recover the cost from contractor's bills.
4. While working in the electrified sections all precautions as required to be taken in such sections while handling rails should be strictly followed by the contractor. Any loss or liability on account of non-observance of such precautions will be on contractor's account.
5. Break down to transport vehicles, if any, will be on contractor's account and contractor has to make alternate arrangements to maintain the progress to match the programme of work.
6. Accidents, if any, to his vehicles or to persons would be the responsibility of the contractor and K RIDE will not be responsible for any damage or compensation thereof.
7. The contractor must ensure the safety of labourers' engaged by him while crossing the track during the course of execution of work and the K RIDE will not be responsible for any injury sustained by the labourer or for any fatal accident and the contractor should bear all the loss & expenditure involved.
8. The contractor is deemed to adhere to the Workmen's Compensation Act, State Motor Vehicles Act, Railway Act, 1989 etc., and any infringement to the same should be at his own risk & cost.
9. The unloading work should be commenced immediately on placement of wagons in the yard and completed within the stipulated free time. Any demurrage if charged will be at the contractor's account.
10. Transporting work should be commenced on receipt of the acceptance letter and advise given for the transportation from different sources.
11. Traffic rules and rules for interstate movements should be strictly followed and the contractor should indemnify the K RIDE from any claim due to accidents & unforeseen incidents.
12. The rules & regulations governing placement of vehicles at the points for loading & unloading operations and transport regulations shall be strictly adhered to and non-observance thereof shall be at the sole cost & risk of the contractor. Contractor shall make his own arrangement to ascertain position of wagons to be loaded/unloaded duly keeping in touch with Station Master/Engineer-in-charge.
13. Rate for the work

The rate quoted shall be all inclusive covering rates for labour, transport, stacking, handling besides other charges/levies, imposed by local authorities or double handling in reasonably unavoidable cases during the course of execution.

14. The weight for payment will be assessed as per the theoretical weight and 5% will be reduced for wear & tear in the case of second hand materials. Wherever standard weight is not available, the payment will be based on weighment through authorised weigh bridge or sample weighment by the Engineer.
15. Location for unloading:-

All unloading/stacking shall be done in such a manner as not to cause infringement to moving dimensions of running train. In case materials are unloaded in midsection, the lead is calculated in block of 1 km. The value in excess of 500m will be rounded off to the next km., while less than 500m will be accounted to lower km.

The unloading of materials is to be done as directed by the Engineer-in-charge in the locations indicated with specific quantity for each location. In case the contractor unloads the materials in excess of required quantity at a particular location, the same is to be re-transported as directed by the Engineer-in-charge without any extra payment.

The unloading work may have to be coordinated with other contract agencies who will be executing work such as track linking, ballast collection, formation work, etc. There should be least interference for works by other agencies.

The distance for the lead to be reckoned will be through shortest practical motorable road which will be certified by Engineer-in-charge in advance, before actual commencement of the work. The actual route followed by contractor may be different but the lead will be paid as stated above, even if the route followed by the contractor is longer, as per certification of the Engineer-in-charge. The decision of the Engineer-in-charge shall be final & binding on the contractor.

1.3 Introduction of contract package

The tendered work is part of the, Track Doubling Work between Baiyyappanahalli – Hosur Doubling Project. It is proposed to execute the from km.173/784 to km.182/338 between Anekal Road(Excl.) & Heelalige (Excl.) Stations and from km.197/900 to km.205/500 between Belandur Road(Excl.) & Baiyyappanahalli "A" Cabin (Incl.) Section, which comes under the Jurisdiction of BENGALURU DIVISION OF SOUTH WESTERN RAILWAY.

The track for doubling are proposed parallel to the existing track on the left/right side of existing single line.

It is proposed to execute this work, as it is important from the point of view of both Passenger and Freight traffic.

This work can be started immediately as major portion of land is available for execution of work.

i. Availability of Land :

The major portion of the required land for the execution of works is available along the alignment. However, the contractor may have to take lease of the land temporarily for

installation of his facilities like batching plant/ Casting Yard/ Site Work Shop etc. The bidders are advised to make detailed study and cater for such expenditure in the bid.

ii. **Approaches to the project site:**

The land acquired for the project caters for construction and operation of the proposed line. The contractor shall plan for approach roads to various sites of work conducting detailed survey and should include the cost of inputs for any such approach roads in his bid for the work. However, in case any existing road outside railway land has to be utilized for transportation of materials to the site of work and in the process the road gets damaged or needs to be strengthened and the authority owning the said road submits demand to GM(Civil)/K RIDE to carry out some specific works in order to strengthen/repair the road, GM(Civil)/K RIDE shall get such works executed through the existing contractor or any other agency and make payment for such work.

Bidders should find out the capacity of the quarries and accordingly plan procurement of coarse/fine aggregates either from the existing quarries or establish their own quarries and crushing arrangements

2. It is the responsibility of the contractor to thoroughly examine the site of work and all constraints before submitting the bid(s).

3. The Nature of Work :

The works to be executed can broadly be grouped as under:

3.1 Civil

A. Other Activities:

1. Providing and maintaining office accommodation, equipment and vehicles for the use of the Employer and their Assistants and Staff during the contract and defect liability periods.
2. Setting out the line and level of alignment for the proposed doubling and establishing working bench marks and alignment references, taking the details from bench marks and alignment references established by the Employer/ other designated contractors.
3. For carrying out accurate survey work, survey control points shall be established along the railway line using high end survey equipment such as DGPS or Total Station connected with nearest GTS Bench Mark. Also reference pillars are to be established for relocation. This work is meant for maintaining & checking proper alignment of mid-section & bridges for which the contractor is solely responsible.
4. Every precaution has to be taken such that there shall be least disturbance to road traffic during transportation of construction materials to the site of work.
5. Making and supply of 'As Built' drawings for the new assets created.

4. Special stipulations/features:

4.1 to 4.5 deleted

4.6 Power & Traffic Block:

- i) Track occupation may be granted at any time during day or night to suit convenience of traffic operations and will ordinarily be granted over a distance covered by one

or two consecutive block sections. Work trains will normally be allowed to take advantage of block shadows. Normally the total durations of block on any section will be max. of 1.5 to 2.5 hours at a stretch in a day, once or more than once. Block provided may be utilized for one or more work trains or track lorries or ladder trolleys to suit convenience of work.

- ii) Blocks will not ordinarily be given for laying the feeders except where crossing of track is involved, which will have to be laid manually in general.
- iii) Any Traffic / Power blocks, temporary speed restrictions and caution orders required in connection with execution of works by the Contractor, shall be got sanctioned from the Railway Authorities well in advance, through the Engineer. The Railways may sanction the same for specific sites within the overall recovery time available in the Railway's Working Time-Table. The Contractor shall have to schedule his programme according to the convenience of the Railways. No claim from the contractor for any delay / inconvenience / loss on this account shall be entertained by the Employer / Engineer.
- iv) The contractor shall undertake the work involving Railway track, Railway Electrification installations in co-ordination with the Engineer and Railways in accordance with the programme of work. Where traffic / power blocks are involved, the Contractor shall ensure that interruption to Railway operations, if any, is kept to the bare minimum level.
- v) In order to minimize blocking of the track for work/Material Trains, the Contractor shall consider the working conditions on the Section and assess use of alternative method of construction on a part or whole of the work. He should submit clear proposal along with financial implication, if any, to the Employer for such special method of saving of blocks that could be obtained along with reduction / redundancy of the facilities being provided by the Railway / K RIDE.
- vi) The protection required for block working i.e. flagmen, flags etc. shall be provided by the contractor. Competency for the above shall, however, be given by the Railway authority. Protection of track by banner flags etc shall be done in accordance with General Rules of Indian Railway and Subsidiary Rules of the concerned zonal Railway where work is being carried out. Contractor shall provide Safety helmet, Safety belt and Safety Shoes to their staff while working at site.
- vii) In case of theft/breakdown, the contractor shall restore the traffic in minimum possible time. Failure to do so shall attract suitable penalty.

4.7 Provisional Acceptance:

- i) Immediately after completion of works/such part of works, the Contractor shall certify and advise the Engineer in writing that the works are (i) complete (ii) ready for satisfactory commercial service and (iii) ready to be handed over. He will also place at the disposal of the Engineer the required staff for checking it and putting it into operation.
- ii) The test or tests as stipulated in approved Technical Specifications shall be carried out jointly by the Railway / Engineer and the Contractor within a month after the receipt of the Contractor's notification as stated in sub-Para above.
- iii) The provisions contained in the sub clause 10 of GCC shall be followed for taking over of the installations.

4.8 Use of Rejected/Sub Standard Items/ Equipment:

In the event of such rejection as aforesaid, the Engineer shall, without prejudice to his other rights and remedies and in particular without prejudice to his rights under the clause just preceding, be entitled to the use of the rejected/substandard equipment/item for a time

reasonably sufficient to enable him to obtain other replacement. During such period, if the rejected/substandard equipment/item is used commercially the Contractor shall not be entitled to the payment on energisation until such rejected equipment is rectified and/or replaced, but the Engineer shall not be entitled to claim any damages arising out of rejected/ substandard equipment/item in respect of such period.

4.9 deleted

4.10 **Accountal and disposal of released materials:**

- i) The Contractor shall liaison with the Engineer to finalize the procedure for taking over of the whole or part of the section and for disposal of the released materials.
- ii) All released materials shall be handed over to the authorized Railway Representative through the Engineer at the nearest P.Way Depot or places nominated by Railway/PMC/K RIDE.
- iii) The material released on account of modifications/alterations shall be accounted by the contractor in the presence of the Engineer and the Railway Representative, except for the material permitted to be re-used by the Engineer. For this material, only erection cost shall be paid, under the appropriate item of the Schedule.
- iv) If any shortfall of released material is noticed at the time of completion of the work, the contractor shall be liable to pay for the shortfall as per the prevailing rates or the same shall be recovered from the final bill of the contractor as per the extant policy of K RIDE.

4.11 **CODES & SPECIFICATIONS**

The works shall be carried out as per Standard Specifications of Indian Railways/South Western Railway/ K RIDE (as detailed by K RIDE), which can be obtained on payment. Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished and work performed or tested the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure equal or higher quality, the Contractor shall comply with the standards specified in the documents.

All goods and materials to be incorporated in the goods be new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided for otherwise in the contract.

- a) The Standard Specifications of Indian Railways/South Western Railway/K RIDE and the list of codes and manuals given in the annexure thereof shall be prime governing.
- b) Where there is conflict between provisions in IRS & IS specifications, provisions in IRS specifications shall prevail.
- c) Where there is no provision of specifications in IRS, provisions in IS specifications should be adopted. Where there are no provisions in IRS and IS Specifications, provisions in IRC Specifications should be followed.

- d) For items not covered in IRS/IS/IRC specifications, BS-5400 Part 1 to 10 may also be considered.
- e) The decision of Engineer shall be final and binding in the interpretation of the clause of the codes of practice and specifications of this tender and no claim whatsoever shall be entertained on this account from the Contractor.

4.12 SURVEY AND FIXING WORKING BENCH MARKS AND ALIGNMENT MARKERS.

- 4.12.1 The work of conducting survey and fixing bench marks and alignment markers before the start of any work on this tender is included in the works covered by the present Tender.

4.13 Bench marks:

- 4.13.1 All along the length of the proposed double line benchmarks have been set up by the Employer at intervals of about a kilometre. The details of these bench marks along with their reduced levels have been marked on the design drawings indicating the plan and 'L' section which form a part of the tender. The contractor along with the Engineer should verify the details of these bench marks in the first instance, soon after taking possession of the site. If any mistakes are detected in these details of these bench marks the same should be indicated to the Engineer. The mistakes detected should be corrected in consultation with the Engineer. These corrections should be got approved by the Engineer before starting of any other work.
- 4.13.2 The contractor shall then in presence of the Engineer establish working bench marks at short intervals, adequately connecting them to the reference bench marks set up by the Employer in the Project length. The working bench mark levels should be got approved from the Engineer. An up to date record of all bench marks including approved corrections if any, shall be maintained by the contractor and also the Engineer.
- 4.13.3 All levels taken for making out the longitudinal section and cross section should be related only to these working bench marks.
- 4.13.4 While doing the above mentioned work, the fact that similar work will have to be done once again on the completed earth work in formation for fixing up the longitudinal levels of the installed P. Way should be kept in view.

4.14 Alignment:

- 4.14.1 All along the length of the proposed double line at intervals of about half a kilometre, alignment reference pillars have been set up by the Employer; in addition five reference pillars have been erected for each of the curves to indicate the start & end of the over all length of the curve and its circular portion and apex, by the Employer. In the design drawings showing the plan and 'L' section, which forms part of the tender, the co-ordinates for these pillars have also been given. This has been done to facilitate setting of the alignment of the proposed line. The contractor along with the Engineer should verify the details of these alignment pillars, soon after taking possession of the site. If any mistakes are detected in these details, the same should be indicated to the Engineer before starting any other work. These detected mistakes should be corrected by the Contractor in consultation with the Engineer. These corrections should be got approved from the Engineer.

4.14.2 The contractor shall then, in presence of the Engineer, establish working alignment reference markers at shorter intervals, adequately connecting them to the reference pillars set up by the Employer in the Project length. The location of these subsidiary alignment markers should be got approved from the Engineer. An up to date record of all alignment pillars, and corrections, if any done, shall be maintained by the contractor and also the Engineer.

4.14.3 The alignment for the double line should be related only to these working bench marks.

4.14.4 While doing the above-mentioned work, the fact that similar work will have to be done once again on the completed earth work in formation for fixing up the alignment of the installed P. Way should be kept in view.

4.14.5 After the formation has been constructed, the centre line of track both in Block Sections and Yards should be re-fixed taking guidance from already set up alignment references. Similarly, the rail levels of track both in the block sections and the yards should also be fixed with reference markers. These will be used for installation of track.

4.15 Responsibility for establishing and maintaining working bench marks and alignment markers

4.15.1 The Engineer when necessary will provide the contractor with the data necessary for setting out of the centreline. All dimensions and levels shown on the drawing or mentioned in the documents forming part of or issued under the contract shall be verified by the contractor on the site; he shall immediately inform the Engineer of any apparent errors or discrepancies noticed in such dimensions or levels. In consultation with the Engineer, the noticed mistakes should be corrected. These corrections should have the approval of the Engineer.

4.15.2 The contractor will be entirely responsible for accurate setting out of the works and safeguarding all survey monuments, bench marks, alignment references etc. The work of setting out shall be deemed to be a part of the general works preparatory to the execution of work and no separate payment shall be made for the same

4.15.3 The above-mentioned points have been repeated in the respective sections dealing with specifications for different works for laying emphasis on these items.

4.15.4 The contractor will be entirely responsible for accurate setting out of the works and safeguarding all survey monuments, bench marks, alignment references etc. The work of setting out shall be deemed to be a part of the general works preparatory to the execution of work and no separate payment shall be made for the same.

4.16 Issue of materials by Employer :

4.16.1 The issue of materials by the Employer to Contractor shall be governed by the following change.

4.16.2 The rails and other materials to be issued by the Employer to Contractor will be handed over at any convenient locations within Railway Land in the contract section. The contractor should collect the same from these locations and transport them to the work site as found necessary. He shall use only mechanical means for handling of rails during all stages of work to avoid any damages to the rails. Leading will be paid separately as per relevant item of BOQ.

4.17 Interfacing And Integrations of Works:

- 4.17.1 As a part of provision of this tendered work providing of road bed viz., earthwork & bridges, are to be executed by one Agency only. The interfacing for the purpose of integration of works between the partners of JV, in case the work is awarded to a JV or between the Contractor and his sub-contractors, (if permitted) will arise. This has to be kept in view.
- 4.17.2 Land is available throughout the section for carrying out the works. However, if additional land is required in yards/mid-section, necessary arrangements will be made for acquiring the land without affecting the progress of work.
- 4.17.3 This provisions shall not apply
- 4.17.4** The contractor shall take full responsibility in terms of organizing, managing, coordinating and administrating the interfacing of all components of works including all issues related to and arising out of such tasks and responsibility. The contractor shall interface with all concerned authorities and other contractors as required to complete the work satisfactorily within the stipulated period.
- 4.17.5** Under consideration and application of the above clause, the contractor shall and has also the obligation to liaise with the other contractors and Authorities to obtain all necessary technical information, all necessary information concerning organization of works, coordinating the works etc. which are necessary to assess, mitigate, take care of contractual obligations, risks, liabilities and whatsoever arising out of interfacing, engineering issues, organization of the works etc. The employer/engineer shall not be held liable in any way, throughout the preparation of the offer and/or execution of the works and/or maintenance period and/or defects liability period for any omissions, misunderstanding, negligence etc. arising out of interfacing, coordinating, organizing etc. of the works. The employer will not entertain any claim arising out of misunderstanding, miscommunication, omission, withholding of necessary/required information or whatsoever between the concerned contractors/Authorities concerning interfacing, organizing etc. of works. In case of any claim arising from any of the contractors, as aforesaid, referring to interfacing and/or interfacing related issues, the Employer will hold the concerned contractors liable for not taking care of their contractual obligation concerning interfacing, organizing, co-ordination etc. of the related works.
- 4.17.6 This provision shall not apply.
- 4.17.7 Needless to say that commissioning of this double line project requires close coordination among various agencies executing the works in this section, Engineer, Employer and the Railway authorities. The contractor shall therefore plan all his works requiring interfacing, like works in mid-section, station yards, with other agencies, meticulously, in consultation and coordination with all concerned parties, in advance, for expeditious execution, without causing any delay either to his works or those of others.
- 4.17.8 The contractor shall strictly adhere to the work plan made for works requiring interfacing. Any delay either on his part or on the part of other agencies and other bottlenecks that could affect the pace of works shall be informed to the Engineer in time so as to enable him to take corrective steps.
- 4.17.9 If, in the opinion of Engineer, any delay in execution of any part of the Project requiring interfacing is attributable to the failures of the contractor to take adequate steps for smooth execution of such works, then the Engineer shall have the right to take necessary steps to organize and streamline such works, including excluding the requisite portion of work from the scope of the Contractor and getting the same executed by other agencies, at the risk and cost of the contractor.

- 4.18 **Damage to property** : The contractor shall organize all his activities so as not to cause any damage to the property of Railway or that of other agencies or any third party. In spite of taking all precautions, in the unfortunate event of any damage to the property, then the contractor shall not only indemnify the Employer of the claims made by the affected parties but also settle the matters with the affected parties as per law. If the nature of damage is one of that affecting the train movements or causing a safety hazard to the public, then the situation will be treated as an emergency and the Engineer reserves the right to take all necessary steps as deemed necessary to restore train operations or to remove the hazardous situation or to mitigate the damage, at the risk and cost of the contractor.
- 4.19 **Survey Equipment** : The contractor should provide the survey equipment and other accessories as per the instructions of Engineer as and when required. He should also provide all necessary help as required by the Engineer for checking the works, whenever required.
- 4.20 **Power Line Crossing** : This provision shall not apply
- 4.21 All power requirements for execution of works shall be arranged by the Contractor from his own resources. Subject to availability of power, the Employer/Engineer will recommend to the Railway Authorities for providing power connection. The Contractor shall bear the cost of installation and payment of necessary charges for providing such power connections as per the Terms and Conditions of the Railway.

5.0 PERSONNEL

Baiyyappanahalli - Hosur Doubling Project : Part -I: Linking of BG track with allied works between Km.173/784 to Km.182/338 between Anekal Road and Heelalige Stations in Bengaluru Division of South Western Railway.

Part -II: Linking of BG track with allied works between Km.197/900 to Km.205/500 between Belandur Road & Baiyyappanahalli "A" Cabin) (including Section in Bengaluru Division of South Western Railway.

The Bidder shall deploy, as per the programme, the minimum number of personnel for the key positions with requisite qualification and experience as mentioned hereunder:-

S. No.	Position	Minimum No. of Personnel	Qualification	Minimum Experience In Similar Work [years]
1	Project Manager	1	Graduate/ Diploma in Civil Engineering	10 years, out of which 3 years in-charge of Railway Projects(for Graduate). 16 years, out of which 3 years in-charge of Railway Projects(for Diploma).
2	Civil Engineers For P-Way Works	2	Graduate/ Diploma in Civil Engg.	5 Years (for Graduate) 10 years for Diploma in Railway Projects.

3	Safety Officer	2	Preferably Graduate on any discipline.	5 years in-charge in Railway projects.
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Note:

1. Project Manager is to be deployed within 30 days of issue of Letter of Acceptance. The programme for deployment of other personnel shall be conveyed by PMC/Employer and personnel shall be deployed within 30 days of the stated requirement. In case of failure to deploy any personnel within 30 days of the stated requirement, a penalty shall be imposed for each day of delay as under:
 - a) Rs 8000/- per person per day for Project Manager.
 - b) Rs 3000/- per person per day for Civil Engineers / Quality Officer
 - c) Rs 1000/- per person per day for other personnel.
2. On completion/likely completion of activities concerned to a particular personnel, demobilization of that personnel shall be requested by the Contractor at least 30 days in advance and demobilization shall be done with the approval of PMC/Employer only. In case demobilization is done without approval of PMC/Employer, the penalty mentioned in note (1) above, as relevant, shall be imposed for each day of absence of the personnel.
3. The professional qualification requirement can be relaxed by the concerned GM (Civil)/K RIDE, in case of ex-Railwayman who has worked in Engineering department of Railway in a position of Gazetted officer, Sr Engineer (P Way) / Junior Engineer (P.Way) or above for Supervisor (P.Way) and has relevant experience not less than that prescribed for minimum professional qualification.
4. The experience requirement can be relaxed by the concerned GM (Civil)/K RIDE if he is satisfied with reasons put forth by the Contractor for failure to deploy personnel with requisite qualification and experience and he also finds the proposed personnel otherwise suitable for the job.

6.0

EQUIPMENT

Baiyyappanahalli – Hosur Doubling Project

Linking of BG track with allied works from km.173/784 to km.182/338 between Anekal Road(Excl.) & Heelalige (Excl.) Stations and from km.197/900 to km.205/500 between Belandur Road(Excl.) & Baiyyappanahalli "A" Cabin (Incl.) Section in Bengaluru Division of South Western Railway.

The Bidder shall deploy, the minimum number of equipment for execution of the work as per the mutually agreed programme as mentioned hereunder:

S.No.	Equipment Type and Characteristics	Min. Number Required
Equipment type and characteristics for P-Way Works		
1	Auto levels	2 Nos.
2	Self-propelled light duty tamper or Engine mounted off-track tamper (Engine mounted version) to RDSO Specification TM/SM/OTT/321 dated 28.01.09 or off track tampers (Power pack version) to RDSO specification TM/SM/OTT/320 dated 28.01.09 shall be used for packing.	1 no or 8 Nos.
3	Light weight lifting cum aligning machine	1 no
4	Rail Wheel Lorry	6Nos
5	Hydraulic rail tensor (Non-infringing type) 70 tonne capacity to RDSO Specification TM/SM/32 Dt.20/12/1991.	3 Nos.
6	Abrasive Rail cutter to RDSO Specification TM/SM/1 Rev.01 of 2012.	6 Nos.
7	Toe load measuring device (Mechanical) to RDSO Specification TM/SM/14 Rev.01 of 2005	2 nos
8	Electronic toe load measuring device to RDSO Specification TM/SM/ETLMD/218/Rev.02 upto 13/09/2012.	2 nos.
9	Hydraulic Track jack 15 Tonne cap (Non Infringing type) to RDSO Specification TM/SM/ /31 Dt.08/05/1996.	4 nos
10	Simplex Mechanical Track jack 15 Tonne Capacity.	8 nos
11	Light weight rail cum road trolley	2 nos
12	Light weight Push trolley	2 Nos
13	Powered Material Trolley to RDSO Specification TM/SM/33 Dt.06/06/1996.	6 Nos
14	Rail Drilling Machine to RDSO Specification TM/SM/3 Dated 24/04/1991.	4Nos
15	Box type gauge cum level (BG) along with spirit level to RDSO Specification TM-58 Dt.11.06.2001 for BG). TM-52 Dt.24.05.2000 for spirit level).	10 nos
16	Rail Thermometer (magnetic base type) TM-67 Dt.28.01.2002 (Rev 01 of 2010)	10nos

Note:

1. Any equipment not required further can be demobilized with the prior approval of the Engineer.
The records of mutually agreed programme of deployment as well as request for demobilisation of any equipment/plant and approval of the same should be maintained in a register.
2. Failure to deploy the above equipment as per mutually agreed programme shall attract penalty @ Rs.5,000/- per day of delay for each equipment.
3. The type of equipment specified can be changed by the Engineer depending upon suitability of the equipment as per site conditions with the approval of GM(Civil)/ K-RIDE concerned subject to the following;
 - i) The total rate of production/output of proposed number and type of equipment should be equal to or more than that of the number and type of equipment stipulated in the contract agreement and quality of work is not compromised in any way;
 - ii) Eligibility and Qualification Criteria (EQC) in the bid document did not include any past experience criteria of execution of a key activity with the use of particular type of equipment proposed to be changed;
 - iii) Higher rates for works were not justified in the estimate or BOQ on account of use of particular type of equipment proposed to be changed;
 - iv) Financial implications due to change in type and number of equipment shall be prepared and signed by both the parties and placed on record. If any financial benefit is found to accrue to the contractor, the same shall be recoverable from the contractor's bills.
 - v) If the equipment proposed to be changed is covered under penalty clause specified in note above then the applicable rate of penalty per equipment shall be modified in proportion to increase/decrease in number of equipment.

a. Applicable Codes, Standards & Publications for Permanent Way works(Track Works)

The important Codes, Standards and Publications to Contract are listed here under but not limited to:

Sl.no	Description
1	Indian Railways Permanent Way Manual 2024 with Advanced Correction Slips
2	Indian Railways Standard Track manual (Revised)
3	Indian Railways Schedule Of Dimensions
4	Indian Railways Track Machine Manual
5	Indian Railways Small Track Machines Manual 2024
6	Indian Railways Schedule of Dimensions