

<b>Section 8A</b>	<b>Works/Employers Requirements</b>
-------------------	-------------------------------------

–

This Section contains the specifications, the safety precautions and supplementary information that describe the Work to be executed.

### **I N D E X**

	<b>Description</b>	<b>Pages</b>
1	Safety and Security	220
2	General Information and Scope of work	234
3	Site Facilities for the Employer and the Engineer	243
4	Specifications	245
5	Personnel	246
6	Equipment	248

## Safety and Security at work

- 1.1 The works included in this contract are to be carried out close to the running tracks and public utilities, therefore, safety of running trains and the public is paramount. Therefore, all activities undertaken by the Contractor/his Sub-contractors shall ensure safety at all times. The contractor shall comply with the instructions issued by the Railway/ Engineer/Employer from time to time to ensure safe running of trains while carrying out works. The rates quoted by the Contractor shall be deemed to include all expenditure incurred in compliance with the same.
- 1.2 Before starting any excavation work adjacent to existing track, the contractor shall ensure that necessary permissions have been obtained and required precautions have been taken for doing such work in terms Joint Procedure Order (JPO). The penalties mentioned in the following JPO shall be levied on the contractor if such event occur. The JPO is reproduced below:

**“JOINT PROCEDURE ORDER FOR UNDERTAKING DIGGING WORK IN THE VICINITY OF UNDERGROUND SIGNALING, ELECTRICAL AND TELECOMMUNICATION CABLES”**

A) A number of Engineering works in connection with gauge conversion/doubling/third line are in progress on various railways, which require extensive digging work near the running track, in close vicinity of the working S&T cables carrying vital safety circuits as well as electrical cables feeding the power supply to cabins. ASM room, RRI Cabin, Intermediate Block Huts (IBH) etc. Similarly, S&T organization under open line or construction units under CAO/C, are executing various Signaling and Telecom works requiring digging of earth for laying of cables or casting of foundations for the erection of signal posts etc. RailTel is also executing the work of laying of quad cable and OFC on various Railways as a part of sanctioned works for exclusive use of Railways for carrying voice and data i.e. administrative and control communication, PRS, FOIS etc. or shared by RailTel Corporation of India Ltd. On certain sections digging is also required for laying of electrical cable and casting of foundation for the erection of OHE masts by Electrical Dept. Generally, these works are executed by contractors employed by these organizations.

B) However, while carrying out these works in the vicinity of working signaling, telecommunication and electrical cables, at times, cable cuts take place due to JCB machines working along the track or during the digging work being done by contractors carrying out the Civil Engineering Works. Similarly, such cable cuts are also resulting due to works undertaken by S&T or Electrical departments. Such cable faults results in the failure of vital signaling and telecommunication circuits & electrical installations.

C) Henceforth, the following joint procedure shall be followed by Engineering, Electrical and S&T (and RailTel organisation, wherever such works are being done by them) officers of the respective divisions and by the construction organisation, while carrying out any digging work near to existing signaling & telecommunication and electrical cables, so that the instances of cable cut due to execution of works, can be controlled and minimized.





As per Telecom circular number 09/2023 letter vide no. 2021/Tele/5(2)/3-part(1)(3425647) dated 12.06.2023.

Guidelines for protection of cables while doing work its vicinity

1. Cable route marking for all types of cable must be made available block section wise on Railnet.
2. Before allowing the contractor to work near the tracks, the work executing agency (like SrDSTE/SrDEN/SrDEE or DyCSTE/DyCEE/DyCE etc.) shall ensure that the permission has been granted by the division to the contractor in accordance with the local instructions / JPO to work in the vicinity of the cables. Zonal railways shall devise suitable mechanism and timelines for the obtaining/granting such permission.
3. In case of works being taken up by the State Government, National Highway Authority etc., zonal railways shall devise mechanism for shifting the cables or for proper protection of cables before granting permission to work.
4. The engineering control shall keep all the information regarding any works being done near the track. S&T and electrical control shall obtain this information from engineering control. These controls shall coordinate among themselves to ensure that no work is done in the vicinity of the track without proper permission.
5. The concerned SE/P.Way/SE/Works/SE/Sig/SE/Tele SE/Electrical (TRD or G) or RailTel supervisors supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged due to their importance in providing communication during accident/emergency.
6. For all new works, cable shifting should be a mandatory part of DPR and estimate. For ongoing works, Zonal Railways may sanction works for cable shifting if necessary through contingency/supplementary/revised estimate where provision does not exist. However, in case zonal railways decide not to shift cables (due to any reason) then protection of cable shall be ensured by the zonal railways during execution of the work.
7. Penalty to be imposed for damages to cable shall be as under:

Cable damaged	Penalty per location
Only Quad cable or Signalling cable	₹ 1.0 Lakh
Only OFC	₹ 1.25 Lakh
Both OFC & Quad	₹ 1.5 Lakh
Electrical Cable	₹ 1.0 Lakh

8. Penalty should be levied on the contractor when they work without permission or resort to careless working without making arrangements for protecting cables and other utilities. Based upon the local conditions and practices, zonal railway shall devise its own conditions for examining and levying penalty. For each cable cut, a joint report at the level of supervisors should be prepared on the same day and it should become the basis for levying penalty and fixing responsibility. Joint note should be forwarded by SrDSTE/SrDEE to the executive in-charge of the work. The executive in-charge of the work should act and decide on the cable cut case within 15 days under information to SrDSTE/SrDEE as the case may be. There should be provision of appeal by contractors within one month of notice for levying penalty at ADRM level. Decision of ADRM shall be final and binding upon both parties.
9. Railways will not lodge FIR with RPF in cases of works being executed by authorized contractors of Railways who have been duly permitted to execute the works.
10. Zonal Railways shall issue local instructions/JPO for protection of cables while undertaking works in the vicinity of railway tracks in line with this guideline. Zonal Railways shall also ensure that such instructions become part of their tender document within one month of the issue of the local instructions. Suitable action against erring officials shall also be incorporated in these instructions if the same is not adhered to.

1. S&T Department (and RailTel, where they have laid the cables) and Electrical department shall provide a detailed cable route plan showing exact location of cable at an interval of 200m or wherever there is change in alignment so that the same is located easily by the Engineering official/contractor. In addition, S&T department and Electrical department shall also provide cable markers along the alignment of the cable. These cable route plans shall be made available to the Sr.DEN/DEN or Dy.CE/C, as the case may be, by Sr. DSTE/DSTE or Sr. DEE/DEE of the divisions or Dy.CSTE/C or Dy.CEE/C within 15 days in duplicate. Sr.DEN/DEN or Dy.CE/C will send copies to their field unit i.e. AEN/SE/P.Way & Works.
2. Before taking up any digging activity on a particular work by any agency, Sr.DSTE/DSTE or Sr.DEE/DEE of the section shall be approached in writing by the concerned Engg. or S&T or Electrical officer for permitting to undertake the work. Sr.DSTE/DSTE or Sr.DEE/DEE, after ensuring that the concerned executing agencies including the contractor have fully understood the S&T and Electrical cable route plan shall permit the work in writing within 7 days of the request by concerned department.
3. After getting the permission from S&T or Electrical department as the case may be, the relevant portion of the cable route plan shall be attached to the letter through which permission is issued to the contractor by concerned Engg. official for commencement of work and ensuring that the contractors have fully understood the cable route plan and precautions to be taken to prevent damage to the underground cables. The contractor shall be asked to study the cable plan and follow it meticulously to ensure that the safety of the cable is not endangered. Such a provision, including any penalty for default, should form part of agreement also. It is advisable that a suitable post of SSE/Sig or SSE/Tele or SSE/Electrical(TRD or G) shall be created chargeable to the estimates of doubling/gauge conversion, who can help Engg. agencies in the execution of the work. However basic responsibility will be of the department executing the work and the Contractor. Creation of posts is not mandatory.
4. The SSE/P.Way or SE/Works shall pass on the information to the concerned SSE/Sig, SSE/Tele or SSE/Electrical(TRD or G) about the works being taken up by the contractors in their sections at least 3 days in advance of the day of the work. In addition Engineering control shall also be informed by SE/P.Way or SE/Works, who in turn shall pass on the information to the test room/network operation centre of RailTel/TPC/Electrical control.
5. On receiving the above information, SSE/Sig or SSE/Tele or SSE/Electrical (TRD or G) shall visit the site on or before the date of taking up the work and issue permission to the contractor to commence the work after checking that adequate precautions have been taken to avoid the damage to the cables. The permission shall be granted within 3 days of submission of such requests.
6. The name of the contractor, his contact telephone number, the nature of the

work shall be notified in the Engineering control as soon as the concerned Engineering officials issue the letter authorizing commencement of work to the contractor. Test room shall be given copies. Test room shall collect any further details from the Engineering Control and shall pass it on to S&T/RailTel & Electrical officials regularly. In case the supervisors of concerned departments do not turn up on the day as advised in terms of para 4 and 5 above, the works of contractor should not be stopped on this account.

7. In case of works being taken up by the State Government, National Highway Authority etc., the details of the permission given i.e. the nature the work, kilometer etc. be given to the Engineering control including the contact person's number so that the work can be done in a planned manner. The permission letter shall indicate the contact numbers of Test room/network Operating Centre of RailTel/TPC/Elect. Control.
8. Where the nature of the work taken up by the Engineering department is such that the OFC or other S&T cables or Electrical cables is to be shifted and relocated, notice of minimum one week shall be given so that the Division/RailTel/Construction can plan the works properly for shifting. Such shifting works shall in addition, for security and integrity of the cables, be supervised by S&T supervisors/RailTel supervisors/Electrical Supervisors.
9. The concerned SSE/P. Way/SSE/Works/SSE/Sig/SSE/Tele/SSE/Electrical (TRD or G) or RailTel supervisors supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged in view of their importance in providing communication during accident/emergency.
10. In case of minor nature of works where shifting of cable is not required, in order to prevent damage to the cable, the Engineering contractor shall take out the S&T or optical fibre cable or Electrical cable carefully from the trench and place it properly alongside at a safe location before starting the earthwork under the supervision of SSE/Sig or SSE/Tele or SSE/Electrical (TRD or G). The cable shall be reburied soon after completion of excavation with proper care including placement of the brick over the cable under the supervision of S&T or Electrical supervisors. However, the work will be charged to the concerned engineering works. The responsibility for ensuring availability of SSE (Signal), SSE (Electrical) as per para 4 and 5 above lies with the respective department. The contractor will go ahead with the shifting of cables as per the program decided and he will not be held responsible for any cable cut.
11. In all the sections where major project is to be taken up/going on RailTel/S&T department shall deploy their official to take preventive/corrective action at site of work. As regards Electrical Department, the official may be deputed on need basis.
12. No new OFC or quad cable shall be laid close to existing track. It shall be laid close to the Railway boundary on one side of the Railway track to the extent possible to avoid any interference with the future works (doubling etc.). It shall be ensured in the new works of cable laying that the cable route is properly identified with electronic or concrete markers. Wherever multiple cables are



laid in a trench, RFID markers may be provided for easy identification of the cable. Henceforth, wherever cable laying is planned, before undertaking the cable laying work, the cable route plan of the same shall be prepared by the Dy. CSTE/A or Dy. CEE/C and shall be got approved from the concerned Sr. DSTE/DSTE or Sr.DEE/DEE and also from the concerned Dy. CE/C for new lines and from the concerned Sr.DEN for all other projects including GC etc., to avoid possible damages in future. Such approvals shall be granted within 15 days of the submission of the request.

13. The works of excavating the trench and laying of the cable should proceed in quick succession, leaving a minimum time between the two activities.
14. In case damage caused to OFC/Quad cable or Electrical cable during execution of the work, the contractor is liable to pay a penalty for damaging the cable. Penalty shall not be levied in case of the following:-
  - i). Detailed cable route plan as per clause C-1 not provided by concerned department or cable is not protected as per laid down procedures.
  - ii). The alignment of the cable does not tally with the information provided to the contractor.
  - iii). The cable depth is found to be less than 800 mm from normal ground level.
  - iv). No representative of S&T department/RailTel was available at site guarding the cables on the fixed pre determined date and time.

15. Penalty to be imposed for damages to cable shall be as under:-

Cable damaged	Penalty per location
Only Quad cable or Signalling cable	Rs.1.0 Lakh
Only OFC	Rs.1.25 Lakh
Both OFC & Quad	Rs.1.5 Lakh
Electrical Cable	Rs.1.0 Lakh

Necessary debit in this regard shall be raised on the department undertaking the work who shall in turn levy the penalty on the defaulting contractor. S&T department shall raise the debits in case of damage to OFC or Quad or Signaling cable and Electrical department shall raise the debits in case of damage to Electrical cable.

16. Railways will not lodge FIR with RPF in case of works being executed by authorized contractors of Railways who have been duly permitted to execute the works in accordance with this JPO. Joint note by the supervisors of the concerned department shall be prepared and the responsibility of the cable cut should be decided without involving RPF. The joint note deciding the fact whether the contractor should be penalized shall be completed in a day's time from the occurrence of cable cut.

In all other cases, when the cable is cut by an agency that was not permitted

to execute any work, FIR should be lodged with RPF.

17. While giving permission for taking up the works, concerned departments may note that earthwork by engineering contractors will normally be done by machines except in a few isolated locations where the quantity of earth work is very less.
18. Railways shall make necessary correction in their future contract so that this JPO can also be enforced contractually.
19. In case of damages to OFC, RailTel should be paid 5/6th of the penalty recovered. RailTel shall raise demands on the S&T department in this regard.
20. All types of signaling & OHE bonds i.e. rail bond, cross bond and structure bond shall be restored by the contractor with a view to keep rail voltage low to ensure safety of personnel.
21. Above joint circular shall be applicable for construction as well as open line organization of Engineering, S&T and Electrical.
22. S&T cable and electrical cable route plan should be prepared by the concerned S&T and Electrical officers respectively and got approved as stipulated in para C-12 before undertaking the work. The completion cable route plan should be finalized block section by block section as soon as the work is completed.
23. All cable laying works shall be executed as per laid down technical specifications, such as protection measures/protective cover, compaction of refilled material etc.

### **1.3. Working near running line**

- 1.3.1 The contractor shall not allow any road vehicle belonging to him or his suppliers etc. to ply in railway land next to the running line. If for execution of certain works viz. earth work for parallel railway line and supply of ballast for new or existing rail line, gauge conversion etc, road vehicles are necessary to be used in railway land next to the railway line, the contractor shall apply to the Engineer for permission giving the type & no. of individual vehicles, names & license particulars of the drivers, location, duration & timings for such work/movement. The Railways/Employer/ Engineer or his authorized representative will personally counsel, examine & certify, the road vehicle drivers, contractor's flag men & supervisor and will give written permission giving names of road vehicle drivers, contractor's flag men and supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions:
- 1.3.2 Road vehicles can ply along the track after suitable cordoning of track with minimum distance of 6 meters from the centre of the nearest track. For working of machinery close to the running tracks or plying of road vehicles during night hours, the contractor shall apply to the Engineer in writing for permission, duly indicating the site details in a neat sketch and safety measures proposed to be taken. Subject to the approval of concerned Railway authorities, the Engineer or his authorized representative will communicate permission to the contractor/contractor's representative. The



contractor and his men shall strictly adhere to the instructions given along with such permissions.

- 1.3.3 Nominated vehicles and drivers shall be utilized for work in the presence of at least one flag man and one supervisor certified for such work. In order to monitor the activities during night hours, additional staff may have to be posted based on the need of the individual site.
- 1.3.4. The Contractor' machinery, equipment and vehicles shall normally operate 6 m clear of track. Any movement/work at less than 6m and upto a minimum of 3.5m clear of track centre, shall be carried out only in the presence of a person (including any railway employee) authorized by the Engineer. No part of the road vehicle shall be allowed at less than 3.5m from track centre. Cost of such railway employee shall be borne by the Employer.
- 1.3.5 The Contractor's machinery and equipment like Cranes, Flash Butt Welders, Ballasting machinery, Compactors, Track Laying Systems etc. are required to operate close to the existing line carrying traffic. Contractor is fully responsible for operating these machineries without endangering the safety of the running line and traffic.

### **1.3.6 Safety Fencing: Deleted**

- 1.4.** The contractor's special attention is drawn to Para 826 of Indian Railways Permanent Way Manual introduced under Advance Correction Slip no. 69 dated 23.05.2001, reproduced below which should invariably be complied with.

"826 Safe working of Contractors -- A large number of men and machinery are deployed by the contractors for track renewals, gauge conversions, doublings, bridge rebuilding etc. It is therefore essential that adequate safety measures are taken for safety of the trains as well as the work force. The following measures should invariably be adopted:

- (a)** The contractor shall not start any work without the presence of Railway supervisor at site.
- (b)** Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the railway's schedule of dimensions. For this purpose the area where road vehicles and/or Machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/reversal of road vehicles/machinery without infringing the running track. Barricading shall be provided wherever justified and feasible as per site conditions.
- (c)** The "look out and whistle" caution orders shall be issued to the trains and speed restrictions imposed where considered necessary. Suitable flag men/detonators shall be provided where necessary for protection of trains.
- (d)** The supervisors / workmen should be counseled about safety measures. A competency certificate to the contractor's supervisor as per proforma annexed shall be issued by AEN which will be valid only for the work for which it has been issued.
- (e)** The unloaded ballast / rails / sleepers / other P.Way materials after unloading along track should be kept clear off moving dimensions and stacked as per the specified heights and distance from the running track.
- (f)** Supplementary site-specific instructions, wherever considered necessary, shall be issued by the Engineer.

#### **COMPETENCY CERTIFICATE**

Certified that Shri\_\_\_\_\_ supervisor Incharge of  
M/S\_\_\_\_\_ has been  
examined regarding S&T working on\_\_\_\_\_ work. His  
knowledge has been found satisfactory and he is capable of supervising the  
work safely.

---

**ASSISTANT ENGINEER"**

**1.5.** The work of formation in banks and cuttings throughout the length of doubling is adjacent to track under running traffic. Many of the bridges on the proposed double line are to be constructed either as extensions or just adjacent to the existing bridges under running traffic. The work of Installation of Track throughout the length of doubling is adjacent to track under running traffic. The work of Installation of Track and Signals in the Station yards including alterations to the existing Track and Signals has to be done adjacent to or in replacement of the existing Track and Signals which are under running traffic. The contractor shall ensure that the safety of the running lines and running traffic is not endangered, because of his work.

**1.6.** Any traffic/traction blocks, temporary speed restrictions and caution orders required in this connection shall also 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 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.

**1.7.** **Ancillary and Temporary works**

**(a)** The Contractor's proposals for erection of all ancillary and temporary works shall be in conformity with the proposals submitted along with the tender and modifications thereto as approved by the Engineer.

**(b)** The Contractor shall submit drawings, supporting design calculations wherein called for by the Engineer and other relevant details of all such works to the Engineer for approval at least one month before he desires to commence such works. Approval by the Engineer of any such proposal shall not relieve the contractor of his responsibility for the sufficiency of such works.

The contractor shall, at his own cost, design and provide any temporary arrangements including relieving/service girders required in connection with the above said works and remove the same, when no longer required. These arrangements shall conform to Railway norms. The contractor shall obtain all necessary approvals and sanctions of the concerned Railway authorities including Commissioner of Railway Safety through the Engineer in advance and well in time.

**(f)** Notwithstanding the above, the contractor shall not, however, be relieved of his responsibility and obligation as aforesaid.

**(g)** The contractor shall bear the cost of complying with all safety requirements. No extra payment will be made for complying with the safety provisions under this chapter and the cost of all such elements to meet the safety requirements shall be deemed to be included in the Bill of Quantities

**1.9.** The contractor remains fully responsible for ensuring safety. In case of any accident, the Contractor shall bear cost of all damages to his equipment and men and also damages to Railway and its passengers.

**1.10** Suitable barricading to forewarn road vehicle driver shall be provided by the contractor. The luminous tape, strung on bamboo or steel poles can be considered for such barricading. Barricading arrangement should be got approved by the Engineer wherever applicable.

**1.11** **Indemnity by Contractor**

The Contractor shall indemnify and save harmless the Railway/Employer/Engineer from and against all actions, suit proceedings, losses, costs, damages, claims, and demands of every nature and description brought or recovered against the Railways/Employer/Engineer by reason of any act or omission of the contractor, his agents or employees, in the execution of the works or in his guarding the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

**1.12.** **Damage to Railway Property or life or Private Property** : The contractor shall be responsible for all risks to the works and for the trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of the Railway or the lives of persons or property of others from whatsoever cause in connection with the works until they are taken over by the Employer and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the Railway/Employer/Engineer shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of Workmen's compensation act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid, by reason of any act, or any negligence or any omissions on the part of the contractor, the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway/Employer/Engineer may incur in reference thereto, shall be charged to the contractor. The Railway/Employer/Engineer shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid, any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expense shall not be called in question by the Contractor.

**1.13.** **Safety of Public**

- (i)** The Contractor shall be responsible to take all precautions to ensure the safety of the Public whether on Public or Railway property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.
- (ii)** The Contractor shall provide effective barricading using G.I. corrugated sheets around foundation pits, trenches, erection sites, demolition sites etc., to prevent accidents and injuries to the public. He shall erect barricading duly leaving safe passage for the movement of the public as per the directions of Engineer.
- (iii)** No payment will be made for providing such barricading and the rates quoted by the Contractor shall be inclusive of such safety measures.

#### **1.14. Reporting of Accidents**

The Contractor shall report to the Engineer details of any accidents as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer and the Employer immediately by the quickest available means.

**1.15 Life-saving Appliances and First-aid Equipment:** The Contractor shall provide and maintain upon the Works sufficient, proper and efficient life-saving appliances and first-aid equipment to the approval of the Engineer and in accordance with the requirements of ILO Convention No. 62. The appliances and equipment shall be available for use at all time

#### **1.16 Security Measure**

- (a)** Security arrangements for the work shall be in accordance with general requirements and the contractor shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff, employees and the staff and employees of his subcontractors.
- (b)** Contractor's as well as Sub Contractor's employees and representatives shall wear identification Badges (cards), uniforms, helmets, gum boots and other safety/protection gadgets/accessories provided by the Contractor. Badges shall identify the Contractor and show the employee's name and number and shall be worn at all times while at site.
- (c)** All vehicles used by the contractor shall be clearly marked with the Contractor's name or identification mark.
- (d)** The contractor shall be responsible for security of works for the duration of the contract and shall provide and maintain continuously adequate security personnel to fulfill these obligations. The requirements of security measures shall include, but not be limited to, maintenance of Law and Order at site, provision of all lighting, guard, flagmen, and all other measures necessary for protection of works within the colonies, camps and elsewhere at site, all materials delivered to the site and all persons employed in connection with the works continuously throughout working and non-working periods including nights, Sundays and holidays, for the duration of the contract. However, at work sites in close proximity of traffic corridors where public and traffic are likely to come close to the work area, suitable barricading as proposed by contractor and approved by Engineer shall be provided.
- (e)** No separate payment will be made for providing security measures and will be deemed to be included in the rates quoted by the contractor.

**1.17** Contractor will have to comply the instructions circulated for Safety on Worksites Specially Doubling Works being implemented on Indian Railways as per relevant letters and any subsequent instructions on this issue. It is presumed that bidders have gone through the Indian Railway's policies including any subsequent instructions on this issue if any, before quoting the rates.

### **1.18    Ensuring Safety at work site**

Ensuring safety at work site while carrying out of doubling works is of paramount importance.

Following measures must be ensured: -

1. PMC should be advised to educate his supervisor for each stretch to ensure Safety who should be well conversant safety instructions and should see that the same are not violated. PMC has to be made accountable for lapses on the safety aspects.
2. Periodical formal counseling of all contractor's staff and PMC officials regarding safety instructions and review violations coming to light and taking appropriate action.
3. Counseling of drivers and operators of machinery regarding safety aspect during routine inspection of PMC officials contractors Engineers.
4. All the drivers/machine operators should have competency certificate issued by PMC after examining their knowledge about safety. Only authorized drivers can ply within 6.6 m of the existing track will have to be proposed as found necessary.
5. Necessary caution orders to Drivers of trains wherever required in terms of Railway Board's instructions/PCE circulars.
6. In case work is required to be carried out within 3.5 M of existing running line, K RIDE should be advised well in time and requested to provide look out men and Railway Supervisors for the site. At such locations close supervision must be ensured.

In terms of contract conditions, preventing entry of outsiders at the worksites is the responsibility of contractor and this has to be ensured.

### **1.19    Additional Conditions to Safety at Work Spot**

To ensure safety at all the work sites all the time, a dedicated Safety officer duly trained as per the provisions of the contract shall be posted by the contractor for each project. Following works will in general be assigned to safety officer.

1. The Safety officer (in charge) shall be from the permanent rolls of the contractor. He will work under the administrative control of the Project Manager of the contractor.
2. The person from any sub-contractor deputed by the main contractor shall not be designated as Safety officer.

3. The Safety officer shall be overall in charge of the safety methods being undertaken at various work sites. He shall not be given any other task related to the project planning and execution.
4. The Safety officer should be well versed with the safety aspects related to worksites in the vicinity of running railway lines and should impart training to the officials assisting him.
5. The Safety officer shall be given suitable means of transport (depending on the requirement) by the contractor to approach all the work sites frequently and ensure that adequate precautions to ensure safety have been taken. Following items shall be specifically done by the Safety officer.
  - a) Ensuring the provision of the safety fencing. Any shortfall shall be made good immediately.
  - b) Availability of suitable lookout men at each working site. The lookout men shall be in possession of hooters, safety helmet and retro-reflective jacket to warn the site engineer/supervisor and operators/drivers of the equipments/vehicles working near the running track.
  - c) Arranging issuance of competency certificates by Employer/Engineer with the operator/driver of each equipment/vehicle before deputing for work.
  - d) Take assurance from the contractor officials at regular interval of complying with the safety instructions.
  - e) Any safety violation to be advised to all concerned and remedial action taken thereof.
6. The Safety officer will frequently counsel the contractor engineers/supervisors/ operators/drivers/lookout men about safety provisions during his day to day inspections and keep a record of the same. The Safety officer will prepare a monthly report of the safety inspections carried out and remedial action taken thereof and send it to the Project Manager of the contractor and the employer/engineer.
7. The contractor should open new sites only after discussing the safety measures to be undertaken with his Safety officer and obtaining the permission from Employer/ Engineer.
8. It shall be the duty of the Project Manager and Safety officer of the contractor that the instructions contained in the agreement related to safety and the same issued by the Railway/Employer/Engineer from time to time are strictly complied with.

Based on the above, it is advised that a thorough review of the safety provisions may be undertaken and it should be ensured that competent safety officers are available at all the work spots.



## 2. GENERAL INFORMATION AND SCOPE OF WORK

### 2.0 SCOPE OF WORK

The proposed work is in connection with the BSRP work between **KSR Bengaluru city Jn.- Yelahanka**

“S&T utility shifting BSRP Corridor-1A- tender from **KSR Bengaluru city Jn.- Yelahanka** stations of Bangalore division.”

This work is taken up in order to facilitate civil work for construction of BSRP corridor-1.

#### **Introduction:**

This is part of the project for BSRP work between **KSR Bengaluru city Jn.- Yelahanka section of Bangalore Division.**

- i) The scope of work includes signalling and telecommunication works Outdoor activities for shifting cables to facilitate BSRP work . The proposed work will be taken up in a phased manner and may involve 2 to 3 interim stage modifications.

### 2.1. **Details of Work:**

**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(S&T) / K RIDE to carry out some specific works in order to strengthen/repair the road, GM(S&T) / K RIDE shall get such works executed through the existing contractor or any other agency and make payment for such work.

<b>2.2</b>	<b>Salient features of the Station:-</b>
<b>A.</b>	
<b>i)</b>	<b>SIGNALING &amp; TELECOMMUNICATION WORKS</b> <b>“S&amp;T utility shifting BSRP Corridor-1A tender from KSR Bengaluru city Jn.- Yelahanka stations of Bangalore division.”</b>
	<p><b>2.3    <u>The Nature of work:</u></b></p> <p>The works to be executed can broadly be grouped as under:</p> <p><b>A. Other Activities:</b></p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. Making and supply of ‘As Built’ drawings for the new assets</li> </ol>

	<p>created.</p> <p><b>2.3.2 SIGNALING &amp; TELECOMMUNICATION WORKS</b></p> <p><b>“S&amp;T utility shifting BSRP Corridor-1A tender from KSR Bengaluru city Jn. – Yelahanka stations of Bangalore division.”</b></p> <ol style="list-style-type: none"> <li>1. Designing and documentation including completion documents of signaling and telecom drawings for cable shifting work</li> <li>2. Removal of S&amp;T infringements or shifting of signalling gears like LC gates, location boxes, signals, cables etc. and telecom gears like cables, EC post etc. to facilitate the progress of earth work and bridge work for Bengaluru Suburban Rail Project (BSRP) Corridor-1A</li> <li>3. Outdoor work of trenching and laying of cables, foundation for signals, location boxes, etc. wiring of location boxes, signal units, points machines, track circuits, axle counter jointing of signaling cables, earthing, RE protection, erection of electrical lifting barrier, painting and lettering of all outdoor gears, releasing of all outdoor gears.</li> </ol> <p><b><u>Note</u></b> : The above is not an exhaustive list covering all the works to be done under this Tender. Major works only have been listed for guidance.</p>
2.4	<p><b>Special stipulations/features:</b></p> <p><b>Inspection of S &amp; T Work</b></p> <p>2.4.6 The execution is required to be carried as per standard specifications of K-RIDE. However, specifications, drawings and other details mentioned in BOQ or in special conditions, wherever applicable will prevail over the standard specifications.</p> <p>2.4.7 The Signal &amp; Telecom material to be supplied by the contractor as per RDSO Specifications/ Drawings will have to be procured from approved Vendors appearing in Vendor Directories of RDSO and to be supplied duly inspected by RDSO. In case where no manufacturers are available in approved vendors list issued by RDSO, procurement may be done through the firms included in RDSO Vendors for Developmental order as per Railway Board's letter No. 99/RS(G)709/1 dated 18.11.2016 and 2001/RS(G)/779/7 PT 1 dated 29.06.2017.</p> <p>In case of signalling relays, 20% of requirement of each type of relay can be procured from RDSO approved vendors for developmental order as per Railway Board's letter no. 2001/RS(G)/779/7 Pt 2 dated 25.06.2018.</p> <p>For procurement through RDSO Vendors for Developmental order, prior approval of K-RIDE's Engineer shall be obtained.</p> <p>2.4.8 The Signal &amp; Telecom material to be supplied by the contractor as per TEC/DOT/BSNL specification will have to be procured from DOT/TEC approved firms. The inspection of such items will however be carried out by RDSO provided the value is more than value stipulated in inspection policy of RDSO.</p>

	<p>2.4.9 In case the contractor is supplying imported equipments from approved manufacturer, then in addition to manufacture's test certificate, such equipments shall be inspected by RDSO.</p> <p>2.4.10 Signal &amp; Telecom items not inspected by RDSO/ RITES for any reason will be inspected by the Engineer / Authorized Representatives of K-RIDE. In case of any difficulty in inspection, K-RIDE may decide the authority of inspection, either by any other Govt. agency or by consignee. Whenever materials are inspected by Authorised Representatives of the K-RIDE/Engineer, the contractor will be required to furnish his or manufacturer's Guarantee Certificate.</p> <p>2.4.11 The K-RIDE shall have full power to reject any material that it may consider defective or inferior in quality, workmanship, or otherwise not in accordance with the Specification and the K-RIDE's decision shall be final, even though they might have been inspected by RDSO/RITES. The contractor shall remove forthwith any such material rejected and replace them promptly at his own cost. Inspected and accepted material, if damaged during transit shall be replaced by the contractor free of cost prior to installation.</p> <p>2.4.12 Inspection Charges of RDSO and RITES will be borne by the Contractor. <i>In case of Change of Inspection from RDSO/RITES to K-RIDE/Consignee, 1% of cost of material to be deducted by K-RIDE, as Inspection Charges.</i></p> <p>2.4.13 Items included in the list of items to be inspected by RDSO &amp; RITES and are not inspected by RDSO/RITES for any reason whatsoever and will be inspected by the Authorized Representatives of K-RIDE. The following conditions will apply:</p> <ul style="list-style-type: none"> <li>i) Material conforming to RDSO spec/drg is procured from RDSO approved source.</li> <li>ii) Contractor shall submit Manufacturer's Guarantee Certificate for the material.</li> <li>iii) All such cases where change in agency of inspection other than mentioned in the schedule is required will be processed for specific approval of competent authority.</li> </ul>
	<p><b>Procurement and storage of materials</b></p> <p>2.4.14 Procurement of Track, S&amp;T and Electrical Items has to be planned by the contractor in consultation with the Engineer and procurement plan shall be got approved from the Employer before placing any orders for such materials.</p> <p>Procurement Plan should be prepared in such a manner that those materials which have a shelf life like rubber pads etc may</p>

be procured in a staggered manner so that the materials are used before its properties get modified with age. The procurement of materials shall be planned as per the milestone/key activities specified in pursuance to GCC clause 8.3. If the material/product does not remain of required specifications at the time of its actual use, the same will be replaced by the contractor with materials conforming to Specifications at his own cost.

The procurement of materials for the works by the contractor shall also be subject to the following:

(i) **Procurement Schedule:**

SN	Items	Schedule
1	Supply of items under S&T BOQ	<p>The procurement process should commence after GM/AGM/JGM in-charge of S&amp;T portion of the work, approves the programme of procurement proposed by the contractor such that materials proposed for procurement are expected to be installed within a year of receipt.</p> <p>However, to facilitate formation work, Cables, Wires Location Boxes, Terminals, Level Crossings and other associated items required for replacement/shifting of existing cables/location box/level crossing etc to the extent of 20% of BOQ quantity or higher quantity may be procured at the beginning with the approval of GM of the department.</p>
2	The contractor would make out a list of items for which procurement process to start indicating the expected time of arrival at site and installation as per the period indicated above. The concerned GM/S&T would approve the programme.	

- (ii) Based on the above schedule, the contractor shall prepare BOQ Schedule/Bill-wise procurement plan and submit a statement in the following format:

Procurement Plan- Installment No.1				
BOQ Bill No:				
Item No.	Description	BOQ Quantity	Quantity planned for procurement	Justification for placing order for procurement (lead, likely month of execution/installation)

*Certified that all efforts have been taken to ensure that the quantity of materials being planned for procurement is as per the BOQ and as per the requirement at the site based on approved drawing.*

**Contractor**

*The requirement planned is commensurate with the progress of work and as per approved drawing/ design.*

**Engineer/PMC**

*Approved*

**ED/S&T**

While submitting the 1<sup>st</sup> stage payment of the materials, a copy of the above approval certificate should accompany the bill/IPC."

- (iii) **Reconciliation of materials after each milestone is reached:** For procurement of materials in subsequent instalment(s), the contractor shall enclose along with his proposal, a review statement of consumption already made or likely to be made in respect of materials already procured in the following format:

<b>Review of the materials procured up to Previous Installment</b>					
BOQ Bill No:					
Item No.	Description	Quantity procured upto previous Installment	Quantity Consumed/ installed	Balance Quantity	Remarks

*Considering the consumption and further targets, second installment of materials may be approved for procurement.*

**Contractor**

*The requirement planned is commensurate with the progress of work and as per approved drawing/ design.*

**Engineer/PMC**

*Approved*

**ED (S&T)**

- 2.4.15 If the Contractor is required to purchase certain material(s) from firms in the approved list of RDSO/Zonal Railways / K-RIDE, as per terms and conditions of the contract, then the

	<p>Contractor shall place orders accordingly on firms appearing in the approved list, as specified, on the date of placing the order and provide details of such orders placed to K-RIDE.</p> <p>In case the contractor places an order on an approved firm, but the firm is subsequently de-listed before the supply is completed, then in such cases, if there are any outstanding orders on the de-listed firm, then wherever the balance delivery period is available, the extent of supply made by the firm within the original delivery period, shall be accepted provided it passes the inspection of RITES/RDSO/inspecting authority specified in the contract. If the de-listed firm fails to deliver the material within the original delivery period, no extension shall be granted by the Contractor to such firms after date of issue of de-listing order. In case where delivery period has expired, no extension shall be granted and all such orders shall be cancelled and a fresh purchase action should be taken.</p> <p>2.4.16 The plant and materials etc. so procured for the works shall be properly stored on Site and protected against loss, damage or deterioration. For this purpose, the contractor shall make necessary arrangements of store godown/fenced area at site in Railway land as per directions of Engineer. In case the contract is terminated, the Employer shall have the right to take possession of the godown/store and reasonable cost of such store/godown shall be determined by the Engineer and included in the Final Payment Certificate</p>
2.5	<b>CODES &amp; SPECIFICATIONS</b>
	<p>The works shall be carried out as per Standard Specifications of 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.</p>
	<p>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.</p>

	<p>(a) The Standard Specifications of K-RIDE and the list of codes and manuals given in the annexure thereof shall be prime governing.</p> <p>(b) Where there is conflict between provisions in IRS &amp; IS specifications, provisions in IRS specifications shall prevail.</p> <p>(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.</p> <p>(d) For items not covered in IRS/IS/IRC specifications, BS-5400 Part 1 to 10 may also be considered.</p> <p>(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.</p>
<b>2.6</b>	<b>SURVEY AND FIXING WORKING BENCH MARKS AND ALIGNMENT MARKERS:</b> This Provision shall not apply
<b>2.7</b>	<b><u>Bench marks:</u></b> This Provision shall not apply
<b>2.8</b>	<b><u>Alignment:</u></b> This Provision shall not apply
<b>2.9</b>	<b>Responsibility for establishing and maintaining working bench marks and alignment markers :</b> This Provision shall not apply
<b>2.10</b>	<b>Issue of materials by Employer:</b> This Provision shall not apply
<b>2.11</b>	<b>INTERFACING AND INTEGRATION OF WORKS :-</b>
<b>2.11.1</b>	As a part of BSRP Corridor-1A, Outdoor S&T cable shifting works will be done in this bid. Hence interfacing for the purpose of integration of works between different Contractors of <b>Civil and Electrical</b> is of very much importance so that progress of work is not hampered. Coordination between all agencies has to be ensured. Such interfacing for the purpose of integration of works will arise between the partners of JV, in case the work is awarded to a JV or between the Contractor and his sub-contractors will arise or among different contractors. This has to be kept in view.
<b>2.11.2</b>	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.
<b>2.11.3</b>	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.
<b>2.11.4</b>	Under consideration and application of the above clause, the contractor shall and has also the obligation to liaise with the other contractors and



	<p>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.</p>
2.11.5	<p>It is the intention of the Employer that the overall interfacing, planning, scheduling, logistic administration inclusive of necessary logistic planning and all tasks that are necessary to guarantee proper co-ordination and proper interfacing of all activities during the complete execution of the works, is clearly understood and agreed to. Integrated programme shall set out in detail how the different contractors will work together in execution of the works. It shall also spell out the overall interfacing, planning, scheduling, logistic administration inclusive of necessary logistic planning and all tasks that are necessary to guarantee proper co-ordination and proper interfacing of the different activities by various agencies during the execution of the works. A master schedule incorporating the milestone of works completion by each contractor shall be included in the integrated programme to demonstrate the capability of all parties involved in the completion of the works wherever applicable. The essence of the integrated programme shall be that the contractors have both overall responsibility for the completeness and the timeliness of all the works and quality of the contractual works within the agreed time frame. Allowance need to be made by the contractors in their resources and pricing to ensure that proper co-ordination of the various items is incorporated in their contract.</p>
2.11.6	<p>Needless to say that commissioning of this BSRP 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.</p>
2.11.7	<p>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.</p>
2.11.8	<p>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</p>

	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.
2.11.9	<b>Damages to property:</b> 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.
2.12	<b>SURVEY EQUIPMENT</b>
	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.
2.13	<b>Power Line Crossings: DELETED</b>
2.14	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.

## 2.15 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 GCC shall be followed for taking over of the installations.

### 3. SITE FACILITIES FOR THE EMPLOYER AND THE ENGINEER

**“S&T utility shifting BSRP Corridor-1A tender from KSR Bengaluru city Jn.-Yelahanka: stations of Bangalore division.”**

The Contractor shall provide for the use of the Employer / Engineer, equipment, communication & drawing facilities throughout the course of the work and for such period of time during the defects liability period as the employer & Engineer may require, The details of facilities are detailed below: All the facilities under this clause will continue to be maintained by the Contractor free of cost till the defect liability period is over. Thereafter the Contractor shall take away all the materials & equipment etc which will be the property of the Contractor.

#### **3.2 SITE OFFICES: DELETED**

#### **3.3 FURNITURE AND OTHER OFFICE EQUIPMENT: DELETED**

#### **3.4 TRANSPORT:**

#### **PROVISION OF MULTI UTILITY ROAD VEHICLE: DELETED**

#### **3.5 OFFICE MAINTENANCE: DELETED**

#### **3.6 EQUIPMENT FOR USE OF THE ENGINEER:**

The Contractor shall provide new equipment and software as listed below and maintain them for the exclusive use of the Employer and the Engineer. The Contractor shall provide and maintain the following equipment for the use of the Engineer and the Employer within one month from the date of commencement of the works until the defect liability period is over. On completion of defect liability period, the equipment shall be property of the Contractor.

(a)	Desktop Computer <b>One nos.</b>	With minimum specification of Intel Core i7, 3.4 GHz, 3 MB Cache, 4 GB DDR3 RAM, 500 GB Hard Disk Drive, DVD Writer, 18.5" colour TFT monitor, 10/100 LAN Card, Modem Card,  Operating System - Windows 8 Professional or higher preloaded with media and documentation and certificate of authenticity and Microsoft Security Essentials preloaded antivirus software.
(b)	Laptop rugged – <b>One Nos.</b>	With minimum specification of Intel Core i5, 4 GB RAM, 500 GB Hard Disk Drive, 11.6" color display, 2xUSB-2.0, standard keyboard  Weight - not more than 2.5 kg,  Battery backup - minimum 4 hrs

		Operating System - Windows 10 or higher preloaded with media and documentation and certificate of authenticity and Microsoft Security Essentials preloaded antivirus software.  A laptop bag and Adapter/Battery charger shall also be provided with the laptop.
(c)	Printers – 2 nos. (A4 size – 1 No. and A3 size – 1 No.)	The A4 size printer shall be all in one office jet having features of Fax, Scanner and Printer, A3 size printer shall be Colour Office jet with a print speed of up to 8 pages at 800 dpi or More.
(d)	Application software	(i) Microsoft office latest release. (ii) AUTOCAD 3D 2015 (iii) M S Project/ Sure Track. (iv) PDF Converter/Professional
(e)	UPS system with sufficient power backup (with minimum backup time of 30 minute) to meet the sufficient power load in case of power disruption.	
(f)	Surge Protection Devices (one for each computer and printer as given above)	
(g)	Power supply for the systems is to be AC 240 volts, 50 Hz from normal building wiring circuit mains, power regulator, stabilizer or transformer should be supplied by the Contractor for the computer systems such that the systems can function efficiently.	
(h)	2 MBPS internet connection with Wi-Fi facility so that multiple devices can be connected.	

**Note: In case of failure to provide the equipment including original software & internet connectivity within one month, penalty @ Rs 25000/- Per week or part thereof will be imposed.**

### 3.7 Documentation

A complete set of documentation will be supplied with each System. The documentation should be self-tutorial in nature and be readily understood by non-computer personnel. The following manuals will be supplied with the system:

- (a) Manual on how to operate the equipment; and
- (b) Manual on how to use the facilities and software provided by the supplier (including languages and utilities).

## 4.0 SPECIFICATIONS

**“S&T utility shifting BSRP Corridor-1A tender from KSR Bengaluru city Jn. - Yelahanka: stations of Bangalore division.”**

**Standard Specifications for Materials and Works of K-RIDE**

Separate priced booklet containing Indian Railway/South Western Railway Standard Specifications for Materials and Works Civil, Electrical and Signaling and Telecommunication) are available in K RIDE office. These specifications shall be applicable for all works covered in this contract

It is presumed that bidders have gone through K-RIDE's Standard Specifications for Materials and works (Civil, Electrical and Signaling and Telecommunication) including latest correction slips issued up to the date 28 days prior to the deadline for submission of bids before quoting the rates.

Works are to be executed as per above referred specifications except for Methodology of Mechanised Laying and Packing of Track, which is specified below-

**METHODOLOGY OF MECHANISED LAYING AND PACKING OF TRACK: DELETED**

**4.1 TECHNICAL SPECIFICATION FOR CONSTRUCTION OF SERVICE & RESIDENTIAL BUILDINGS :** This provision shall not apply.

## 5. PERSONNEL

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

S. No	Position	Minimum No. of Personnel	Qualification	Minimum Experience In Similar Work [years]
1	Sr. Engineers	1	Engineering Graduate in Electronics/Elect.	3 years' Experience in construction of EI/RR/PI
2	Supervisors/S &T	2	Diploma in Electronics/Elect.	Minimum 3 years' experience in construction of EI/RR/PI
3	Draftsman with knowledge of AUTOCAD S&T	1	Minimum Diploma in Electrical/Electronics/Communication Engineering OR a combination of basic streams of Electrical/Electronics/Communication Engg.	3 years with AutoCAD (S&T) experience.
4	Wire man	3 WireMen + 4 Asst. WireMen per station during Pre NI & NI	Wireman	Minimum Experience of 5 years

Note:

- (1) The programme for deployment of 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.1000 per person per day for Sr. Engineers, Supervisors / S&T and Draftsman with knowledge of AUTOCAD S&T;
  - b) Rs 500 per person per day for Wire man and 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 (S&T)/K RIDE on recommendation of the concerned AGM/JGM(S&T) in case of ex-Railwayman who has worked in Signalling and Telecommunication Engineering department of Railway in a position of Gazetted officer for Sr Engineer (S&T) / Junior Engineer or above for Supervisor (S&T) and has relevant experience not less than that prescribed for minimum professional qualification.
- (4) The experience requirement can be relaxed by the concerned GM (S&T)/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. EQUIPMENT

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
<b>Equipment types and characteristics for S&amp;T work</b>		
1	Portable Generators of all capacities as per site requirement	2 Nos.
2	Drilling machines of all type as per site requirement	2 Nos
3	Track Drilling machines of all type (mechanical cycle chain type and electrical type) as per site requirement	2 Nos
4	Grinders of all types as per site requirement	2 Nos.
5	Jacks for cable Laying	2 Sets
6	Concrete Shutters for Apparatus case full	4 Sets
7	Concrete Shutters for Apparatus case half	2 Sets
8	Concrete Shutters for Signal Post	2 Sets
9	Concrete Shutters for Shunt Signal	1 Sets
10	Tool Kits for fitters – Mechanical Installation gang (Location Box / Apparatus cases, Signals, etc.)	02 Sets
11	Tool kit for fitters – Electro-mechanical gang (Track circuiting, Point machines, Axle counters, Circuits controllers, Level locks & relay Rack equipment.)	02 Sets
12	Tool kit for locking fitters cum LC gate interlocking. Key lock point interlocking & ground level frame interlocking.	1 Sets
13	Wireman's tool kit consisting of Multimeter, Meggar, Box spanner, Nose Plier, Holding Plier, buzzer, wooden hammer, Clamp type ampere meter etc.	04 Sets
14	Carpenter tool kit	1 Sets
15	Earth tester	1 Set
16	Torches	8 Nos.
17	Material loaders / Mini trucks /Matadors / Bolero's	2 Nos.
18	VHF – Walkie Talkies Sets	2 Sets

**Note:**

- 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.20,000/- per day of delay.
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(S&T)/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.