

## **SPECIAL CONDITIONS RELATING TO SITE DATA & SPECIFICATION**

**NAME OF WORK:** Construction of LHS by Box Pushing technique in lieu of L-Xing No. 19-C at Km 20/10-11 on DUI-LDH section of UMB division, Construction of LHS in lieu of L-Xing No. B-35 on FZR-FKA section, L-Xing No. C-49, A-57, C-70 & C-72 on LDH-FZR section, L-Xing No. S-21 on ASR-ATTARI section of FZR division and other allied works in the jurisdiction of CPM/C/CDG.

### **SCOPE OF WORK: -**

**1.1** Sub soil investigation and submission of reports.

**1.2** Construction of precast and cast-in-situ RCC Boxes as per approved drawings, pushing of boxes Construction of ballast wall, retaining walls, return wall, sump wells, approach roads, covering shed & wing wall, construction of residential quarters & any allied works etc. as per direction of Engineer-in-charge.

<b>SN</b>	<b>LC No.</b>	<b>Block Section</b>	<b>Scope of Work/Construction sequence</b>
<b>1</b>	C-19	DUI-LDH	Construction of LHS/RUB internal size of Box 1x5.0mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>2</b>	B-35	FZR-FKA	Construction of LHS/RUB internal size of Box 1x7.5mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>3</b>	C-49	LDH-FZR	Construction of LHS/RUB internal size of Box 1x5.0mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>4</b>	A-57	LDH-FZR	Construction of LHS/RUB internal size of Box 1x5.0mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>5</b>	C-70	LDH-FZR	Construction of LHS/RUB internal size of Box 1x5.0mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>6</b>	C-72	LDH-FZR	Construction of LHS/RUB internal size of Box 1x5.0mx5.0m or as per approved drawing by pushing method with Plate Protection arrangement including Approaches.
<b>7</b>	S-21	ASR-ATTARI	Construction of LHS internal size of Box 2x5.00mx5.00m or or as per approved drawing by pushing method with Plate Protection arrangement including Approaches and construction of 10 unit Type-II Qtrs (Existing Qtrs needs to be removed for making LHS)

The locations/sizes of the LHSs mentioned above may be changed by the Railway Department during execution of the work, depending upon site conditions, maximum traffic facilitation requirements, and other relevant parameters.

**1.3** Providing & launching of protection arrangement having structural steel members before pushing the RCC box under the Railway track up to 25-meter span with machinery, T & P, crane, labour etc as a complete job during traffic & OHE block as per site requirement. Design & drawings for non-standard layout of PPA including launching scheme duly proof checked from IIT/NIT/Govt college shall be provided by the Contractor at their cost and to be **approved from Railways. Nothing extra shall be paid on this account.**

- 1.4** On completion of pushing of boxes under track, protection plate arrangement will be taken out with crane of suitable capacity/ alternate means with all machinery, T & P, crane, labour etc as complete job during traffic & OHE block.
- 1.5** During providing & removing the protection arrangement, following activities are to be done during traffic & OHE block.
- Dismantling of track after cutting the Rails.
  - Removal & stacking of ballast.
  - Providing/removal of protection arrangements with crane/ alternative means.
  - Linking of track.
  - Ballasting & packing.
  - Making fit the track for traffic.
- 1.6** For block works, capacity of cranes will be approved by Engineer-in-charge. One standby crane of same capacity will also be arranged by contractor during block. List of skilled/unskilled labours, tools, plants & all machinery will be given by contractor for approval by Engineer-in-charge in advance and all works of providing/removal of protection arrangement to be completed in short duration without bursting the block during day/night.
- 1.7** if any cable/service comes in alignment of box during pushing which is required to be shifted during work, the same has to be arranged by contractor.
- 1.8** Necessary arrangement for diverting Road traffic where required as per instruction of site Engineer like making diversion, provision of barricading, deputing of signal man for Road traffic at both side of approach road to be done.
- 1.9** Temporary speed breaker (readymade) at both side of approach road to control the speed of road vehicles along with Display/caution board to be provided at both side of approach road free of cost.
- 1.10** Road carriage way to be maintained for road traffic during pushing work. Any damage of Road including median shall be made good as per MORTH specification.
- 1.11** During pushing of RCC Boxes under Roads, safety of Road traffic will be responsibility of contractor.
- 1.12** Earth work in filling, stone soling and wearing coat, bituminous surface etc, if any, in connection with diversion of Road.
- 1.13** CC/RCC in Box and its head/return wall.
- 1.14** Road work of approaches i.e. providing, laying and compaction of granular sub base, metalling, paver block surface etc.
- 1.15** Submission of drawing/design of pushing scheme of RCC box, which will be done through thrust bed with jacks and power pack as per methodology approved by the Engineer-in-Charge.
- 1.16** Providing & laying wearing coat in road where ever required as per approved drawings.
- 1.17** Brick work, CC, RCC and steel work etc.
- 1.18** Any other items including unforeseen items not covered under the schedule but necessary during the execution of work.
- 1.19** Design & drawing of roof covering as per relevant NS item of roof covering.
- 1.20 Deleted**
- 1.21** Sealing of gaps in full thickness of wall with suitable material such as Epoxy/Cement/microfine cement or as directed by the Engineer in charge, having adequate structural strength at intermediate jacking station of pushing

will be done so that no leakage occurs from any of the joints during service of the bridge. Nothing extra will be paid for this. However, any consolidation/stabilization of ground beyond wall thickness by using specialized grouting techniques to plug seepage of ground water may be paid extra under relevant items of schedule.

**1.22** The above scope of work is for the general guidance purpose only.

## **2.0 GENERAL & BRIEF DESCRIPTION OF SITE;**

**2.1.** The LCs are located on Dhuri - Ludhiana, Firozepur - Fazilka, Ludhiana - Firozepur & Amritsar - Attari Section in Punjab State. These LHSs are located at close proximity to a very heavily congested road junction. There is a huge traffic on this road. These sites are connected with pucca roads. There is a limited storage & stacking area available & the surrounding area falls in the jurisdiction of State Government. The tenderer/s are advised to visit the site before quoting rates.

**2.2.** The tenderers are advised to visit the site before quoting the rates. No water, electricity is available with Railway. The approach to site of work is through busy road. The contractor may have to shift construction material accordingly and nothing extra will be paid for the same. The underground service may also have to be shifted before starting the work. The tenderer are advised to visit the proposed site to have the idea of approachability, availability of material, water & electricity etc.

**2.3.** No Malba/material etc should be kept on the main road while carrying out the works.

**2.4.** Drainage system of boxes has to be maintained clean during raining season or so. Necessary dewatering arrangements are to be made by the contractor in case of rains or any other conditions leading to water logging at site at contractor's own cost.

**2.5.** All safety measures are to be adopted to ensure safety of road users as well as railway embankment.

**2.6.** The above information is only for general guidance of the tenderer/s and they are advised to visit the site and acquaint himself/themselves fully with the site conditions especially in regard to the approaches for transporting the materials/machinery etc., storage area, local conditions availability of labour etc.

**2.7.** Safety of site workers will be sole responsibility of the contractor. However instructions in this regard may be given by Railways time to time and will have to be followed. No extra payment may be claimed on this account

## **3.0 SPECIFICATIONS AND CODES**

**3.1** "Indian Railways Unified Standard Specifications-2021" shall govern the specifications of all items of USSOR 2021 and CPWD-Delhi Schedule of Rates Specification Vol.-1 & 2 (2019) shall govern the specifications of all items of DSR-Vol.-1 & 2 (2021) appearing in the tender schedule. In case, specifications of any item are not covered in above, the relevant IRS/BIS Code shall be applicable.

**3.2** All material to be used in the works shall be in conformity with the requirement laid down in the "Indian Railways Unified Standard Specifications-2021, CPWD-Delhi Schedule of Rates Specification Vol.-1 & 2 (2019) or the relevant BIS Code/or any other relevant code as applicable.

**3.3** The decision of the Chief Engineer/Construction of the project shall be final and binding regarding the interpretation of various provisions of the Codes and Specifications as well as the provisions/clauses of the contract and no claim whatsoever shall be entertained on this account.

## **4.0 EMPLOYMENT OF TECHNICAL STAFF:-**

**4.1** The contractor shall employ following Qualified Engineers during the execution of the allotted work or within 30 days of issue of LOA whichever is earlier.

**4.2** One qualified graduate engineer with minimum 10 years of relevant experience should be deputed as Project Manager for site management & co-ordination with railway officials.

**4.3** Qualified graduate engineer (Site engineer) with at least 03 years of similar experience of RUB/LHS work at each site of LHS/RUB as per directions of Engineer in Charge.

**Note :-** For track related contractual works of value, as specified in 4.2 above, individuals having Diploma in Railway Engineering awarded by IPWE (India ) shall also be considered as qualified Diploma Holder Engineers and contractors for track contract works can employ such individuals at their work site on Railway.

**4.4** Additionally, for recoding measurement and co-ordination with Railway for billing, drawings, etc, the contractor should deploy one quantity surveyor having degree/diploma in civil engineering and having adequate experience related to billing/measurement, etc.

**4.5** Further, in case the contractor fails to employ the Qualified Engineer aforesaid in para above, he, in terms of provision of Clause 26A.2 to be General Conditions of Contract, shall be liable to pay an amount of **Rs. 40,000/- for each month or part thereof for each Degree Holder as per para 4.2 and 4.3 above and Rs. 25,000/-** for each month or part thereof for Diploma holder as per para 4.4 above respectively for the default period for the provision, as contained in above para.

**4.6** The contractor shall submit the copy of bio-data and Degree/ Diploma certificate of the above technical staff employed by him for the scrutiny by Railway and for the record. Railway reserve the right to scrutinize the records of the contractor to ascertain as to whether the qualified staff has been actually employed by him and is paid for.

**4.7** While passing each “on” account bill, the AEN/XEN in-charge will certify the availability of technical staff on regular basis, otherwise the recovery as above shall be made from every bill.

**4.8** The decision of the Engineer In-charge, whether the required Technical staff was not employed by the contractor shall be final and binding upon the contractor.

## **5.0 APPROVED RAILWAY DRAWINGS**

**5.1** The work shall be carried out as per approved railway drawings. The copies of the approved plan and additional information as required by the tenderers may be obtained (subject to availability) from the office of the concerned Dy. Chief Engineer/C, during office hours on any working day by prior appointment.

**5.2** In addition to the drawings, if any, enumerated above, copies of various drawings may be supplied on application by the contractor at the under noted rates as applicable, subject to availability:

Copies of standard Northern Railway type plans as prepared for the work – Rs. 50.00 per copy.

Copies of plans prepared specially for project of major works like major building, L - sections, longitudinal plan etc. @Rs 75.00 Per copy.

All plans which are prepared specially on account of contractor's request like copies of cross section etc. Rs. 150.00 per copy.

**5.3** Additional information as required by tenderers may be obtained from the office of Chief Administrative Officer/Construction or concerned Dy. Chief Engineer/ Construction, during office hours on any working day by prior appointment.

**5.4** The Chief Engineer/Const., shall have full power to make any alteration in the drawings and to give such further instructions and directions as may appear to him necessary or proper for the guidance of contractor and for the efficient execution, completion and maintenance of the work. The contractor should plan the execution of various works in close co-ordination with the engineer or his authorized representative.

**5.5** The design of foundations including depth of foundations below the bed level as well other drawings may have to be varied during the progress of the work according to actual site conditions. The drawings already prepared and which may be prepared afterwards are not to be taken as final or binding on the Railway in any respect. The contractor shall have no claim on Railway, if any change is made in the approved drawings. Also his inability to make timely arrangements for necessary plant and machinery due to any such change which the Engineer may make will not be taken as an excuse for slow performance or non-performance of the work.

## **6.0 SUPPLY OF CEMENT:**

- 6.1** Ordinary Portland Cement of 43 grade/53 grade confirming to IS: 8112 & IS: 12269 respectively will normally be used. However, whenever permissible & provided in the schedule of items, the PPC conforming to IS 1489 may also be used.
- 6.2** Cement shall be procured by the contractor from the main producers or their authorized dealer of approved make such as **Ultratech, Ambuja, A.C.C., JK Super & Birla Uttam** or any other reputed make as approved by Engineer in charge. (Compatibility of cement with admixture to be enclosed).
- 6.3** To improve the workability of concrete and cement grout, admixture conforming to IS-6925 and BIS-9103 (Admixture of make MBT, SIKA, FOSROC, CICO, PROTECT) may be permitted as directed & approved by Engineer-in-charge subject to satisfactory proven use, manufacturer's certificate and laboratory tests as applicable. The decision of Engineer-in-charge shall be final in this regard. Admixtures generating hydrogen, nitrogen etc. shall not be permitted.

## **7.0 STRUCTURAL STEEL FOR SUPER STRUCTURE OF RAILWAY BRIDGES/ROBs/RUBs/FOBs:**

- 7.1** The Structural steel for above works is to be procured from primary producers having integrated steel plants namely RINL, SAIL, TISCO, IISCO and JINDAL (JSW) or as per latest RDSO guidelines and shall conform to stipulated BIS /IRS Specifications applicable.
- 7.2** Before use, contractor/s will be required to get the test certificate from the manufacturer pertaining to the various quality tests on steel reinforcement as specified in the relevant BIS Code.
- 7.3** In addition, Railway will also take sample during the course of work at requisite frequency and get the steel tested to ascertain its conformity to the laid down Specifications at contractor's cost. Frequency of testing shall be as prescribed by the relevant Code.
- 7.4** For Railway Bridge Steel super structure, the Quality Assurance Plan (QAP) and Welding Procedure Specification Sheet (WPSS) shall have to be got approved from RDSO before starting the work. However, for ROB/RUB/FOB steel superstructure, the QAP & WPSS will be got approved from Railway. All welds shall be done by SAW process (automatic/semi-automatic). MIG welding or MMAW may be done only for welds of very short run or of minor importance or where the access of the locations of welds does not permit automatic /semi-automatic welding.
- 7.5** In drawing whenever Fe410/B or E250-0B is mentioned, it shall be treated as E250- QB0 as per IS2062.

## **8.0 REINFORCEMENT STEEL:**

- 8.1** All reinforcement steel shall be procured as per specification mentioned in BIS document-IS:2062. Independent test shall be conducted, wherever required to ensure that the material procured conform to the specifications.

The steel shall be procured from only those firms, which are established, reliable, indigenous and primary producers of steel, having integrated steel plants (ISP), using iron ore as the basic raw material and having in-house iron rolling facilities, followed by production of liquid steel and crude steel, as per ministry of steel's guidelines.

The reinforcement steels for railway projects/contracts is to be procured from approved primary producers having integrated steel plants namely TISCO, SAIL, RINL, IISCO, Jindal-Panther and shall confirm to stipulated BIS/ IRS as applicable.

- 8.2** Reinforcement steel bars shall normally be the TMT Steel bars or cold twisted deformed bars.
- 8.3** Before use, contractor/s will be required to get the test certificate from the manufacturer pertaining to the various quality tests on steel reinforcement as specified in the relevant BIS Code (IS:1786).

**8.4** In addition, Railway will also take sample during the course of work at requisite frequency and get the steel tested to ascertain its conformity to the BIS Specification at contractor's cost. Frequency of testing shall be as prescribed by the relevant BIS Code.

9. USE OF RMC (Ready Mixed Concrete): In such contracts, the contractor shall preferably set up his own suitable size RMC plant at site or shall make suitable exclusive arrangement close to the site to ensure high quality RMC supply. The RMC plant shall be inspected and approved by Dy.CE/C. The accepted rates of items of RCC/PSC/CC in such contracts shall be deemed to be for RMC. Nothing extra shall be payable for RMC in above category of works. However, if RMC is not feasible in certain isolated portions of work, then Automatic Weight Batcher with arrangement of batch slips as approved by Engineer-in-charge in such isolated locations/portions.

9. (A) **Methodology for construction of Minor Bridges in Doubling & New Line:**

- a. Earthwork in embankment will be completed and compacted fully as per specification. Cutting will be done to lay minor bridges. Only Granular material will be used for back fill.
- b. Lean concrete/PCC will be laid by weigh batching/RMC at site.

9.1 **In case of minor bridge on Doubling:**

- a. Reinforcement of the bridge will be laid/bind at the site.
- b. **Shuttering plate-5mm thick will be used for construction of minor bridges.**
- c. **Ready Mixed concrete (RMC) produced at contractor's plant or taken from outside, shall be approved by Engineer-in-charge for the concreting of minor bridges. The contractor shall preferably set up his own RMC plant at site or shall make suitable arrangement, close to the site to ensure high quality RMC supply. The RMC Plant shall be inspected and approved by Dy. CE/C's. The accepted rate for RCC/PSC/CC items shall deem to be for RMC. Nothing extra shall be payable for use of RMC. However, if RMC is not feasible in certain isolated locations, then Weigh Batching Plant Concreting can be allowed with the approval of Chief Engineer in such isolated locations/portions.**

9.2 **In case of minor bridge on New Line:**

9.2.1 Procedure will be the same as clause mentioned above.

9.2.2 Minor bridges will be precast in the casting yard and lead to the site. Ready Mixed concrete (RMC) produced at contractor's plant or taken from outside, shall be approved by Engineer-in-charge for the concreting of minor bridges. The contractor shall preferably set up his own RMC plant at site or shall make suitable arrangement, close to the site, to ensure high quality RMC supply. The RMC Plant shall be inspected and approved by Dy. CE/C's. The accepted rate for RCC/PSC/CC items shall deem to be for RMC. Nothing extra shall be payable for use of RMC. However, if precast Minor Bridge is not possible at certain location, Cast-in-situ Minor Bridge with RMC. Weigh Batching Plant Concreting can be permitted with the approval of Chief Engineer. Further, if RMC is not feasible in certain isolated locations, then Weigh Batching Plant Concreting can be allowed with the approval of Chief Engineer in such isolated locations/portions.

9.3 The specifications of RMC shall conform to IS: 4926-2003. The RMC plant shall be got inspected and approved by the Dy. CE/C concerned.

9.0 **(B) Other Concrete Structure i.e. Major Bridges/Important B ridges/Retaining Walls etc.**

While lean concrete/PCC will be laid by Weigh Batching/RMC. Other concrete i.e. RCC/MCC will be done with RMC. However, if RMC is not feasible in certain locations, then Weigh Batching Plant Concreting can be allowed with the approval of Chief Engineer in such isolated locations/portions.

## **10.0 CONTRACTOR'S RESPONSIBILITY FOR TEMPORARY WORKS/ MATERIALS, SITE OFFICE AND FIELD LABORATORY.**

- 10.1 The contractor shall from time to time provide at his own cost all dams, cofferdams and all other temporary works of whatever nature and temporary materials necessary for the construction, completion and maintenance of the works which are the subject of the contract and shall from time to time submit for the information of the Engineer, drawing showing in detail, the type and construction of temporary embankment and other works which he proposes to adopt and construct and the exact position in which he proposes to construct and employ them during the progress of the works as directed by the Engineer, furnish particulars and drawings of any other temporary works and details of other temporary materials in use for the sufficient security and safety of all embankment, temporary railway connections and other temporary works or temporary materials which he may construct and/or employ and for all claims for damage to property or injury to persons arising out of any failure or accident to such materials from whatever cause such damage, injury, failure or accident may arise or happen and shall replace, construct, repair and maintain the whole or such embankments or other temporary works or temporary works or temporary materials until they are certified by the Engineer to be no longer required for the purpose of the contract.
- 10.2 Dewatering or any other suitable arrangements may be required for carrying out the foundations of works and part of the sub structures up to water level. It should be clearly noted that nothing extra shall be paid for all these arrangements and rates are deemed to be inclusive of all labour and materials and working under water etc including timbering, shoring, strutting etc. if required. However, extra rate, wherever applicable as per USOR/DSR, might be paid for items of works executed below water level.
- 10.3 For the works costing more than 8 Crores, the Contractor should construct the temporary site offices & toilets for the proper working of Railway staff at each site, of appropriate size commensurate with the magnitude of work but not less than 15 sqm. & not more than 50 sqm & also provide all necessary furniture, almirah, clock, display boards, phones, curtains, computer, printers, electricity, fans, AC etc. for the use of Railway staff, within 03 months of acceptance. The drawing for temporary office arrangements shall be approved by Railway. However, this office will be the property of the contractor and he can take back the released material after completion of work. Failure to provide site office shall attract a penalty of Rs 25000 per month at each site, recoverable from running bill.
- 10.4. The Engineer shall be at liberty to modify any or all of the drawings submitted by the contractor in connection with any of the aforesaid temporary works and the execution of such temporary works shall not be commenced until the said drawings or modified drawings have been approved. But examination by the Engineer of the contractor's drawings or any approval expressed by him with regard to the rate, or to the materials, thereof or therefore either with or without modification shall not absolve or relieve the contractor from any of his liabilities in connection there with under the contract.
- 10.5 The contractor shall before handing over the works or any part thereof to Railway, dismantle and remove all temporary works and temporary materials but such removal shall not be effected without the previous written approval of the Engineer and the contractor shall comply with the directions, if any, given by him as to the method of removal and/or disposal.

## **10.6 SETTING UP OF FIELD LABORATORY**

For works costing above 5 crores, the Contractor shall be required to set up a well-equipped field laboratory at each site of suitable size in proportion to the magnitude of work and to suit the nature of work, at his own cost at the work site which shall be open for use and inspection by the Railway at any time. The laboratory shall be equipped with necessary equipments as directed by Engineer, to carry out the various tests required based on nature of work involved & their conforming to relevant codal provisions and specifications. All the pressure gauge, machines, equipments and other measuring equipments of the laboratory shall be of BIS approved makes and will be got checked / calibrated regularly as directed by the Engineer and necessary certificate furnished to the Engineer by the contractor. The contractor shall render all reasonable assistance and help in carrying out the checks and tests. In contracts having quantity of earthwork more than 2 lacs CUM, the contractor will be required to arrange the nuclear testing gauge of approved make to measure the in-situ moisture content and field density.

All the equipments, machinery etc. shall be kept in good working conditions. The cost of setting up the laboratory, equipping and maintaining the same including the cost of Electricity/lights & conducting of tests on materials and cubes shall be borne by the contractor.

Failure to provide Field Laboratory within 2 months of commencement of work, shall attract a penalty of 25000 per month at each site, recoverable from the running bill.

#### **11.0 APPROVED BRANDS (Except Cement & Steel)**

The contractor shall use the following items of approved makes only, as given below:-

##### **Paint, Primer and Cement Paint**

- A. Asian
- B. Nerolac
- C. Berger

##### **MS Pipe/GI Pipe**

- (a) A Jindal
- (b) TATA
- (c) Modi

#### **12.0 ROUTINE TESTS AND ADDITIONAL TESTS**

Routine tests on various materials shall be carried out as per the "IR Unified Standards Specifications for works & materials" or the relevant BIS Codes. In addition to the tests required under clauses thereof, the Engineer or his representative may order tests to be carried out by an independent person appointed by him at such place or in such laboratory as he may determine in accordance with the appropriate clauses of relevant Standard Specifications and the cost of such tests shall be borne by the contractor.

#### **13.0 INSPECTION OF MATERIALS**

13.1 Whenever the Engineer or his representative gives notice to the contractor that materials are to be inspected at the site, the contractor shall having regard to the inspection, test or examination required, give to the Engineer or his representative sufficient notice of such materials being ready for inspection.

13.2 Delay to works arising from the late submission of such notice will not be acceptable as reason for delay in the completion of the works.

#### **14.0 REJECTION OF MATERIALS**

14.1 Factory made material shall have to be tested before leaving the manufacturer's premises. However, appropriate materials may also be tested on the site and they may be rejected if found not suitable or not in accordance with the specifications, notwithstanding the result of tests at manufacturer's works or elsewhere or test certificate.

14.2 The Engineer or his representative shall have the right to order, at any time, that any construction materials which do not meet with his approval shall not be used in the works. Such rejected materials shall be removed from the site by the contractor at his own expenses, notwithstanding any prior approval which might have been given earlier. Once a particular material is rejected by Engineer, an entry to that effect should be made in material passing register.

14.3 The instructions to the contractor to remove the rejected material within reasonable time as given by the Engineer should be complied by the contractor/s at his own cost.

14.4 In case of default on the part of the contractor in removing rejected materials within the time specified in notice, the Engineer shall be at liberty to have them removed by other means at the cost of the contractor. In addition, a penalty of upto 50,000/- per case for above default may also be levied on contractor.



## **14.5 MISCELLANEOUS**

The railway shall not be responsible for any loss or damage to the contractor/s men, materials, equipment, tools and plants etc. from any cause whatsoever. No claim for idle labour, idle machinery and plant etc., on any account will be entertained. Similarly, no claim shall be entertained for business loss or any such loss.

## **15.0 TIMELY NOTICE FOR INSPECTION OF FOUNDATIONS ON WORKS TO BE COVERED UP:**

The contractor shall give notice to the Engineer when and as soon as the excavation of any portion of site for obtaining foundation or bottom, whether above or below water, has reached the depth and width shown on the drawings. The contractor shall also give further notice to the Engineer, when ever any foundation or bottom is ready for inspection and whenever it is necessary to cover up a work in respect of which previous inspection is desired by the Engineer, so that the engineer may inspect the same before it is covered up. No foundation or bottom of work shall be covered up or filled or built upon without the previous consent in writing of the engineer. In default of such notice and consent in writing aforesaid, the foundation or bottom of work shall on the order in writing of the Engineer, be uncovered and any filling put in or work built thereon be removed or pulled down by the contractor at his own cost.

## **16.0 GENERAL**

- 16.1 The Railway shall not be responsible for any loss or damage to contractor's men, material, equipment, tools and plants etc. due to any cause what so ever.
- 16.2 If any work (whether temporary or permanent) or materials, the value of which has been included in an on account bill is destroyed or damaged or has/have, for any other reasons, to be replaced or restored by the contractor, the value of the work or other materials as destroyed may be recovered by the railway administration from any payment due to the contractor or may be recovered at any time from the contractor as debit due to the contractor and no payment made by the Railway to the contractor after the aforesaid amount becomes due and recoverable shall in any way prejudice Railway's right for lawful recovery.
- 16.3 The contractor will ensure that if minimum water way of the bridge is blocked during the course of construction then such blockage is removed by him at his own cost before the middle of June ever year or as directed by the Engineer. Any damage to the bridge on this account will be the contractor's responsibility.
- 16.4 In any case, in which by virtue of section 20 (a) and 21 (4) of the Contract Labour Regulation and Abolition act, 1970, the Railway is obliged to provide amenities and/or pay wages to labour employed by the contractor directly or through petty contractor/s or sub-contractor/s under this contract, then the contractor shall indemnify the Railway fully and the Railway shall be entitled to recover from the contractor, the expenditure incurred on providing the said amenities and/or wages so paid by deducting it from the security deposit or from any sum due to the contractor provided that if any dispute arises as to the expenditure incurred by the Railway or provision of the said amenities, the decision of the Engineer thereof shall be final and binding.
- 16.5 The contractor shall arrange for effective technical supervision of the work and shall be represented by the authorized representative at the site of work during the currency of the contract. He will arrange to receive all the correspondences at the site of work during execution of work.
- 16.6 No claim for extra payment shall be entertained on account of interruption to work due to rain, floods, delay in arranging closure of water channels etc.
- 16.7 The pathways for the piers in water and elsewhere will have to be made and maintained by the contractor and nothing extra shall be payable on this account.
- 16.8 There may be a water supply/sewerage/any other underground/overhead line passing at the site of work and any delay in its shifting/adjusting will not entitle the contractor to any claim whatsoever.
- 16.9 Work will have to be done in close co-operation with the other departments/agencies if any.
- 16.10 Contractor shall protect the site of work right from start at all times by means of wooden bamboo/ballies suitable fencing/barricading works. steel / RCC posts and duly painted M.S. sheets. .The height should not be less than

1.8 metre and shall be strong enough to prevent un-authorized entry etc. The track must be protected with suitable fencing as per direction of Engineer in charge

#### **16.11 NOTICE TO PUBLIC BODIES**

The contractor/s shall give to the municipality, police and other authorities, all notices that may be required by law and obtain all requisite licenses for temporary obstructions, enclosures and pay all fees, taxes and charges, which may be levied on account of his operations while executing the contract. He should make good any damage to adjoining premises whether public or private and supply and maintain any lights etc. required at night. Nothing extra shall be payable on any such account and accepted rates of various items in the schedule of items, rates and quantities shall be deemed to cover any such aspect.

#### **17.0 SAFETY MEASURES/PRECAUTIONS AND PENALTIES FOR VIOLATIONS**

- 17.1 Contractor shall take all precautionary measures in order to ensure the protection of his own personnel, machinery and equipment moving about or working on the railway yard/premises and shall have to conform to the rules and regulations of the Railway. If any unforeseen accident or injury happens at site of work, the contractor shall be solely responsible for the same. If and when in the course of the work, there is likely to be any danger to persons in the employment of the contractor due to running traffic while working in the railway yard/premises, the contractor shall apply in writing to the Railway to provide flagmen or lookout men for protection of such persons. The Railway will however decide as to whether it is necessary to post such flagmen for various types of work and also the number of such men required to protect the gang or gangs of the contractor/s working at site. The Railway shall remain indemnified by the contractor in the event of any accident occurring in the normal course of work, arising out of the failure of contractor or his men to exercise reasonable precautions at all places of work whether or not the Railway decides to post flagmen at any particular site of work. Notwithstanding the above provision, it should be clearly understood that the safety of men and material at the worksite will be the sole responsibility of the contractor.
- 17.2 The contractor shall abide by the railway regulations in force for the time being and ensure that the same are followed by his representatives, agents or sub-contractors or workmen. He shall give due notices and training to his employees and workers about provision of the above para.
- 17.3 While working within station limits especially on passenger platforms, the contractors shall ensure that at all time sufficient space is left for free movement of passenger traffic. He must cover and/or barricade the excavations carried out in such areas and continue to maintain these till the work is completed with a view to avoid any accident to public or to railway staff or his own workmen, machinery and equipment.
- 17.4 The work must be carried out most carefully without any infringement of the Indian Railway Act or the General and Subsidiary Rules in force on the Railway in such a way that they do not hinder to railway operation or affect the proper functioning or damage any railway equipment structure or rolling stock except as agreed to by the Railway provided that all damages and disfiguration caused by the contractor to any railway property must be made good by the contractor at his own cost failing which cost of such repairs shall be recovered from the contractor. The work must be carried out in the yard without any infringement to the Schedule of Dimension applicable for BG as issued by the Railway Board. It will be responsibility of the contractor to ensure that there is no infringement to the track which will affect the smooth and efficient running of traffic.
- 17.5 Moreover, if at any time the works to be carried out directly concern the safety to trains & locos, the contractor's staff must comply fully with the railway regulations given to him by authorized railway staff. The contractor's employee and workers may for no reasons operate an installation concerning train safety or train movement. They shall notify the authorized representative of the Railway who will take all necessary steps in this regard. Special attention of contractor/s is drawn to relevant clause of General conditions of Contract, 1999 and advised to take all precautions for the safety of public, railway staff, property and his own personnel.
- 17.6 If the work is to be executed in proximity of the running railway track, the contractor will be required to follow all precautions and carry out all works that may be necessary to ensure the safety of the running track/trains, without imposition of any speed restriction thereon as may be directed by the Engineer or his authorized representative. No claim whatsoever will be entertained for either any inconvenience or interruption caused to the contractor or for the rescheduling of the operations or for any other reasons on this account.

- 17.7 The contractor shall be responsible for safe custody of tools and for the safety of his labour. He should ensure that labour on work removes their tools clear of the track on the approach of any trains. After the day's work, the contractor should ensure that the tools are deposited in proper tool box before the labourers proceed for their home. Tool issued should not be allowed to fall in unwanted hands who can tamper with the railway track. The contractor shall employ suitable supervisor to supervise the work at site. Though all the work relating to the safety of running trains shall be executed under railway supervisor, presence of qualified supervisor from the contractor's side is a must at the site of work.
- 17.8 In case of failure to adhere to above provisions or if unsafe practices/ safety violation by contractor/his staff are noticed at the site of work, the contractor shall be levied with a penalty of Rs. 20,000/- for the 1<sup>st</sup> incident, Rs. 50,000/- for the 2<sup>nd</sup> incident and Rs. 1,00,000/- for subsequent such incident. Repeated safety violations shall become a valid ground for initiating the contract termination proceedings under clause-62 of GCC.
- 17.9 In the event of occurrence of an accident at the work site, a departmental enquiry shall be held and in case it is established that the accident has occurred on account of contractor's negligence or the negligence of his men, penalties up to an upper limit of 10% of the total cost of the work shall be imposed on the contractor. Further, the railway administration reserves the right to terminate the contract with immediate effect if the contractor is found responsible for causing an accident after giving "show cause notice/notices" to the contractor in addition to lodging of criminal case under Railway Act/IPC.
- 17.10 In the event of contractor not completing the work or leaving if unsafe at the end of day's work, warranting speed restrictions to be imposed, track shall be attended by the Railway immediately at the contractor's cost without any further notice. In addition to the labour cost recoverable from the contractor, supervision charges @ 12 ½% and train detention charges @ Rs 5000/- every half hour of delay or part thereof shall also be recovered.
- 17.11 Contractor must provide for cable detector equipment for assistance to Railway in tracing of cables prior to execution of work for verification of cable layout plans at site & all steps to be taken for ensuring safety of cables while working. In case of any damage to OFC/Cable occurred due to fault of contractor, a flat penalty of Rupees One Lac will be imposed. (Ref:- CAO/C's L/No.74- W/O/WA/Pt. X/CP dt. 2.8.2007).
- 17.12 Following annexures enclosed with these special conditions site data & specifications will form an integral part of the contract.
- Annexure - 1 Attached. (Para 826 of IRPWM correction slip No. 69 dt. 23.05.2001).
- Annexure – 2 Attached (Training to Supervisors and operators of contractor).
- Annexure – 3 Attached. (Safety compendium).
- Annexure–4 Safety precautions & measures to be observed during execution of ROB/RUB works. (Rly. Board's letter No. 97/CE-1/BRO/158(Policy) Pt. II dt. 16.07.2009).
- 18.0 **GENERAL RESPONSIBILITY AND LIABILITY OF CONTRACTOR:**
- 18.1 Contractor/s shall be responsible for any type of structural damage to property or injury caused by work or his workmen to persons, animals, or things and shall indemnify the Railway in-respect thereof and shall be held entirely responsible for all works carried out by him until it is finally taken over by the Railway and he will be liable to be called upon to make good any damage or loss which may occur to the bridge work by inclemency of weather, flood etc or due to any other cause during entire period until the work is taken over.
- 18.2 Examination or approval by the Railways of any drawings or other documents submitted by the contractor shall not relieve the contractor of his responsibilities and/or liabilities under this contract.
- 18.3 Notwithstanding the specifications and conditions stated in the contract, the contractor shall keep Northern Railway authorities fully indemnified and free from all liabilities and risks consequential to any lapse on his part in respect of material quality, standard of workmanship, accuracy of fabrication and the like. He shall provide all labour and material required for execution of the work as per listed standards and in absence of any IRS & BIS specifications to the relevant British / American standards.

18.4 Latest edition of relevant Codes including upto date correction slips, on date of submission of tender/negotiated rates shall govern. These Codes of Practice are available from the Manager, Government of India publication Branch, Patiala House, New Delhi and Director, Indian Standards Institution, Manak Bhawan, Bahadur Shah Zafer Marg, New Delhi.

18.5 Contractor must have one copy of each relevant code at site as applicable for ready reference of site Engineer / other inspecting officials.

## **19.0 SCHEDULES FOR TIMELY COMPLETION OF WORK AND PENALTY FOR DELAYS**

19.1 The whole work shall be completed within the stipulated completion period from the date of issue of acceptance letter.

19.2 The sequence in which the various works & activities are programmed & scheduled to be carried out shall be prepared by contractor in the form of CPM/BAR charts and will be submitted to Railway within 30 days of the allotment of the work and the same shall be got approved from the Contract Signing Authority.

### **19.3 Mid-term progress review and token penalty for slow progress:**

The contractor shall be required to maintain proportional progress in accordance with the Bar Chart/CPM chart approved by the Railway. During the course of work, the progress will be reviewed every 6 months, and if the progress achieved by the contractor is found to be significantly lagging behind the proportional progress shown in the approved schedule due to reasons entirely attributable to the contractor, than a token penalty of upto Rs 1,00,000 per month of delay, can be imposed by the contract signing authority on the contractor after issuing a 15 days "show cause notice". However, the penalty so imposed, shall be waived off, if the contractor achieves the scheduled progress as per approved bar chart/CPM chart in the subsequent quarters.

## **20.0 RECORDS OF CONSTRUCTION WORK:**

20.1 The contractor is required to take and supply to Engineer-in-charge, coloured photographs and films on construction activities including the one prior to the work.

20.2 The coloured photographs shall be taken by the contractor of all the construction activities pertaining to the work at regular intervals as directed by Engineer-in-charge. Three sets of 5" x 7" prints of each snap shall be supplied. Out of the above, the contractor shall be required to supply, as directed by Engineer-in-charge, blow up size colour prints of upto 36" x 36" size upto 5 photographs of each important site (minimum 03 copies of each). The negatives of all the photographs taken shall also be supplied to the Engineer-in-charge. The contractor shall show extreme promptness in taking, supplying of the photographs on directions of Engineer-in-charge.

20.3 All the records shall be maintained in hard copy as well as in soft format online in suitable cloud storage and access to be provided to railway at all times.

20.4 All the cost of reels, taking and recording, developing and printing, cloud storage etc. shall be deemed to have been included in rates quoted against various items and nothing extra shall be paid for the items of work under this clause as above.

20.5 The Railways shall have full ownership and copy right of all these photographs, hard copies & soft copies and the contractor/ tenderer shall indemnify the Railways against any claim of any sort. The contractor shall maintain accurate plans and charts showing the dates and progress of all main operations and the Engineer shall have access to this information at all reasonable times. Records of tests shall be handed over to the Engineer's representative after carrying out the tests.

## **21.0 SITE REGISTERS:**

The following registers will be maintained at site by the contractor/s:

### **A. Site Order register:**

The contractor shall promptly sign orders given therein by the Engineer or his representative or his superior officers and comply with them. The compliance shall be reported by the contractor to the Engineer in reasonable time so that it can be checked / verified.

**B. Steel register**

This register will be maintained to record the receipts of steel items and details of reinforcement and members wherever steel is used.

**C. Labour register:**

This register will be maintained to show daily strength of labour in different categories employed by the contractor.

**D. Plant and machinery register:**

This register will record daily particulars of machinery with the contractor and will be signed jointly by the Engineer's representative and the contractor.

- i. Compaction registers (for Earthwork in filling)
- ii. Soil samples test register (for Earthwork in filling)
- iii. Quality control registers for various materials
- iv. Cube testing register.
- v. Daily progress register.
- vi. Hindrance register: This register will maintain the number of days when work could not progress / remained suspended and reason thereof. The list given above is not exhaustive, contractor may be asked to maintain additional registers, if required by Engineer-in-charge.

**22.0 INTERRUPTION OF WORKS DURING MONSOONS:**

The contract period may extend over a monsoon and the stipulated completion period is inclusive of the monsoon/rainy season. The contractor should, therefore, plan and prepare his work keeping this fact in mind.

**23.0 CONSTRUCTION EQUIPMENTS:**

- 23.1 The contractor shall arrange and operate at his own cost, all necessary tools, plants, Machineries and equipments necessary for successful and timely completion of the work.
- 23.2 If in the opinion of the Engineer, equipment/plants brought by the contractor are not suitable for the work concerned, the Engineer shall have the right to order the contractor to replace them by suitable plants/equipments. In the interest of public convenience, the Engineer may insist on a specific way of execution of the work.
- 23.3 The contractor shall be required to give a trial run of the equipments for establishing their capacity to achieve the laid down specifications and tolerance to the entire satisfactions of the Engineer before commencement of any work.
- 23.4 All equipments provided shall be of proven efficiency and shall be operated and maintained in a manner acceptable to Engineer-in- charge.
- 23.5 No equipment shall be removed from the site without prior permission of the Engineer- In-charge.

**24.0 MACHINERY AND PLANT.**

- 24.1 The contractor will be entirely responsible to arrange all necessary machinery including concrete mixers, weigh batcher, vibrators, compressors, pumps, pneumatic equipments, dredges, derricks, cranes, service girders, staging, motor vehicles, trailer, tools and plants and their spare parts required for sufficient and methodical

execution of work and transport them to the site of work. Delay in procurement of such items due to their non-availability on account of import difficulties or any other cause whatsoever, will not be taken as excuse for slow or non-performance of the work. Safety of plants and machinery will be the responsibility of the contractor and for any loss due to any cause or wash away in flood, or otherwise, no claim will be entertained on this account whatsoever.

- 24.2 The Railways may give on hire to the contractor any plant or equipment, if available. But it will not entertain any claim due to the railway failure to do so nor can the Railway's inability to supply such plant taken as an excuse for slow progress or non-performance of the work.
- 24.3 If, any plant is loaned by the Railway to the contractor on hire, charges will be levied, as detailed below and separate agreement will have to be entered into before the plant is issued.
- (A) The cost of the plant for the purpose of calculating the hire charges shall be its book value plus freight charges and all other incidental charges to which supervisions charges at the rate of 12-1/2% on total cost will be added.
- (B) The charges per annum will be calculated at the following rates on the cost of plant as per (A) above.
- i) Ordinary repair and maintenance charges 5%.
  - ii) Interest on the capital cost at the ruling rate, dividend payable by the Railways to the General Revenue.
  - iii) Special repair and maintenance charges at 10%. iv) Depreciation charges at the following rates  
Light plant - 16% per annum.  
Heavy plant - 10% per annum. Special plant - 6% per annum.  
The classification of the plants shall be as per para 1202 Indian Railway Bridge Manual 1998.
- (C) An additional 10% on the total (i) to (iv) above to meet contingencies.
- The hire charges per day shall be arrived at by dividing the annual hire charges vide (B) above by 250 which shall be assumed number of working days in a year for this purpose. These hire charges will be payable from the day, the plant is handed over till it is returned by the firm/contractor to the Railways. However, during this period if the plant remains out of order for reasons beyond the control of the hirers or is sent for periodical overhaul, such periods shall not be counted for levy of hire charges provided a certificate to that effect is given by the Engineer. In case of any difference of opinion between the Engineer and the contractor, the decision of the Dy. Chief Engineer/Const. will be final and binding.
- 24.4. Running expenses including fuel, lubricants and stores and labour if supplied by the Railway will also be paid by the contractor at the cost to be determined by the Railway. In general, the contractor should make his own arrangements for the fuel, transporting to the site of work and storing for use as per prescribed rules.
- 24.5 Staff and stores for running the plant may be supplied by the contractor with approval of Engineer. The staff must be properly skilled to operate the plant concerned.
- 24.6 Items of plant leased to the contractor shall be handed over to him at the railway workshop or at any place convenient to the Railway. Carriage charges, hire charges and other incidental charges including leading, loading and unloading etc. to the place of work as also back to the place of delivery or the railway workshop at nominated place, as required by the Railway, when a plant is no longer required by the contractor, will be borne by the contractor.
- 24.7 Availability of vehicle: Contractor shall provide 02 four wheeler (TATA SUMO/MAHINDRA BOLERO or similar) in good running condition at his own cost for the use of Railway Supervisors/Staff for day to day testing of materials/ liaising with State Govt. Offices and other incidental works. Vehicle will run for approx. 1,500 Km. per month till the completion of work else recovery shall be made @ Rs. **50,000/-** (Rs Fifty thousand) per month for the period of absence on prorata basis.
- 24.8 The contractor shall provide **03 Desk Top computer** (complete with Monitor & Printer A- size) minimum I-7 or higher version having MS Office software along with experienced operator having good typing speed (minimum 40 wpm) till completion of work, else recovery shall be made @ Rs. **45,000/-** per computer (Rs Forty five thousand per computer) per month for the period of absence. After completion of work, the computer will be the

property of the contractor.

- 24.9 The contractor shall provide one good quality Digital Camera of NIKON/CANON make e.g. Model No. Cool Pix P-520 from NIKON or similar for the use of site Engineer free of cost. The Camera will be property of the Contractor after the completion of work.

**25.0. Method Statement (Applicable for all tenders of LHSs, ROB, P-Way irrespective of cost and for all other tenders costing more than 5 Crores)**

The contractor should identify the various major activities required for successful completion of the work and submit the method statement for each major activity before start of activity for approval of Railway. The method statement shall be submitted activity wise and should broadly contain the following:

1. Purpose
2. Scope
3. List of references used for preparation of method statement and that required during execution of activity.
4. The responsibilities of its staff involved in execution
5. The detailed methodology of execution for the activity including its sub activities step by step along with sketches/drawings/photographs/other relevant details, as required.
6. List of various equipments/tools/plants, their capacity and numbers required.
7. List of technical persons to be deployed for supervision.
8. List of type of other staff along with their numbers.
9. Tests required/to be carried out, if any, before start of activity, during activities or after completion of activity, if any, duly referring to various IS, IRS, IRC, other codes as applicable along with acceptance criteria for various tests.
10. Quality Assurance Plan with Quality Control measures.
11. Various Performa"s required for recording of data/tests results/observations during the activity for ensuring proper Quality Control.
12. Check list to be observed at various stages of activity as applicable.
13. Safety measures to be adopted at site.
14. Any other details as considered necessary for specific activity.
15. Contractor should submit method statement well in advance of likely start of activity. Contractor shall not have any claim for extension of time of completion due to delay in approval of method statement.
16. Contractor has to arrange for dewatering from the sub soil in case needed during the execution of work. Contractor has to arrange sufficient number of dewatering pumps, pipes, fittings, manpower etc and nothing extra will be payable to the contractor for this activity.

**26.0 RCC BOX PUSHING WORK:**

- 26.1 Procurement/Fabrication of necessary plants and equipment like jacking jigs, jacks, pumps and any other plant equipment required for execution of this work, will be borne by contractor at his own cost.
- 26.2 Casting of RCC box will include fixing of front-end frame/cutting shield/Edge, as per design/drawing submitted by contractor & approved by Railway with all fabricated enabling work. The structural steel work in cutting edge will be the property of the contractor after completion of the work and nothing extra will be paid for providing such end frame/cutting shield/cutting edge.
- 26.3 Design, drawings and casting of thrust bed including pile foundation if required, will be done by the contractor as per their design duly approved by the Railways. The design shall be from reputed consultant/ Technical

institution and will be got approved by the Railway. Contractor has to make his designer available for any clarifications for checking of design/drawings by the Northern Railway and nothing extra will be paid for these visits of design consultant to railway offices or any revision in design or drawings. Payment of items to be done as per relevant USOR/DSR item in accordance with the specifications.

- 26.4 The contractor shall provide 5mm thick steel lining in jacking pin pockets and nothing extra shall be paid on this account. The 5mm thick steel lining shall be the property of the contractor after completion of work. The contractor shall be fully responsible for the safe functioning of the thrust bed. Provision of retaining walls is to be made through thrust bed than modification design and drawing of thrust bed shall be carried out and same to approved from railway for which nothing shall be paid for. The modification of the design and drawing of thrust bed necessitated due to presence of any underground services located during execution of work shall be done by the contractor expeditiously and nothing extra will be paid for the same and the same is to be got approved from the Railway.
- 26.5 The scheme for pushing the box segments through existing embankment shall be furnished by the contractor and same shall be approved by the Railway. For this, all drawings and technical detailing, modus operandi, sequence operations etc. shall be got done from reputed consultants having good experience in this field. However, the pushing of boxes shall be done under running traffic conditions. The contractor shall ensure the stability of the existing embankment during pushing under all circumstances. The temporary supporting of the embankment shall be arranged by the contractor as per site requirements for safety consideration & nothing extra shall be payable on this account.
- 26.6 Earthwork in excavation by manual means in all types of soil for box pushing including disposal of excavated earth outside/within the Railway land as directed by Engineer in charge of the work including all lead and lift is covered in the item of Box pushing and nothing extra is payable.
- 26.7 The item of Box pushing also covers the Design, drawing of the cover sheets/cutting edge, intermediate jacking stations and PPA in case of non-standard layout with design calculations and will be approved by the Railway.
- 26.8 During the jacking of precast RCC boxes to form the opening under running traffic conditions, precaution will be taken to control deviation in level as well as alignment. However, in unavoidable circumstances based on soil strata, the maximum allowable deviation of the precast boxes at any time from the theoretical alignment will be limited to 300mm horizontal and 150mm in vertical direction.

Recovery for the deviation over and above the maximum allowable deviation limit upto a certain limit for which the decision of the Engineer in charge shall be final and binding, shall be made at the following rates:-

- (i) Rs. 10,000/- (Rupees ten thousand only) per ten mm or part thereof in horizontal direction
- (ii) Rs. 10,000/- (Rupees ten thousand only) per ten mm or part thereof in vertical direction

26.9 Deleted.

26.10 Deleted

26.11 Thrust bed shall be cast in such a way that it does not endanger safety of the existing/new embankment/Railway track. The contractor shall do the protection of the embankment and nothing extra will be paid on this account.

26.12 **Protection Arrangement:** Pushing below track will be carried out at zero earth cushion using protection arrangement. The standard drawing of protection arrangement is available in office of [Dy.CE/C](#) shall be as per RDSO plans for perusal of prospective bidders, However, in case of non standard layout i.e. for location on crossovers/P&C, the Design & drawings to be submitted by Contractor at his own cost and to be got approved from Railways and nothing extra shall be paid on this account. Before start of pushing during traffic block, track will be dismantled, protection arrangement will be placed on formation and track will be laid on protection arrangement for passage of trains. The track line and level is to be maintained (as per extent instructions) during pushing for the speed of 20 kmph by providing rubber/ steel packing between protection arrangement and track sleepers for which sufficient packing is to be arrangement by the contractor in advance and nothing extra will be paid for this.



**Protection arrangement provided on formation for track support and anchoring of protection arrangement to the thrust bed only will be paid separately under relevant USSOR/NS item.**

The soil stability in the embankment during the pushing is to be maintained by the contractor. Soil nailing/ grouting may be required for the purpose. The scheme for the same is to be submitted by the contractor as a part of scheme of pushing. Only steel/cement consumed in nailing/ grouting will be paid under relevant USSOR/NS item and nothing extra will be paid.

After completing the pushing, the protection arrangement will be taken out during traffic block and complete track will be linked for passing the train. The released protection arrangement should be properly and carefully dismantled and stacked by the contractor for use on next site. Finally, the released protection arrangement will be property of Railways, if required.

Protection arrangement shall be anchored to thrust bed by the contractor to minimize drag and disturbances of track on the boxes during box pushing operations.

- 26.13 Design & Casting of RCC box will be as per contractor's design & drawing approved by the Railway. Each box will be cast on thrust bed and will be pushed through the embankment Under running traffic condition.
- 26.14 Providing of RCC wearing coat of mix M-35 /M30 on the floor of the RCC boxes with designed slope. Providing longitudinal drainage arrangements within the RCC boxes with about 100mm depth and 150mm wide drain on either side of the boxes with provision of catch water drain at approaches of boxes if required as per drawing approved by Railway.
- 26.15 Construction of footpaths, wheel guards in boxes and parapet wall as per design & drawing supply by contractor but approved by the railway.
- 26.16 During pushing Earthwork in excavation in all type of soils including cutting of road surface/soling/wearing coat and masonry etc. coming in the alignment of RCC box including all lead and lift and disposal of the excavated/surplus earth/malba outside Railway land during the course of pushing is included in the item of Box pushing.
- 26.17 During the course of pushing box, for safe running of rail traffic certain temporary supporting system with provision of R.S. beams/girders/cribs etc. to safeguard the embankment duly approved by the Railways, has to be arranged by the contractor nothing extra will be paid for the same. Contractor shall also ensure that there is no disruption/suspension of road/railway traffic during pushing of the boxes. For any suspension/disruption of traffic due to the fault of the contractor or due to not adopting the safety measures, he/ they shall be liable to pay a penalty of Rs. 1.00 lakh (Rs. One Lakh only) per hour or part thereof for suspension of rail traffic subject to a maximum of 5% of the contract value. The period of disruption of traffic on contractor's account will be decided by the Chief Engineer/Const., Kashmere gate, Delhi and shall be binding on the contractor(s).
- 26.18 Adequate length of thrust bed should be provided so that work of casting, curing, box pushing etc. can be done simultaneously to ensure continuous pushing of box segment one after another. However length of thrust bed should be planned to accommodate full length of box segments to be pushed.
- 26.19 During the execution of work, if any sub soil water is met with, the contractor will make their own arrangements to bail out /pump out such water from the site free of cost. Any unforeseen accumulated water including rainwater, during the progress of work, will be bailed out /pump out by the contractor free of cost and the rates quoted should include all these elements.
- 26.20 Lateral / Longitudinal pushing of boxes from auxiliary to main thrust bed will be required to be done in air for positioning the box segments prior to pushing in embankment as per site condition. No payment for such pushing in air shall be paid.
- 26.21 Necessary provision of mild steel conduit pipe mild steel/cast iron boxes as per Railway's design for electric lighting inside concrete boxes. The cost of this item is included in relevant item of schedule of works and nothing extra will be paid.

- 26.22 Drainage arrangement (for RUB) is to be constructed as per approved drawing.
- 26.23 Necessary provision is to be kept for conduit pipes and junction boxes as per Railway's design for electric lighting inside the concrete boxes. The cost of this item is included in relevant item of schedule of works and nothing extra shall be paid.
- 27.0 **CRITERIA FOR DESIGN OF THRUST BED:**
- 27.1 **Size of Thrust Bed:**  
Adequate length of thrust bed should be provided so that work of casting, curing, box pushing etc. can be done simultaneously to ensure continuous pushing of box segment one after another. However length of thrust bed should not be less than 2/3rd of the pushing length.
- 27.2 **Material:**  
75 mm thick M-10 /M-15 or any other design mix Plain Cement Concrete at bottom. M-30/M-35 or any other design mix Reinforced cement concrete slab with ready mix concrete (RMC). & 50 mm thick M30 cement concrete screed at top.
- 27.3 **Loads:**
- 27.4 **Jacking load:**  
Jacking load required to push the box segment through bank/arch depends on several parameters including several site conditions but for a minimum, the following criteria may be adopted for guidance. However, the overall safety of the structure would be the contractor's responsibility. Frictional resistance between bottom slab of box and the soil in contact, the coefficient of friction shall be taken as  $\tan$ , being the angle of shearing resistance of the soil in contact. When multiplied by the total downward load will give the frictional resistance. Frictional resistance between side walls of the box & soil in contact. The as defined earlier when multiplied by the earth pressure at rest and the dead load surcharge (Calculated as per IRS Sub structure code) would give frictional resistance from side walls. Frictional resistance between the drag sheets on top slab of box and the soil in contact. The total downward load on top slab of box (Track Wt +Wt of earth retained on top) when multiplied by (being on higher side) will give frictional resistance on top.
- 27.5 Passive resistance of soil at front end of Box (cutting edge) 1/3<sup>rd</sup> of the passive earth pressure as calculated by Coulomb's theory vide IRS Substructure code clause 5.7.1.6 shall be taken at rear end of the thrust bed and back side of shear key for calculating stability of the thrust bed.
- 27.6 **Factor of safety:**  
Factor of safety against sliding shall be minimum of 1.5.
- 27.7 **Analysis:**  
The calculated jacking load would induce
- (i) a direct axial thrust on the thrust bed,
  - (ii) a bending moment due to the lever arm of the jacking load.
- 27.8 **Design:**  
The section should be designed by Limit state method as per IRS Concrete Bridge Code.
- 27.9 The structure of thrust bed would consist of a grid of beams on the direction of pushing. Main beams being between Pin Pockets.

**28.0 SUBMISSION OF DESIGN AND DRAWINGS FOR APPROVAL:**

- 28.1 After award of the tender, the contractor shall submit the detailed design calculations for thrust bed in three copies along with the drawings to Railway administration for approval within a period of 1 month after issue of the acceptance letter.
- 28.2 It shall be the responsibility of the tenderer/s to ensure continuous attendance and assistance of his design Engineer's representative and get the design and
- 28.3 After the design and drawings have been approved, the contractor is required to submit six copies of approved design. The original being typed on electronic machine on bond paper, the report being bound suitably on the format being as decided and approved by Engineer-in-charge. The final design report shall be comprehensive text giving all the detail design calculations, brief theory for the basis of design etc. as directed by Engineer-in-charge. The tenderers shall also submit eight copies of approved detailed drawings including one reproducible (tracing) media to the full drawing sheet size 84x60cm as well as 4 sets of drawings reduced to (A-4) size using the standard reduction procedure.
- 28.4 The cost of above will be deemed to have been included in rates, in the relevant NS item of tender schedule, and nothing extra shall be payable.
- 25.5 The tenderer/s shall specially note that, while every effort shall be made to approve the design and drawings expeditiously, no claim shall be entertained on account of delay in approval of design and drawings for whatsoever reasons.
- 28.6 The design and drawings after approval shall be the property of the Northern railway and Northern Railway shall have exclusive right to use and reuse it elsewhere. The Contractor shall have no claim, whatsoever, in this regard.
29. **Ballast: - The ballast will be supplied by the contractor as per prevailing conditions issued by RDSO for supplying of stone ballast**

**30.0 FIRST AID**

The contractor/s shall maintain in a readily accessible place First Aid appliances including adequate supply of sterilized cotton wool. The appliances shall be placed under the charge of a responsible person who shall be trained for the purpose and shall be readily available during working hours.

**31.0 Arbitration Clause**

- 31.1 In the event of any dispute or difference between the parties in connection with this work, arbitration clause No 63 & 64 of Indian Railways Standard General Conditions of Contract, 2022 and instructions to tenderer/s and standard form of contract with replacement of work contract by contractor Architects/Consultant shall be applicable.

**32.0 SUPPLY OF ELECTRIC POWER:**

- 32.1 The Contractor shall be responsible for the arrangements to obtain supply of electric power necessary for the work. He shall preferably arrange his own electric generating set, especially in view of erratic and unreliable electric supply.
- 32.2 The Railway may make available electric power required for the work from the Railway's existing power system, if spare, on terms and conditions to be determined by the Railway provided that the contractor shall arrange at his own expenses to effect the connection, lay additional cables, provide switch gears and do the wiring etc., at his own cost and the contractor shall not be entitled for any compensation for interruption or failure of the electricity. Consumption of electricity at site has to be borne by the contractor at the rates specified by the railway.

- 32.3 The contractor shall abide by the Indian Electricity act and the Indian Electricity rules as amended from time to time.
- 32.4 On request of contractor, Railway will forward the contractor's application for getting electric supply to local authorities.
- 33.0 **LABOUR**
- 33.1 The contractor/s will be held responsible for compliance with provision of various laws, acts and rules & regulations related to contract labour even in respect of labour employed by his/their sub-contractor in the execution of the works contracted by him/them.
- 33.2 The contractor/s shall obtain labour license/registration certificate from the appropriate licensing officer/labour enforcement authority of the area before commencement of the work and shall produce a copy thereof along with the original to the Dy. Chief Engineer, Construction to start the work.
- 33.3 In any case, in which by virtue of provisions of contract labour (Regulation and Abolition) Act. 1970, the railway is obliged to provide amenities and/or pay wages to labour employed by the contractor directly or through petty contractor/s or sub-contractor/s under this contract then the contractor shall indemnify the railway fully and the railway shall be entitled to recover from the contractor the expenditure incurred on providing the said amenities and wages so paid by deducting it from the security deposit or from any sum due to the contractor from the Railway provided that if any dispute arises as to the expenditure incurred by the Railway on provisions of the said amenities, the decision of the Engineer-in-charge shall be final and binding on the contractor.
- 33.4 The railway will not take any responsibility or make arrangements for supply of food stuff to the contractor's staff or his/their labourers.
- 33.5 The contractor/s shall make his/their own arrangements at his/their own cost for supply of water to his/their staff and labour and the Railways undertake no responsibilities for such supply of water to the contractor's staff or labourers.
- 33.6 The contractor/s shall take all precautionary measures in order to ensure protection of his own personnel moving about or working on the Railway premises & shall have to conform to the rules and regulations of Northern Railway. If any unforeseen incident or injury happens to any of contractor's personnel while working the contractor shall be solely responsible for the same.
- 33.7 The Contractor/s shall maintain necessary records such as employment cards, service certificates etc to be displayed on board in accordance with provisions of Contract labour Act and contract labour rules.
- 33.8 Contractor shall make arrangements for good hygiene, sanitation, mask & gloves. Thermal scanning & other items required for precaution related to COVID-19 pandemic as per instructions, circulars issued by Center Government at works sites.
- 34.0 **WATER:**
- The contractor shall be responsible for the arrangement to obtain supply of water necessary for the work at his own cost and rates quoted should take into account the cost of wells or any other arrangements required to be made for procuring water and loading/transporting/conducting water to the site of work, irrespective of the distance from the source. Quality of water in accordance with relevant BIS specifications depending upon the type of work will have to be confirmed. Railway has no source of supply of water so far as construction of this work is concerned.
- 35.0 **INDEMNITY BY CONTRACTOR**
- As per clause 15 of GCC 2022, the contractor shall indemnify and save harmless the Railway from and against all actions, suit proceedings, losses, costs, damages, charges, claims, and demands of every nature and description brought or recovered against the Railway by reason of any act or omission of the Contractor, his agents or employees, in the execution of the works or in his guarding of 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.

36.0 **CONDITIONAL TENDERS**

Conditional tenders are liable to be rejected straight away. Railways reserve the right to reject such tenders summarily without assigning any reasons whatsoever.

**For Pushing/Thrust Bed NOTE:-**

1. Cement, reinforcement steel and earth work in excavation for casting of thrust bed, soil stabilization of excavated face inside box shall be paid separately under relevant items respectively.
2. All RCC work of thrust bed will conform to relevant specifications given in IS -456 -2000
3. Payment schedule of this item is as under: - All the payments of pushing will be done as per USSOR-2021 under relevant items.

Sd/-  
Dy. Chief Engineer/Const.,  
Northern Railway, Chandigarh

## ADDITIONAL SPECIAL CONDITIONS RELATING TO SITE DATA & SPECIFICATION

**NAME OF WORK :** Construction of LHS by Box Pushing technique in lieu of L-Xing No. 19-C at Km 20/10-11 on DUI-LDH section of UMB division, Construction of LHS in lieu of L-Xing No. B-35 on FZR-FKA section, L-Xing No. C-49, A-57, C-70 & C-72 on LDH-FZR section, L-Xing No. S-21 on ASR-ATTARI section of FZR division and other allied works in the jurisdiction of CPM/C/CDG.

1.1	The detailed scope of work shall be same as elaborated in clause 1.0 of special conditions relating to site data & specification of this tender with observing all safety norms.				
1.2	Wherever applicable, tenderer has to take permission/approval from the local bodies /authorities. Railway will give recommendatory letters on demand of tenderer to help the tenderer in this issue but responsibility to obtain such permission will be of the tenderer.				
1.3	It is expected that the contractor is to work in close coordination with other agencies. No additional claim for any restriction of space etc. by working of other agency should be entertained.				
1.4	The contractor should cover the Insurance Policy for the workers relevant clause at site as per GCC as well as cover the workmen compensation policy				
1.5	Any root or branch of tree coming in the way of foundation/pile excavation etc. shall be cut/trimmed by the contractor at his own cost. No extra payment shall be made.				
1.6	Contractor will not be entitled for any claims if any of the items indicated in the schedule is not got done or not given to him.				
1.7	Execution of all items is governed by general and special condition of contract.				
1.8	Rates includes all taxes i.e. sales tax, octroi, excise duty, other levies etc. and all other incidental and unforeseen expenditure if any and no claim shall be entertained in this regard.				
1.9	Contractor shall have to arrange precision measuring equipments like, total station, leveling instrument, staff, calibrated measuring tape etc. during execution of work, as per the requirement and as directed by Engineer- in- charge and no extra payment will be made for the same.				
1.10	Rates includes the charges of mix design of controlled concrete, cube test for checking strength of concrete at site and quantity of cement concrete consumed in cube preparation and it may be noted that mix design shall be got done in any Govt. approved laboratory or any Government Engineering College as per IS Code 10262-2008				
1.11	In case of NS items of reinforced cement concrete/PSC inclusive of cement and admixture, minimum cement content, maximum permissible water cement ratio and desired slump to ensure proper pumping of concrete for different type of members shall be as per following:				
	SN	Item	Minimum cement content (kg)	Max water cement ratio	Slump (mm)
	1	Road over Bridge			
		Piles	400	0.4	150-200
		Substructure & Superstructure	380	0.4	100-120

	2	<b>Railway Bridge</b>			
		Piles	400	0.4	150-200
		Substructure & Superstructure (RCC)	400	0.4	100-120
		Superstructure (PSC)	430	0.4	100-120
	3	<b>Building</b>			
		Piles up to 600mm dia. & 10m	350	0.4	150-200
		Structure	320	0.45	100-120
	The quantity of cement and admixture should be adjusted to ensure proper strength, durability and workability as per site requirement.				
1.12	The tenderer is supposed to estimate the cement consumption at his end before submitting his offer and accommodate the cost of any alteration in cement content over the minimum cement content specified as nothing extra is payable for any increase in cement content during design mix.				
1.13	Material ingredients of concrete shall be as per clause 18.4 of IRC-112-2011 (as updated from time to time.				
1.14	Detail report along with sketches about the work done will have to be submitted by contractor in two (2) copies duly incorporating photographs and video recording of the work done at various stages. Completion drawing prepared in Auto CAD is also to be submitted in 6 BP copies along with the original tracing and in CD.				
1.15	<p>In case of discrepancies in the description or conflicting interpretation of provisions kept in different sections of contract or among various specifications/codes, following order of preference shall be followed:</p> <p><b>Technical Matters:</b></p> <p>(a) Description of the item of BOQ.</p> <p>(b) The specifications mentioned in this document including specifications of USSOR shall be prime governing. Codes/specifications specifically mentioned in this document shall have overriding preference over other codal provisions.</p> <p>(c) Where there is conflict between provisions in IRS &amp; IS specifications, provisions in IRS specifications shall prevail.</p> <p>(d) 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>(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>				

**General/Other than Technical Matters** -For general matters, order of preference shall be as follows:

- a) Description in the item of BOQ.
- b) Provisions contained in " site data and specifications section of the tender document"
- c) Provisions contained in special tender conditions and instructions to tenderer.
- d) General Conditions of Contract.
- e) Provisions contained in code of practice for engineering department.

Sd/-  
Dy. Chief Engineer/Const.,  
Northern Railway, Chandigarh

I/we agree to abide by the terms and conditions mentioned above as well as Regulations for tenders and contracts & General conditions of contract-2022, Unified Standard specifications-2021, the Unified Standard Schedule of Rates-2021 and the Delhi Schedule of Rates-2021 of the Northern Railway as corrected up to date to the extent the later these books are applicable.

Signature of Tenderer



IRPWM C/S NO. 69 DT. 23.5.2001

(Authority RB letter No.98/CE-II/PRA/32, dated 23.5.2001)

A new Para No.826 be added to Chapter VIII of the IRPWM, 1986 to read as under: 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.

- i) The contractor shall not start any work without the presence of railway supervisor at site.
- ii) 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 Railways 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.
- iii) The look out and whistle caution orders shall be issued to the trains and speed restrictions imposed where considered necessary. Suitable flagmen / detonators shall be provided where necessary for protection of trains.
- iv) The supervisor / workmen should be counselled about safety measures. A competency certificate to the contractor's as per Performa annexed shall be issued by AEN, which will be valid only for the work for which it has been issued.
- v) 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.
- vi) Supplementary site specific instructions, wherever considered necessary shall be issued by the Engineer in charge.

Competency Certificate.

Certified \_\_\_\_\_ that Sh. \_\_\_\_\_ P. Way  
 supervisor of M/s. \_\_\_\_\_ has  
 been examined regarding P. Way working on \_\_\_\_\_  
 \_\_\_\_\_ work. His knowledge has been found satisfactory  
 and he is capable of supervising the work safety.

Executive Engineer

Signature of the tenderers

Special conditions of contract

Training to Supervisors and Operators of the Contractor

The Supervisors and Operators of the Contractor proposed to be deployed at work site, which is close to the running track, shall be imparted mandatory training by the Railway about the safety measures to be adopted while working in the vicinity of running track. Engineer in charge of the work shall decide the scale, extent & adequacy of training. In case training is imparted at a recognized Railway training institute, the charges for the same, as decided by Railway shall be recovered from contractor. A competency certificate to this effect to the individual Supervisor / Operator shall be issued as given below, by a Railway Officer not below the rank of Assistant level. No Supervisor / Operator of the Contractor shall work or allowed to work in the vicinity of running track who is not in possession of valid competency certificate.

All the labour, materials, tools, plants etc, required for ensuring safe running of trains shall be provided by Contractor at his own cost.

Competency Certificate

Certified that Shri.\_\_\_\_\_ Supervisor/ Operator of M/s\_\_\_\_\_ has been trained and examined in safety measures to be followed while working in the vicinity of running Railway track for the work \_\_\_\_\_. His knowledge has been found satisfactory and he is capable of supervising the work safely.

This certificate is valid only for the work mentioned in this certificate only.

Signature and designation of the Officer.

Signature of the tenderer/s.

**COMPENDIUM OF INSTRUCTIONS ON SAFETY AT WORK SITES**

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 earthwork 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 in charge for permission giving the type and no. of individual vehicles, names and license particulars of the drivers location, duration and timings for such work / movement. The engineer in charge or his authorized representative will personally counsel, examine and certify the road vehicle drivers, contractor's flagman and supervisor and will give written permission giving names of road vehicles drivers, contractor's flagmen 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:
  - 1.1. The road vehicles will ply only between sunrise and sunset.
  - 1.2. Nominated vehicles & drivers will be utilized for work in the presence of at least one flagman and one supervisor certified for such work.
  - 1.3. The vehicles shall ply 6m clear of track. Any movement/ work at less than 6m and upto minimum 3.5m clear of track centre shall be done only in the presence of railway employee authorised by the Engineer in charge. No part of the road vehicle will be allowed at less than 3.5m from track centre. Cost of such railway employee shall be borne by the railway.
  - 1.4. The contractor shall remain fully responsible for ensuring safety and in case of any accident, shall bear cost of all damages to his equipment's & men and also damages to railway & its passengers.

Engineer in charge may impose any other condition necessary for a particular work or site. (Ref. Rly. Bd.'s letter No.98CE-I/CT/15, dated 13.8.98 Annexure VIII)

- 2.1. Assistant Officer / Sr. scale Officer shall be the overall in charge for the safety at the site of work. It will be personal responsibility of the Inspectors (both in charge and supervisory) to ensure safety.
- 2.2. Contractor shall provide 150 mm thick white line with lime at a distance of 3.5m from centre of existing track. This white line shall be in the entire length where work is going on and/or the vehicles/ machineries are plying along the track. Nothing extra shall be paid for this
- 2.3. Barricading with the help of portable fencing shall be provided in the length where the day's work is to be done in close vicinity of the track. The fencing shall consist of self- supporting steel column connected with at least 20 mm thick red nylon rope. The columns shall be of 1.2m height . This will be placed at a distance of 3.5 m from center line of the nearest track. This shall be paid.
- 2.4. Assistant Officer/ Sr. scale Officer shall issue competency certificate after checking license and their working to all drivers of nominated vehicle /machinery. Inspector at site shall ensure that the driver who does not possess competency certificate will not work at site.
- 2.5. The area between running line and white line shall not be permitted to become slushy and adequate drainage must be ensured at all times.
- 2.6. Machine / vehicles shall ply 6m clear of track and movement / work at less than 6m and upto 3.5m clear of track centre, shall be done in the presence of railway employee authorised by Engineer in charge. The railway employee so deputed shall ensure safety of the track, with banner flags, hand signal lamps and detonators.
- 2.7. If vehicle/ Machinery/ materials are to come within 3.5m of the existing track, work must be done under the presence of an inspector authorised to do safety works. A caution order shall be issued and track will be protected with the banner flags, hand signal lamps and detonators.
- 2.8. Normally, night working shall be avoided. However, in certain areas like Delhi, the night working is unavoidable.

The night working shall be permitted by AEN in writing. One INSPECTOR shall be specifically deputed to supervise the night working. The site /area where night working is to be done shall be adequately lit. Nothing extra shall be paid for this

**(Ref. CAO/C's letter No.62-W/0/4/3/0/W. Spl/Genl., dated 22.5.2000 Annexure-V)**

- 3.0. An authorized OHE staff should invariably be present, when relaying work or any major work on track is carried out, in order to ensure the following points.
- 3.1. Power Block is correctly taken and "Permit to Work" (PTW) is issued.
- 3.2. The structure bonds, track bonds, cross bonds, longitudinal rail bonds etc are not disturbed and if disconnected for the work, they are reconnected properly when the work is completed.
- 3.3. The return feeder connections to the rails at the feeding posts are proper and not disturbed.
- 3.4. The setting distance of the structures is not disturbed affected during the slewing.
- 3.5. The track level is not raised beyond the permissible limits during the work.
- 3.6. Excavation or digging near a mast foundation is done in such a manner that the foundation is not exposed.
- 3.7. The clearance particularly at over line structure is maintained to the required standards.
- 3.8. Precautions for the safety of staff working under the OHE are taken correctly.
- 3.9. The Engineering officials in charge of such major works shall ensure that intimation to their counterpart for OHE maintenance work is given with adequate notice.

**( Ref. Para 20714 of AC Traction Manual, Vol. II, Part. I)**

- 3.10. All staff should be warned that contact within 2 metres (unless protected by the screen) to live portion of 25 KV traction OHE is dangerous and shall be strictly avoided (Ref. G.R. 17.04 and S.R 17 04 (I/a)
- 3.11. No work on overhead lines or in the zone within two metres of any live equipment, shall be carried out unless a regular "Permit to Work" is obtained from the authorized traction staff and line is made dead and earthed

**( Ref. G.R 17 04 and their S.R.A.C.T.M. Chapter – X)**

- 3.12. Before any overhead equipment of bonding is disturbed, provisions of G.R 17.05 and their SRs shall be complied with.
- 4. During the execution of works, unless otherwise specified the contractor shall at his own cost provide materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavation and works and shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property.

**(Ref. Clause 34.1 of GCC 2014)**

- 5. Existing roads or water courses shall not be blocked, cut through, altered, diverted or obstructed in any way by the contractor, except with the permission of the Engineer. All compensation claimed for any unauthorized closure, cutting through, alteration, diversion or obstruction to such roads or water courses by the Contractor or his agent or his staff shall be recoverable from the contractor by deduction from any sums which may become due to him in terms of the contract, or otherwise according to law.

**(Ref. Clause 34.2 of GCC 2014)**

6. During progress of work in any street or thorough fare, the contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thorough fare and for any drainage, water supply or means of lighting which may be interrupted by reason of the execution of the works and shall erect and maintain at his own cost barriers lights and other safeguards as prescribed by the Engineer for the regulation of the traffic, and provide watchmen necessary to prevent accidents. The work shall in such cases be executed night and day if so ordered by the Engineer and with such vigour so that the traffic way be impeded for as short a time as possible.

**(Ref. Clause 34.3 of GCC 2014)**

7. 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 lookout men as may in the opinion of the Engineer be required to comply with the regulations appertaining to the work.

**(Ref. Clause 34.4 of GCC Part. II 2014)**

8. The contractor shall be responsible for the safety of all employees directly or through petty contractors or sub-contractor employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the work to the Engineer or the Engineer's Representative and shall make every arrangement to tender all possible assistance.

**(Ref. Clause 56 of GCC Part. II 2014)**

9. The contractor shall be responsible for all risk to the works and for 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, persons or property of others from whatsoever cause in connection with the works until they are taken over by the Railway and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the Railway shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of the 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 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 may incur in reference thereto, shall be charged to the Contractor. The Railway 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 expenses shall not be called in question by the contractor.

**(Ref. Clause 24 of the GCC Part. II 2014)**

10. Vulnerable locations where construction work adjacent to running line can cause accident should be protected by suitable strong barrier which should be included as a paid item in contract schedule. These locations should be decided by Executive Engineer In charge of the work at the beginning of construction and intimated to contractor in writing. The barrier should be painted with retro reflective paint at suitable intervals to give warning at night.

**(Ref. Rly. Bd's letter No.99/WI/S/Accident- Mangla Express dt. 23.8.1999 Annexure VII)**

11. No work adjacent to running track should be carried out at night without express written authority from the Executive Engineer, in-charge of the work. In fact, no contractor should do any kind of night working unless the Executive "Engineer in charge of the work gives the specified spots according to priority of work where night working has to be done. These spots should be well lit at night. In addition, the work should always be done under supervision of Railway Supervisors in addition to contractor's supervisors. Suitable Railway personnel

should be posted at site with safety equipment"s like banner, flags, hand signal flags, hand signal lamps and detonators to arrange protection of trains. The Railway supervisors in-charge of such work should also give suitable message to adjacent stations as well as through control for issuing caution orders to the trains approaching the work site. For this purpose he should be equipped with field telephone /walkie talkie set.

**(Ref.Rly. Bd's letter No.99/WI/S/Accident- Mangla Express dt. 23.8.1999 Annexure VII)**

12. The training to the operators and supervisors of the work executing agencies in safe working along and on the track should be provided by railways. The training could be imparted to such supervisors at Zonal / divisional training schools or even by existing officers and staff of the Construction Organization itself. The intention is to ensure that the supervisors of the work executing agencies get acquainted with the safety practices that are required to be taken while executing all those works which have bearing on the safety of the running tracks. The cost of training shall however be borne by the Contractor.

**(Ref.Rly. Bd's letter No.99/CE-II/PRA/32(CRS), dt. 5.7.2000 Annexure IV) (Rly. Bd's letter No.99/CE-II/PRA/32, dt. 20.4.2000 Annexure VI)**

13. 1 Drivers of train must be served with caution orders to look on for any obstructions at the place of work.
- 13.2. Arrangements should be made to protect the track in case of emergency at work sites.
- 13.3. The area of work should be demarcated by providing barricades and sign board which will enable the workmen posted at site and also the lorry drivers to have clear guidelines of movement of vehicles.
- 13.4 Movement of lorries near the track should be prohibited during night. In case it is un avoidable, adequate protective measures including lighting must be ensured.
- 13.5. Work should not be allowed to progress without the prior approval of the Engineer in charge in case movement of vehicles close to the track is involved.
- 13.6. Machines and vehicles should ply 6 metres clear of track. In case movement at less than 6 metres away from track is in escapable, it should be permitted in the presence of railway employee authorized by the Engineer in charge.
- 13.7. Contractor"s representative should be issued a certificate by XEN/AEN to the effect that they have acquired sufficient knowledge about the safety precautions that are needed to be followed while working near the track.

**(Ref.Rly. Bd's letter No.99/CE-II/PRA/32(CRS), dt. 21.7.2000 Annexure III)**

- 14.1. All permissible or sanctioned infringements should be consolidated for each Division traffic section wise. The consolidated list should be in possession of DRM, ADRM, SR.DSO or DSO, Construction Officers incharge of Division and relevant extracts with each Divisional and other Officers. These should be checked once a year at Assistant Officer"s level and it should be ensured that there is no aggravation of any permitted infringement.
- 14.2 All works planned for execution close to the running lines and fixed structures, on bridges, inside tunnels, cuttings, constructed areas etc, should be carried out only after preparation of detailed plans for the same, getting clearances from the Engineering Department of the Open line and approval of competent authority to ensure that the execution of the works will not in any way infringe the prescribed schedule of dimensions or aggravate existing permissible infringements.
- 14.3 Special training and counselling should be imparted to all field staff engaged in maintenance of railway assets regarding the safety at work sites and all of them should be in possessions of a compendium.
- 14.4. Similar training should also be organized for Railway"s Associates and contractors working in close proximity of

the running track and specific Para to this effect should also be included in all future contracts requiring execution of work in the near vicinity of running lines.

- 14.5. All the work inside a tunnel, deep cuttings, on bridges, constructed areas etc, should be carried out in accordance to the provisions in Chapter VIII of IRPWM and Para 1009 of Bridge Manual 1998 and preferably under block protection.

**(Ref. Railway Bd.'s letter No.2000/CE-II/PRA/12, dt. 16.5.2002 Annexure – II)**

15. Wherever it is difficult to ply the trucks on road during day light hours for bringing building materials such as chips, sand, supply of ballast and bringing out earth in case of suburban sections, the additional staff should be posted during night working duly properly lighted to ensure safety of the running tracks. In order to ensure that no short cuts or unsafe practices are adopted at construction site, Sr. Officials should inspect the safety aspect in detail during their inspection and guide the staff in adopting safe practices. They should record corrective action to be taken in site order books / inspection books and their compliance followed up. In addition periodic drives should be carried out to ensure safety at construction sites. In order to ensure safety, provision of mobile phones based on the needs of the individual work sites and keeping the provision in the estimate may be provided.

**(Ref Railway Bd.'s letter No.2001/CE-II/PRA/10 (CRS) dated 21.5.2002 Annexure–I)**

## **SAFETY PRECAUTIONS AND MEASURES TO BE OBSERVED DURING EXECUTION OF ROB/RUB WORKS IN RAILWAY AND ADJOINING AREAS.**

### **1.0. Construction Activities and Safety:**

- (i) The „Methodology of Working“ shall be incorporated in GAD and Temporary Arrangement Drawings.
- (ii) The activities of work to be taken up during the Railway traffic block/under speed restriction etc. should be clearly mentioned in such drawings.

If at any stage of execution, any discrepancy is found in the drawing with respect to the site condition affecting safety or some new activity of work is required to be done, the same should be brought to the notice of Railway Engineer and such works should be done only after approval by Railways. In such cases, scheme may be modified and if required fresh CRS sanction shall have to be obtained.

- 1.1 The works required to be done under traffic block protection, are to be carried out only in the presence of Railway Engineering officials. The Railways supervisor has to certify safe conditions for passage of trains before resumption of traffic.

The works to be done under traffic shall be carried out under the provision of banner flag and protection of Engineering flagman. If considered necessary, the Railway flagman may be posted on account of the contractor.

- 1.2 Following important activities of works shall be carried out under supervision of Railway Engineer or his nominated Supervisor:

- a) Excavation at foundation/Ground level near to Railway track.
- b) Concrete Casting and/or masonry very close to Railway track.
- c) Erection of temporary structures near to running lines.
- d) Casting of structures like girder/slab over railway track.
- e) Stage-Prestressing of girders when placed across Railway tracks properly supported.
- f) Launching of precast/pre-assembled girders across Railway tracks.
- g) Any work of lifting, side shifting and slewing of girders over the Railway track.
- h) Dismantling of temporary structures, shutters, scaffolding etc. adjacent to and above the Railway track.

For carrying out activities of casting, erection, launching, handling and dismantling as listed above, the Contractor's Engineering shall furnish the Construction Programme in advance to Railway Supervisor engineer. No such work should be taken up in absence of the Supervising Railway Engineer. For the activities which are to be done in presence of the Railway Engineer, prior intimation shall be given in writing and acknowledgement obtained from Railway's representative. Such activities of work shall not be carried without the presence of Railway Engineer.

- 1.3 To ensure „Safety“ during construction activities, Railway Engineer may direct the Contractor/Supervisor Engineer or their nominated representative for safe working procedures/instructions, notwithstanding the contractual or MOU conditions prevailing between/amongst Railways/other departments like NHAI/Contractors/Concessionaire.

- 1.4 All the records of Quality Assurance/Quality control, testing of the materials and satisfactory completion of an activity shall be maintained at site by the contractor's Engineer and Supervising Engineers. On the basis of these records, Railways" Engineer shall do stage-wise clearance of the works at following stages:

- i. Completion of foundation
- ii. Completion of substructure



- iii. Completion of superstructure  
Without such stage clearance, the work in next stage of construction shall not be allowed by the Railway Supervisor, unless proper system of check and exercise is followed at the site.
- 1.5 Normally, the high beam PSC girders are designed with wider top flange and shorter bottom flange with very high beam which makes the girder unsuitable during lowering, slowing and launching time.
- 1.6 During launching of girders and subsequent adjustments for placement of bearing special attention and precautions are required at site to be followed rigorously without resorting to shortcut practices or leaving the work at site to untrained or inexperienced engineers. Normally, end diaphragms are not casted for the extreme both side girders. These shall to be casted min.300 mm. on both sides for all "I" beam girders to provide temporary supports for ensuring stability.

**Or**

For side adjustments and bearing placements below „I" section girders, end brackets made of steel angles should be provided for all „I" beams sequentially to avoid side titling of individual girders. End brackets shall be removed only after placing girders on bearing and casting of diaphragms.

- 1.7 During lowering, the jacks shall be operated duly keeping wooden packing of various thicknesses fixing the amount of lowering to the bearest minimum, so that even if the jack fails, the wooden packing will take load and further stability of girder is not endangered.
- 1.8 Temporary crib support staging shall be interlaced with clamps and angles. Adequate base width shall be maintained in proportionate to the height of stage, which is very essential for avoiding the oblong effect during launching of girders. During launching by RH girder method the movement of the PSC girders shall be controlled both from front and rear with synch mechanism having simultaneous operation, so that the speed of the launching is always under the control. Spare hydraulic jacks shall always be kept at side. Lowering of girder shall always be carried out at one end only. Further, other end should be adequately secured by wire ropes, end brackets, etc. Thereafter, the alternate process shall be continued.
- 1.9 As far as possible launching of girders by temporary staging shall be avoided, and launching by heavy capacity cranes, wherever feasible, shall be adopted.
- 1.10 Steel girder launcher if used for launching of PSC girders, should be pre-tested for the critical loading (likely to be encountered during actual launching) before deployment on the approaches regarding its strength as well as amount of permissible deflection using actual test PSC girder as a testing load. Connections at supports shall be inspected and certified prior to actual launching, it shall be adequately secured to the base support system on the pier cap.

## **2.0 General Construction Safety:**

- 2.1 General Safety Precautions as applicable for bridge/civil works shall be adopted in field.
- 2.2 Working near running line: Safe practices at site and at all times non-infringement to moving trains shall be ensured. Road vehicles, material trollies, dollies with any tendency to roll off towards the running lines to be checked by providing chains, locking arrangements, blocks etc. shall be ensured and the Site In charge of the Contractor shall be primarily responsible, secondary responsible being of Supervisor's Consultant.
- 2.3 Testing of cranes, lifting jacks and other equipments: All equipments like cranes, lifting jack shall be tested, duly calibrated and certified prior to use at construction site.
- 2.4 Construction workers at site shall be provided with personal safety gear like reflective vest, helmet, leather shoes, gloves, eye-wear-approved as per construction industry standards. For persons working at pier top/girder level, temporary supports, hand railing, protection with help of ropes, slings and temporary railings shall be provided.

- 2.4.1 Routine Safety Checks, validity of test certificates for load bearing equipments especially for cranes outsourced from third party shall be ensured prior to deployment.

### **3.0 GENERAL**

- 3.1 The contractor shall provide communication facility at the work site for effective means of communication like VHF or Mobile telephone service etc between Railway office and site of work during the period of validity of contract in order to have effective monitoring of planning and progress of work. However, nothing extra will be paid to the contractor for such a facility.
- 3.2 Contractors will have to produce license for labour to be engaged on for this work from the concerned Labour Enforcement Officer under Contractor Labour Regulation and Abolition Act 1970 prior to the commencement of the work failing which payment for the work done will not be made.
- 3.3 Tenderer/s are required to observe all safety precautions at all times as contained in Annexure attached with the tender documents. Nothing extra shall be paid on this account.
- 3.4 The contractor will have to arrange Electric connection if required at his own cost. However, necessary assistance in arranging Electric connection will be given by Railway on the written request of contractor. In case, Railway is unable to arrange Electric connection, Railway will not be responsible at all and the contractor will have to make his own arrangements.
- 3.5 If, Proper approach road for transporting the various material are not available, the contractor may have to handle the material involving head lead etc. Proper space for stacking the material may not be given in the yard and if may be away from the yard. The contractor will be required to stack the material at the specified area nominated by the Engineer In-charge.
- 3.6 The work is to be completed on a strict time bound schedule. The contractors who have sound experience and necessary resources, requisite tools and plants, equipment and finance to handle the job shall be considered Tenderers are required to submit credentials about to experience of having executed these kinds of various work.
- 3.7 After the acceptance letter is issued, contractor will be required to submit the detailed programme for completion of works.

Sd/-  
Dy. Chief Engineer/Const.,  
for and on behalf of the President of India.

I/we agree to abide by the terms and conditions mentioned above as well as Regulations for tenders and contracts & General conditions of contract-2022, Unified Standard specifications-2021, the Unified Standard Schedule of Rates-2021 and the Delhi Schedule of Rates-2021 of the Northern Railway as corrected up to date to the extent the later these books are applicable.

Signature of Tenderer

**END OF DOCUMENT**