

## SPECIAL TENDER CONDITIONS AND INSTRUCTIONS TO TENDERER/S

### DETAILS OF WORK.

Name of work : **“Balance work for Construction of road under bridge (RUB 05 nos.) in lieu of level xing no.36C at km. 1175/15-17, L.xing no.37 at Km.1176/27-29, L.xing no.38 at Km 1180/27-29, L.xing no.40 at K. 1184/1-3 and L.xing no.41 at Km. 1187/0-1 with RCC box with RH girder method, RCC approaches, CC road, height gauge and other allied works bet Jaswantnagar-Bhadan station on ETW –TDL section of ALD Dvn of N.C.Rly..**

1 **MEANING OF TERMS** :- In these Regulations for Tenders and Contract the following terms shall have the Definitions meanings assigned hereunder except where the contest otherwise required :-

- a) “Railway” shall mean the President of the Republic of India or the Administrative Officers of the North Central Railway or of the Successor Railway authorized to deal with any matters which these presents are concerned on his behalf.
- b) “General Manager” shall mean the officer in administrative charge of the whole of Railway or exercising the powers of General Manager for the subject contract and shall mean and include the General Manager of the successor Railway.
- c) Chief Administrative Officer(Construction) shall mean the officer in administrative charge of whole of Construction Organization of the North Central Railway or the successor Railways
- d) Chief Engineer” shall mean the officer in charge of the Engineering Deptt. of North Central Railway and shall also include the Chief Engineer (Construction), and shall mean and include the Chief Engineer / Chief Engineer (Construction) of the successor Railway.
- e) “Engineer” shall mean the Divisional/District Engineer or the Executive Engineer in executive charge of the works and shall include the superior officers of the Engineering Deptt. of the North Central Railway i.e. the Dy. Chief Engineer/Chief Engineer / Chief Engineer (Construction) / Engineer-in Chief and shall mean and include the Engineers of the successor Railway.
- f) “Engineer’s Representative” shall mean the Assistant Engineer in direct charge of the work and shall include any Resident Engineer or Section Engineer or any Inspector of the Civil Engineering Deptt. appointed by the North Central Railway and shall mean and include the Engineer’s Representative of the successor Railway.
- g) “Contractor” shall mean the person firm or company whether incorporated or not who enters into the contract with the Railway and shall include their executors administrators, Successors and permitted assigns
- h) “Divisional Railway Manager” shall mean the administrative Officer in charge of a Division of North North Central Railway for the time being and shall mean and include the Divisional Railway Manager of the successor Railway
- i) “Tenderer” shall mean the persons, the firm or company who tenders for the work with a view to execute the works on contract with the Railway and shall include their personal representatives, successors and permitted assigns.
- j) “Limited Tenders” shall mean tenders invited from all or some Contractors on the approved list of Contractors with the Railway.
- k) “Open Tenders” shall mean tenders invited in open and public manner and with adequate notice.
- l) “Work” shall mean the works contemplated in the drawings and schedule set forth in the tender form and description of contract and required to be executed according to specification.
- m) “Specification” shall mean the specifications for material and works North Central Railway issued under the authority of the Chief Engineer or as emplified added to or superseded by special specifications if any appended to the tender form.
- n) “Schedule of rates North Central Railway shall mean the schedule of rates issued under the authority of the Chief Engineer from time to time.
- o) “Drawings” shall means the maps , drawings, plans and tracings or prints thereof annexed to the tender forms.

**Note:-** An affidavit is required to be submitted by all tenderers (as given in Annexure A). Based on this affidavit, Tender Committee will deliberate and decide eligibility of tenderers for first packet.

Second packet (Finance Bid) of only eligible tenderers will be opened and relevant documents of L-1 tenderers or as many tenderers as decided by TC will be got verified.

If contents in documents submitted by tenderers are found to be incorrect/false, action will be taken against such tenderers as per provisions contained in Affidavit submitted by them as annexure A.

The tenderer shall submit a notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statement/ documents submitted alongwith bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as Annexure-A . Non submission of an affidavit by the bidder shall result in summary rejection of his /their bid. And it shall be mandatorily incumbent upon the tenderer to identify , state and submit the supporting documents duly self attested by which they/he is qualifying criteria mentioned in the Tender document. It will not be obligatory on the part of Tender Committee to scrutinize beyond the submitted document of tenderer as far as his qualification for the tender is concerned.”

With the submission of the affidavit as mentioned above, the practice of verification of tenderers documents by the Railways may be dispensed with. Following clause may also be added to the instructions to Bidders.

- a) The Railway reserve the right to verify all statements , information and documents submitted by the bidder in his tender offer, and the bidder shall , when so required by the Railway, make available all such information , evidence and documents as may be necessary for such verification . Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the railway thereunder.
- b) In case of any wrong information submitted by tenderer, the contract shall be terminated . Earnest money deposit (EMD) , Performance Guarantee (PG) and security deposit (SD) of contract forfeited and agency barred for doing business on entire Indian Railway's for 5 (five) years.

## **2 INCOME TAX CLEARANCE CERTIFICATE**

2.1 Under Section 194-C of the Income Tax Act 1961 deduction of 2% plus surcharge as applicable on Income Tax will be made for sums paid for carrying out the work under this contract. In case of supply contract for ballast, deduction of 2% (Two Percent) Income tax will be made for the sums paid for labour portion only (i.e., loading, unloading, stacking, measurement and laying etc.).

2.2 The value of contract and the quantities given in the attached schedule of items, rates and quantities are approximate and are given only as a guide. These are subject to variations depending on the finalized drawings of the Railway. Any variations/additions and/or omission in the quantum of work to be actually carried out shall not form the basis of any dispute regarding the rates to be paid and shall not give rise to any claim for compensation on account of any increase or decrease either in the quantity or in the contract value.

## **3. ACCEPTANCE OF TENDER**

3.1 If the tenderer/s deliberately gives a wrong information /whose Credentials /documents in his/their tenders and thereby create(s) circumstances for acceptance of his/their tender, Railway reserves the right to reject such tender at any stage, besides, shall suspend/ban the Business for period as deemed fit by Railway.

3.2 The authority for acceptance of the tenders rests with Chief Administrative Officer Allahabad or Chief Engineer/C/North/Allahabad/ Dy.Chief Engineer (Construction)-I, North Central Railway, Agra Cantt as the case may be, who does not undertake to assign reasons for declining to consider any particular tender or tenders. He also reserves the right to accept the tender in whole or in part or to divide the tender amongst more than one tenderer if deemed necessary.

3.3 The successful tenderer/s shall be required to execute an agreement with the President of India acting through the C.E./Const./Dy.C.E/ Const as case may be for carrying out of the work as per agreed conditions.

3.3.1 The contractors operations and proceedings in connection with the works shall at all times be conducted during the continuance of contract in accordance with the laws, ordinance, rules and regulations for the time being in force and the contractor shall further observe and comply with the bye-laws and regulations of the Govt. of India, State Govt. and of Municipal & other authorities having jurisdiction in connection with the works or site over operations such as these are carried out by the contractor/s and shall give all notice required by such bye-laws and regulations. The Hospital and medical regulations in force for the time being shall also be complied with by the contractor/s and his workmen.

3.3.2 The contractor shall be responsible for the observance of the rules and regulations under the mines

act and mineral rules and Indian Metallurgical rules and regulations of State/Central Govt. concerned as amended from time to time.

3.3.3 The contractor shall at all times keep the railway administration indemnified against all penalties that may be imposed by the Govt. of India or State Govt. for infringements or any of the clauses of the Mines Act and rules made there under in respect of quarries from which the ballast for these works is procured.

3.4 The tenderer/s shall not increase his/their rate in case the Railway Administration negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and rates originally quoted will be binding on the tenderer/s.

3.5 The tenderer/s shall submit an analysis of rates if called upon to do so.

3.6 A corrigendum shall be issued in case the increase in quantity on one or more items result an extra expenditure in excess of 10% of the value of the contract or Rs.50, 000/- whichever is less. For the purpose of assessing the increase in the quantity and the increase in the value of contract only such of the items in which there is any increase shall be taken into account and the saving in other items ignored.

3.7 Non-compliance with any of the condition set-forth herein is liable to result in the tender being rejected.

#### 4 CONDITIONS OF CONTRACT AND SPECIFICATIONS

4.1 Except where specifically stated otherwise in the tender documents the work is to be carried out in accordance with (i) General Conditions of Contract and Regulations for Tenders & Contracts -latest version with amendment time to time (ii) IR Unified Standard Schedule of Rates NCR ALD -2010 and (iii) IR Unified Standard Specifications for Material and Works Vol-I & II 2010, copies of all these publications can be obtained from the office of Chief Engineer, North Central railway, Allahabad on payment as under:

(i)	General Conditions of Contract and Regulations for Tenders & Contracts	Rs. 250/-
ii)	IR Unified Standard Specifications for Material and Works Vol-I & II (2010)	Rs. 2000/- for both Vol.
iii)	IR Unified Standard of Schedule of Rates NCR ALD 2010	Rs. 1000/-

Demand for these publications from out station will be considered only if a sum of Rs.200/- towards postal charges is also sent with the cost of the books by money order.

4.2 The tenderer/s should particularly note and obtain copy of the correction slip, which is supplied free of cost with the publications.

4.3 The tender documents referred to in clause 2.1.1 above will govern the works done under this contract in addition to documents referred to in clause 6.1 above. Where there is **any conflict between special tender conditions regarding instructions to tenderer/s, special conditions relating to site data and specifications and the stipulations contained in the schedule of rates and quantities** on the one hand and the IR Unified Standard Specifications for Material and Works Vol-I & II (2010), General Conditions of Contract and Regulations for Tenders & Contracts -latest version with amendment time to time and IR Unified Standard of Schedule of Rates NCR ALD 2010 on the other hand the former shall prevail.

#### 5. STUDY OF DRAWINGS AND LOCAL CONDITIONS

5.1 The drawings for the works can be seen in the office of the Dy. Chief Engineer/Const/I, North Central Railway, Agra Cantt.

It should be noted by tenderer/s that these drawings are meant for general guidance only and the Railway may suitably modify them during the execution of the work according to the circumstances without making the Railway liable for any claims on account of such changes.

5.2 **The tenderer/s is/are advised to visit the site of work and investigate actual conditions regarding nature and conditions of rails, difficulties involved due to inadequate blocks, due to coordination with S&T at site, availability of materials water and labour probable sites for labour camps, stores, godowns, etc.**

The extent of lead and lift involved in the execution of works and any difficulties involved in the execution of work should also be examined before formulating the rates for complete items of work described in the schedule.

## **6. RATES FOR PAYMENT**

6.1 The rates given in the attached schedule of rates tendered by the contractor and as accepted by the Railway will form the basis of payment for such items under this contract.

6.2 No material price variation or wages escalation on any account whatsoever the compensation for 'Force Majuro' etc. shall be payable under this contract except price escalation clause payable as per price escalation clause, if any, provided separately in the tender documents.

6.3 The rates for any item of work not included in the (Schedule of Items, Rates and Quantities) and which the contractor may be called upon to do by Railway Administration shall be fixed by the supplementary written agreement between the contractor and the Railway before the particular item or items of work is/are executed. In the event of such agreement not being entered into and executed the Railway may execute these works by making alternative arrangements. Railways will not be responsible for any loss or damages on this account.

6.3.1 The contractor shall work in close co-operation with the contractor/ departmental staff working in the adjacent sections.

6.4 It should be specifically noted by the tenderers that no separate loading, unloading and leading charges for materials (which are supplied by the Railway) shall be paid for by the Railways and the rates quoted by the tenderer/s shall be inclusive of all these charges.

6.5 The item Nos., description, units and rates given in schedule of rates are as per IR Unified Standard of Schedule of Rates NCR ALD 2010 and any discrepancy during the execution of the work in the working rates, quantity and units etc should be rectified by reference to the printed schedule of rates which shall be treated as authority and will be binding on the contractor.

6.6 Should there arise any items which may be necessary for the completion of work but which does not appear in the Schedule of Items, its rate will be fixed by analysis of actual inputs of all types including labour and material or derived from the labour and material rates given in the IR Unified Standard of Schedule of Rates NCR ALD 2010. The rates for such non-scheduled items occurring during the course of construction shall be payable subject to the approval of the competent authority.

No items or work requiring non-schedule rates will be carried out unless ordered to do so by the Engineer. The rates derived from the IR Unified Standard of Schedule of Rates NCR ALD 2010 will be subject to percentage above or below tendered by the contractor.

6.7 Payment for the work done will be made to the contractor only when the formal agreement has been executed between the parties.

## **6.8 SUPPLEMENTARY AGREEMENT**

After the work is completed and taken over by the Railway as per terms and conditions of the contract agreement or otherwise concluded by the parties with mutual consent and full and final payment is made by the Railway to the contractor for work done under the contract the parties shall execute the supplementary agreement annexed here to as Annexure-A.

### **6.8.1 IN CASE OF VARIATION IN CONTRACT QUANTITIES -**

The procedure detailed below shall be adopted for dealing with variations in quantities during execution of works contracts:

1. Individual NS items in contracts shall be operated with variation of plus or minus 25% and payment would be made as per the agreement rate. For this, no finance concurrence would be required.
2. In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, the same shall be got executed by floating a fresh tender. If floating a fresh tender for operating that item is considered not practicable, quantity of that item may be operated in excess of 125% of the agreement quantity subject to the following conditions:
  - a) Operation of an item by more than 125% of the agreement quantity needs the approval of an officer of the rank not less than S.A Grade.

- i) Quantities operated in excess of 125% but up to 140% of the agreement quantity of the concerned item, shall be paid at 98% of the rate awarded for that item in that particular tender:
  - ii) Quantities operated in excess of 140% but up to 150% of the agreement quantity of the concerned item shall be paid at 96% of the rate awarded for that item in that particular tender.
  - iii) Variation in quantities of individual items beyond 150% will be prohibited and would be permitted only in exceptional unavoidable circumstances with the concurrence of associate finance and shall be paid at 96% of the rate awarded for that item in that particular tender.
  - b) The variation in quantities as per the above formula will apply only to the individual items of the contract and not on the overall contract value.
  - c) Execution of quantities beyond 150% of the overall agreemental value should not be permitted and, if found necessary, should be only through fresh tender or by negotiating with existing contractor with prior personal concurrence of FA&CAO/ FA&CAO(C) and approval of General Manager.
3. In cases where decrease is involved during execution of contract:
    - a) The contract signing authority can decrease the items upto 25% of individual item without finance concurrence.
    - b) For decrease beyond 25% for individual items or 25% of contract agreement value, the approval of an officer not less than rank of SA grade may be taken after obtaining 'No claim certificate' from the contractor and with finance concurrence, giving detailed reasons for each such decrease in the quantities.
    - c) It should be certified that the work proposed to be reduced will not be required in the same work.
  4. The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1% of the total original agreement value.

**5. No such quantity variation limit shall apply for foundation items.**

6. As far as SOR items are concerned, the limit of 25% would apply **to the value of SOR schedule as a whole and not on individual SOR items**. However, in case of NS items, the limit of 25% would apply on the individual items irrespective of the manner of quoting the rate (single percentage rate or individual item rate).
7. For the tenders accepted at Zonal Railways level, variations in the quantities will be approved by the authority in whose powers revised value of the agreement lies.
8. For tenders accepted by General Manager, variations upto 125% of the original agreement value may be accepted by General Manager.
9. For tenders accepted by the Board Members and Railway Ministers, variations upto 110% of the original agreement value may be accepted by General Manager.
10. The aspect of vitiation of tender with respect to variation in quantities should be checked and avoided. In case of vitiation of the tender (both for increase as well as decrease of value of contract agreement), sanction of the competent authority as per single tender should be obtained.

**6.9 MEASURES TO BE TAKEN IN CONSTRUCTION AND REPAIRS ON ROADS, EMBANKMENTS, ETC.**

6.9.1 All borrow pits dug for and in connection with the construction and repairs of buildings, roads, embankments, etc. shall be dug and connected with each other in the formation of a drain directed towards the lowest level and properly sloped for discharge into a river, stream, channel or drain and no person shall create any isolated borrow pit which is likely to cause accumulation of water which may breed mosquitoes.

6.9.2 Non fulfillment of the provision in 6.9.1 above shall be a breach of the contract and contractor/s shall be liable to pay by way of agreed liquidated damages to the Railway at the rates of Rs.100/- for each breach and in addition to that contractor further undertake to pay the amount incurred by the Railway in getting the said job/s done at the risk and cost of the contractor. Besides this, the contractor will also be held responsible

for any laws for contravening them.

## **7. SETTING OUT WORKS**

7.1 The contractor is to set out the whole of the work in consultation with the engineer or an official to be deputed by the Engineer and during the progress of works to amend on the requisition of the Engineer any errors which may arise there in and provide efficient and sufficient staff and labour thereon. The contractor shall also alter or amend any errors in the dimension lines on levels to the satisfaction of the Engineer or his authorized representative without claiming any compensation for the same.

7.2 The contractor shall provide, fix and be responsible for maintenance of all stocks, templates, profiles, land marks, points, burjies, monuments, centre line pillars, reference pillars, etc. and shall take all necessary precautions to prevent their being removed altered or disturbed and will be responsible for the consequence of such removal, alterations or disturbance and for their efficient reinstatement.

7.3 The contractor shall protect and support, as may be required or as directed by the Engineer, building, fences, walls, towers, drains, road paths, waterways, foreshores banks, bridges, Railway ground and overhead electric lighting, the telegraphs/ telephones and crossing water service main pipes and cables and wires and altogether matters and things of whatever kind not otherwise herein specified other than those specified or directed to be removed or altered which may be interfered with or which likely to be affected disturbed or endanger by the execution completion of maintenance of the works and shall support provided under this clause to such cases as directed by the Engineer. No payment shall be made by the Railway to the contractor for these works on account of delay for re-arrangement of road traffic or in the contractor having to carry out the short lengths and in such places as per conditions and circumstances may warrant. These will not form the basis of any claim and or dispute for compensation of any kind.

## **8. DRAWINGS FOR WORKS**

8.1 The Railway Administration reserves the right to modify the plans and drawings as referred to in the special data and specifications as also the estimate and specifications without assigning any reasons as and when considered necessary by the railway. The percentage rates for the schedule items and items rates for the non-schedule items quoted by the contractor as may be accepted by the railways will, however, hold good irrespective of any changes, modifications, alterations, additions, omissions in the locations of structures and detailed drawings, specifications and/or the manner of executing the work.

8.2 It should be specifically noted that some of the detailed drawings may not have been finalized by the railway and will, therefore, be supplied to the contractor as and when they are finalized on demand. No compensation whatsoever on this account shall be payable by the Railway Administration.

8.3 No claim whatsoever will be entertained by the Railway on account of any delay or hold up of the work/s arising out of delay in approval of drawings, changes, modifications, alterations, additions, omission and the site layout plans or details drawings and design and or late supply of such material as are required to be arranged by the Railway or due to any other factor on Railway Accounts.

## **9 SUPPLY OF MATERIALS BY THE RAILWAYS**

9.1 If at any time, material which the contractor/s should normally have to arrange himself/themselves, are supplied by the Railway either at the contractor's request or in order to prevent any avoidable delay in the execution of work due to the contractor's inability to make adequate timely arrangements for supply thereof or for any other reason, recovery will be made from the contractor's bill either at the market rate prevailing at the time of supply or at the book rate which ever is greater, plus fixed departmental charges viz. freight at 5% (8.33% for items of Iron and G.I. pipe steel) incidental charges at 2% and added on total cost supervision charges at 121/2%. No carriage or incidental charges will be borne by the Railway.

9.1.1 In the case, cement and/or steel is issued to the contractor/s free of cost or on cost to be recovered for use on the work, the supply thereof shall be made in stages limited to the quantity/quantities computed by the Railway according to the prescribed specifications and approved drawings as per the agreement. The cement and/or steel issued in excess of the requirements as above shall be returned in perfectly good conditions by the contractor to the Railway immediately after completion or determination of the contract. If the contractor/s fail/s to return the said stores, then the cost of cement and/or steel issued in excess of the

requirement computed by the Railway according to the specifications and approved drawing will be recovered from the contractor/s @ twice the prevailing procurement cost at the time of last issue viz. (purchase price + 5% freight only). This will be without prejudice to the right of the Railway to take action against the contractor/s under the conditions of the contract for not doing/completing the work according to the prescribed specifications and approved drawings. If it is discovered that the quantity of cement and or steel used is less than the quantity ascertained as herein before provided, the cost of the cement and/or steel not so used shall be recovered from the contractor/s on the basis of the above stipulated formula.

9.1.2 The contractor shall be responsible for the safe transport custody and storage of all Railway materials issued to him and he will be liable to make good the loss due to any cause whatsoever, that may be suffered by the Railway on this account. Special precautions should be taken in respect of cement while transporting cement, steps should be taken to safeguard against cement becoming damp or wet due to moisture or rain. The contractor will also be responsible for storing cement in damp proof conditions at site of work at his own cost in accordance with the standard specifications. The Engineer shall decide whether the cement stored in the godown is fit for the work and his decision shall be final and binding on the contractor/s.

9.2 The contractor should supply a schedule showing the requirements of explosives/materials required to be supplied to him by the Railway based on detailed plans. The materials will be arranged by the Railway according to this schedule unless otherwise modified by the Railway due to additions or alterations in the approved plans. No claim whatsoever will be entertained by the Railway on account of late supply of such materials as are required to be arranged by the Railway.

## 10. SERVICE ROADS

10.1 The contractor/s shall make his/their arrangements for service roads, paths etc. for carrying his/their tools and plants, labour and materials, etc. and will also allow the Railway use of such paths and service roads, etc for plying its own vehicles free of cost. **The tenderer/s will be deemed to have included the cost of making any service roads, roads or paths, etc., that may be required by him/them for plying his/their vehicles for the carriage of his/their men and materials, tools, plants and machinery for successful completion of the work.** Similarly, any other feeder road connecting any of the existing roads will be made by the contractor at his/their own cost including any compensation that may be required to be paid for the temporary occupation and or usage of Govt. and or private land and without in any way involving the Railway in any dispute for damage and/or compensation.

10.2 In case the Railway has its own paths, service roads, the contractor/s will be allowed to use of such paths or service roads free of cost. He/They shall, however, in no way involve the Railway in any claims or dispute of whatever kind due to the inaccessibility of such paths or service roads or due to their poor condition and or maintenance or their being to be blocked and/or closed.

10.3 The rates quoted by the contractor as per Schedule of Items, Rates and Quantities shall form the basis of 'on account payment' for the various items under this contract.

10.4 In the course of execution of various items of work under Schedule of Items, Rates and Quantities running bills payment for partly completed works will be made to the contractor. The quantum of such work for payment shall be decided by the Engineer-in-charge whose decision shall be final and binding on the contractor.

10.5 No on account payment by the Railway shall protect the contractor/s against or prevent the Railway from recovering from the contractor/s any over payment made to him/them.

10.6 Final payment of the balance amount due, exclusive of the security deposit required in terms of Clause-5 of these special conditions, will be made after the completion of the entire work and on the certification of the Engineer that work has been completed in all respects and found satisfactory.

## 11. EMERGENCY WORK

11.1 In the event of any accident or failure occurring in or about the work of arising out for or in connection with the construction completion or maintenance of the work which in the opinion of the Engineer require immediate attention, the Railway may be with its own workmen or other agency execute or partly execute the necessary work or carry out repairs if the Engineer considers that

the contractor is not in a position to do so in time and charge the cost thereof, as to be determined by the Chief Engineer/Const. to the contractor.

- 11.2 *In terms of clause 32 of GCC, the material and plants brought by the contractor on the site or land occupied by the contractor in connection with the works and intended to be used for execution thereof shall immediately, they are brought upon the sites of this said land be deemed to be the property of the Railway. Vehicles, equipments, plants and machinery of the contractor can be drafted by the Railway Administration at their discretion in case of accidents, natural calamities involving human lives, breaches, stoppage of train operations or any contingencies which requires such requisitioning and essential. The decision in this regard of the Engineer in charge or his superiors i.e. Sr. Engineer /Executive Engineer /Dy. Chief Engineer etc. shall be final and beyond the ambit of arbitration clause i.e. exception to arbitration clauses.*
- 11.3 *In term of the clause 2.3..3, tenderer is required to submit the list of equipment, machinery, construction tools and plants, staff available /deployed at site. The successful tenderer on receipt of acceptance letter and conveying their consent, shall submit name, addresses, telephone numbers, fax nos./E-mail address of the persons to be contacted for requisitioning the above items as detailed in fore-going clauses 15.2 and notify from time to time if any change in the list of equipments /machinery or the addresses /individual to the Engineer –in –charge in writing. The name and address, telephone nos and the contractor officials name shall also be displayed at the site of work.*
- 11.4 *The man power, consumable items and maintenance of the above tools & plants when requisitioned shall be the responsibility of the tenderer /contractor so that the equipments, machinery, tools & plants shall be available for effective utilization at the accident sites, natural calamities, breaches sites etc.*
- 11.5 *The hire charges per annum shall be calculated at the following rates on the purchase cost of the plant as under:-*
- (i) *Depreciation charges at the following rates:*
    - (a) *Light plants 16% per annum*
    - (b) *Heavy plants 10% per annum*
    - (c) *Special plants 6% per annum*
  - (ii) *An additional 10% on the total of (i) above to meet contingencies.*
  - (iii) *10% contractor profit on total cost as detailed (i) to (ii).*
  - (iv) *The hire charges per day shall be arrived at dividing the annual hire charges of total of (i) to (iii) above by 365 which shall be the assumed number of working days in year for this purpose. These hire charges will be payable from the day the plant is handed over to the Railway to date on which it is returned to the contractor by Railway.*
  - (v) *The contractor man-power charges shall be payable @ minimum wages as notified by the State Govt /Local bodies /Labour deptt as the case may be for highly skilled, semi skilled personnel drafted for operating the plant & machinery.*
  - (vi) *The payments for the fuel cost shall be paid on the basis of the actual expenditure incurred by the contractor for purchases + 10% contractor's profit thereof which will be the payments towards his miscellaneous expenses too.*

## **12. NIGHT WORK**

- 12.1 If the Engineer is satisfied that the work is not likely to be completed in time except by resorting to night work, he may order without confirming any right on the contractor for claiming any extra payment for the same.

## **13. DISPOSAL OF SURPLUS EXCAVATED MATERIALS**

- 13.1 The contractor shall at all time keep the site free from all surplus earth, surplus materials, and all rubbish which shall arise from the works and should dispose of the surplus excavated materials as ordered by the Engineer failing which it will be done at the cost of the contractor and cost will be deducted from his dues.
- 13.2 The contractor shall within 15 days of completion of entire works remove all unused and surplus materials tools and plants staging and refuge or other materials produced by his operations and



shall leave the site in a clear and tidy conditions.

#### **14. SITE INSPECTION REGISTER**

- 14.1 A site inspection register will be maintained by the Engineer or his representative in which the contractor will be bound to sign day to day entries made by the Engineer or his representative. The contractor is required to take note of the instructions given to him through the site inspection register and should comply with the same within a reasonable time.
- 14.2 The contractor shall, from time to time (before the surface of any portion or the site is interfered with or the work thereon begun) take such levels as the Engineer may direct in his presence or any person authorized by him in writing. Such levels approved and checked by him or such authorized persons shall be recorded in writing and signed by the contractor and shall form the basis of the measurements. Immediately before any portion of the work, below water level is started the existing water levels are to be taken and recorded in a similar manner.
15. The contractor shall have to make and maintain at his own cost suitable approach road and path etc. for proper inspection of the various works. He shall also provide all facilities as required by the Engineer such as protective clothing, stop watch, goggles and other appliances for satisfactory inspection of the works and places where materials for the work are stored or prepared.

#### **16. OPENING UP OF WORK OR MATERIALS FOR INSPECTION OR TEST**

- 16.1 Should the Engineer, or any representative consider it necessary for the purpose of enabling inspection of tests analysis to be made to verify or ascertain the quality of any part of the works or of any materials, the contractor shall as and when required by the Engineer or his representatives open up the work or materials for inspection or test or analysis, pull down or cut into any part of the work to make such openings, into under or through any part of the works as may be directed and shall provide all things facilities which in the opinion of the Engineer or his representative are necessary and essential for the purpose of inspection or test or analysis of the works or of any part thereof or the materials, or of workmanship and the contractor shall close up, cover, rebuild and made good the whole at his own cost, as and when directed by and to the satisfaction of Engineer provided always that of the work in the opinion of the Engineer is found to his satisfaction and in accordance with the contract. The excess expenditure in such examination, inspection or test shall, upon the certificate of the engineer, be borne by the Railways.

#### **17 GENERAL**

##### **17.1 PROVISION OF LIGHT SIGNALS ETC.**

The contractor/s shall make such provision for lighting the works, materials and plant and provide all such marks and lights, signals and other appliances as may be necessary or as may be required by the Engineer or other responsible authorities during the execution completion and maintenance of the work and shall provide all labour, stores, etc. required for their efficient working and use at any time of day or night. He/They shall also provide all arrangement of every description of watching and maintenance required in connection with the foregoing and all other services for protection of any securing all dangerous places whether to the contractor's workmen or to other persons and or vehicular traffic until the work is certified by the engineer to have been completed and taken over in accordance with the contract.

- 17.2 The contractor/s will provide upon the works to the satisfaction of the Engineer and at such, places as he may nominate, proper and sufficient life saving, fire fighting and first aid appliances which shall at all times be available for use.

##### **17.3 LABOUR CAMPS**

Land for setting up a workshop by the contractor or for his labour camp or for any other purpose, shall have to be arranged by the contractor at his own cost and under his own arrangements. The contractor, however, will be permitted to make use of the railway land to the extent that can be made available to him free of cost, by the railway in the vicinity of the site of works. The contractor/s shall at all times be responsible for any damage or trespass committed by his agent and workmen for carrying out the work.

- 17.4 The Railway Administration may recommend to the concerned authorities the issue of necessary transport permits for the work. The contractor shall, however, furnish full justification for the above facilities, to enable the Railway Administration to address the State Government or other authorities in this connection. The contractor shall also maintain regular logbook of receipts and issue of the materials to work, if so required by the Civil Authorities. No claim would, however, be entertained by

- the non-issue of any priority permits or owing to any interruption in supply.
- 17.5 No claim for idle labour and or idle machinery etc. on any account will be entertained. Similarly no claim shall be entertained for business loss or any such loss.
- 17.6 The tenderer welder /supervisor must have mobile phone for better communication.
- 18.0 Attention is invited to Clause 17(2) of the General Conditions of Contract and Regulations for Tenders & Contracts and Clause 8.1 of tender conditions according to which time is the essence of the contract.
19. **MAINTENANCE PERIOD**
- 19.1 The contractor will have to **maintain the work for a period of 12 Months** as per Clause-47 of the General Conditions of Contract and Regulations for Tenders & Contracts from the date of issue of completion certificates by the engineer except for earthwork and supply of materials for which there will be no maintenance period.
20. **GST/TURN OVER TAX/LOCAL TAX/ VAT, ETC.**  
 GST including turn over tax on works contract, octroi, royalty, toll tax, local tax, duties/Levies, cess charges as well as services and any other tax levied by central govt. state govt. or local bodies, as applicable on the date of quoting the rates and any change there-in at a later date, shall be considered to be included in the rates quoted by Tenderer/s in the Tender Schedule.  
 Railways shall deduct the GST/Turn Over Tax or any other tax from the Contractor's bill at the rate as applicable as per rules framed by concerned Govt./Local bodies from time to time and remit it to concerned deptt. and shall issue a certificate regarding Tax/Duties/Levies so deducted on demand by the contractor."  
**Contractor should deposit receipt of royalty (MM-11) for all the items which covered under royalty charges with every on account bill.** In case, they fails to submit the same necessary amount as per prevailing rates notified by the State Govt will be deducted from contractor's bills and shall be deposited with the deptt concerned.
21. Successful tenderer on account of contract will have to furnish contractor bank account no, Name of bank against which all payment in respect of contract during the currency of the contract shall be made.

Address:

\_\_\_\_\_

\_\_\_\_\_

Dy. Chief Engineer/Const-I,  
 North Central Railway, Agra Cantt.  
 For and on behalf of the President of India.

**MODEL FORMAT OF BANK GUARANTEE FOR OBTAINING  
PERFORMANCE GUARANTEE**

In consideration of the President of India (herein after called "the Government) having agreed to exempt \_\_\_\_\_ (hereinafter called "the said Contractor(s)") from the demands, under the terms and conditions of an Agreement dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for \_\_\_\_\_ (hereinafter called "the said Agreement"), of security deposit for the due fulfillment by the said Contractor(s) of the terms and conditions contained in the said Agreement, on production of a bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only). We, \_\_\_\_\_ (hereinafter referred to as indicate the name of the bank "the Bank") at the request of \_\_\_\_\_ (Contractor(s) do hereby undertake to pay to the Government an amount not exceeding Rs. \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We \_\_\_\_\_ do hereby undertake "indicate the name of the bank" to pay the Amounts due and payable under guarantee without any demand, merely on a demand from the Government stating that the amount / claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of the contractor(s) failing to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.

3- We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) / supplier(s) in any suite or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) / supplier(s) shall have no claim against us for making such payment.

4- We, \_\_\_\_\_ further agree that the (indicate the name of the bank) guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till \_\_\_\_\_ Office / Department) Ministry of \_\_\_\_\_ certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.

5- We \_\_\_\_\_ further agree (indicate the name of the bank) with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6- This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s) / Supplier(s).

7- We, \_\_\_\_\_ (indicate the name of the bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

Dated the \_\_\_\_\_ day of \_\_\_\_\_ 2008  
for \_\_\_\_\_  
(Indicate name of bank)

NON JUDICIAL STAMP - Rs.500/-

**JOINT VENTURE /CONSORTIUM AGREEMENT**

This Joint Venture Consortium Agreement executed at \_\_\_\_\_ (Name of place) on this \_\_\_\_day of \_\_\_\_\_(month & year) between M/s X \_\_\_\_\_ (Name of firm) M/sY \_\_\_\_\_(Name of firm) M/s Z \_\_\_\_\_(Name of firm) wherein Registered office of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> party is at \_\_\_\_\_ respectively represented through their constituted attorney \_\_\_\_\_ for the 2<sup>nd</sup> party \_\_\_\_\_ and for the 3<sup>rd</sup> party \_\_\_\_\_. (The expression and words of the first 2<sup>nd</sup> & 3<sup>rd</sup> party shall mean and include their heirs, successors, assigns, nominees' execution, administrators and legal representative respectively).

Whereas the parties herein above mentioned are desirous of entering into a Joint Venture/Consortium for submitting bid document and if contract awarded, carrying on Engineering and or contract works in connection with "Tender for \_\_\_\_\_ (Name of work with Tender no./Tender notice no.) as mutually decided between the parties of this Joint Venture/Consortium.

**NOW THIS AGREEMENT WITNESSES AS UNDER:**

1. That in and under this Joint Venture/Consortium Agreement the work will be done jointly in the name and style of M/s \_\_\_\_\_(Joint Venture/Consortium of M/s X,Y, Z with address).

2. That all the parties shall be jointly and severally legally liable to the Employer in the discharge of all the obligations and liabilities as per the Contract with the Employer and severally and jointly responsible for the satisfactory/successful execution/completion of the work in all respect and in accordance with terms and general and special conditions of the Contract irrespective of share and role specified in JV agreement. All the parties shall be jointly and severally liable and responsible for fulfilling the obligations of the tender/bid documents.

All the parties shall also be liable jointly and severally for the loss, damage caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.

3. That the role and responsibility of each constituent of the said Joint Venture/Consortium in details covering all aspects of the planning and successful completion of the work shall be as under:

The first party shall be responsible for \_\_\_\_\_ (details may be furnished).

The Second party shall be responsible for \_\_\_\_\_ (details may be furnished).

The third party shall be responsible for \_\_\_\_\_ (details may be furnished).

4. The share of interest/participation, profit & loss of each constituent of the said Joint Venture/Consortium shall be as under:

a) Lead Partner : (At least 51%)

b) Joint Venture Partner-I : (Not less than 20%)

c) Joint Venture Partner-II : (Not less than 20%)

5. That the parties of this Joint Venture/Consortium shall depute sufficient number of experienced staff as committed to commensurate with their role and responsibilities and as required for the successful completion of the works in close consultation with each other.

6. That the financial investment and other resources required for the successful execution/completion of work under this Joint Venture/Consortium shall be brought in by the parties as per mutual agreement/understanding between them from time to time.

7. That all the Bank Guarantees like Performance Guarantee, Bank Guarantee for Mobilization advance, Machinery advance etc. shall be furnished jointly by all the parties in the name of Joint Venture/Consortium only.

8. That all the parties nominate and authorize Sri \_\_\_\_\_(Name of representative) of \_\_\_\_\_(Name of firm) as the representative of the JV and to sign the tender, contract Agreement in respect of the said tender, to receive payment, to witness joint measurement of work done, to

**CONTRACTOR****For DY.CE/C//AGC**

sign measurement books and all letter correspondence related to the mentioned work on behalf of the Joint Venture.

9. That all the above noted parties ie. M/s X Y Z undertake not to make any changes in this Joint Venture/Consortium agreement during the currency of contract except when modification becomes inevitable due to succession laws etc. without prior consent of the Employer. The parties further undertake that in any case lead Member shall continue to be the Lead Member of the JV.

10. That all the parties undertake that no member of the Joint Venture firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the employer (Railways) in respect of the said tender/contract.

11. That all members of JV certify that they have not been black listed or debarred by or any other Ministry/Department of the Govt. of India/State Govt. from participation in tenders/contract in the past either in their individual capacity or the JV firm or partnership firm in which they were members/partners.

12. The joint venture agreement shall be valid during the entire currency of the contract including the period of extension if any and the maintenance period after the work is completed.

13. The Joint Venture Agreement shall be in all respect be governed by and interpreted in accordance with Indian laws.

14. That this Joint Venture agreement in pursuant to other MOU entered into at \_\_\_\_\_(place) this \_\_\_\_\_ day of \_\_\_\_\_(Month)(year) between above noted parties.

- 15. That the Credentials and Qualifying Criteria should be as under:
  - a) Technical eligibility criteria.
  - b) Financial eligibility criteria.

NOW THE PARTIES HAVE JOINED HAND TO FORM THE JOINT VENTURE/CONSORTIUM ON THIS- DAY OF \_\_\_\_\_ MONTH/YEAR WITH REFERENCE TO AND IN CONFIRMATION OF THEIR DISCUSSION AND UNDERSTANDING BROUGHT ON RECORD ON ..... (Date).

IN WITNESS THEREOF THE ABOVE NAMED PARTIES HAVE SET THEIR RESPECTIVE HANDS ON THIS JOINT VENTURE/CONSORTIUM AGREEMENT ON THE DAY, MONTH AND YEAR FIRST ABOVE MENTIONED IN THE PRESENCE OF THE FOLLOWING WITNESS.

First party  
Second party  
Third party

**WITNESS:**

- 1.
- 2.
- 3.

**ANNEXURE-C-2 (JV MOU)**

NON JUDICIAL STAMP : Rs.500/-

**MEMORANDUM OF UNDERSTANDING (MOU)**

ENTERED INTO AT \_\_\_\_\_ (Place) THIS \_\_\_\_\_ DAYS OF \_\_\_\_\_ (MONTH &amp; YEAR)

Between

1. \_\_\_\_\_ (name of firm) having its registered office at \_\_\_\_\_  
 (full address) (therein after referred to as \_\_\_\_\_ (say X, short form of firm) acting as a the Lead Partner of the first part.

And

2. \_\_\_\_\_ (name of firm) having its registered office at \_\_\_\_\_  
 (full address) (hereinafter referred to as \_\_\_\_\_ (say Y, short form of firm) in the capacity of 1st Joint partner of the other part.

And

3. \_\_\_\_\_ (name of firm) having a registered office at \_\_\_\_\_  
 (Full address) (Hereinafter referred to as \_\_\_\_\_ (say Z, short form of firm) in the capacity of 2<sup>nd</sup> Joint Partner of the other part.

The expressions of X, Y, Z shall wherever the context admits, mean and include their respective legal representatives, successors-in –interest and assigns and shall collectively be referred to as “the Parties” and individually as “the Party”.

Whereas the parties hereto have agreed to enter into a Joint Venture for the purpose of participation in Tender in respect of the project work of “ \_\_\_\_\_  
 (Complete name of work to furnish) “hereinafter referred to as “The work”) mentioned in tender notice No. \_\_\_\_\_ and tender no. \_\_\_\_\_ invited by Chief Engineer(Con.), Dy.Chief Engineer(Const), Sr.DEN/DEN, North Central Railway, Allahabad (herein after referred to as “Employer”.

Whereas in the event the Joint venture being successfully in its bid, the parties have agreed to perform the contract in accordance with the agreed terms and conditions and thereof and in the spirit of mutual cooperation to achieve the objective of this joint Venture, to the full satisfaction of the Employer.

Now, therefore, for and in considerations and covenant hereinafter set forth, the parties hereby agree as follows:

1. The following documents shall be deemed to form and be read and construed as an integral part of this Joint Venture.
  - i) Tender notice and
  - ii) Tender document
  - iii) Any Amendment/corrigendum issued by “the Employer”.
  - iv) The tender submitted on our behalf jointly by the JV.
2. The ‘Parties’ have studied the documents and have agreed to participate in submitting a tender jointly under the name X Y Z (JV) \_\_\_\_\_ (Name of JV furnish)
3. X \_\_\_\_\_ (Name of lead partner) shall be the lead member of the JV for all intents and purpose and shall represent the Joint Venture in its dealing with the Employer. For this purpose of submission of bid proposals, the parties agree to nominate Shri \_\_\_\_\_ (name and designation) of \_\_\_\_\_ (name of the parties to which he belongs) as the leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Employer. However, Shri \_\_\_\_\_ (Name and designation) shall not submit any such proposals, clarifications or commitments before securing the written clearance of the other partners which shall be expeditiously given by X, Y to X (to be decided internally by the JV member).
4. The ‘Parties’ have resolved that the share of interest/participation in the joint venture shall be as under:
  - a) Lead partner : at least 51%
  - b) Joint venture partner 1 : Not less than 20%
  - c) Joint Venture Partner-I : Not less than 20%

**CONTRACTOR****For DY.CE/C//AGC**

**5. JOINT AND SEVERAL RESPONSIBILITY:**

The parties undertake that they shall be jointly and severally legally liable to the Employer in the discharge of all the obligations and liabilities as per the contract with the Employer/Railways and for execution of project in accordance with General and Special conditions of the Contract if the work is awarded to their JV. The parties shall be jointly and severally liable and responsible for fulfilling the obligations of the tender/tender document.

The parties shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part therefore.

**6. ASSIGNMENT AND THIRD PARTIES:**

The parties shall cooperate throughout the entire period of this JV on the basis of exclusively and neither of the parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the present 'work'.

**7. EXECUTIVE AUTHORITY:**

The said joint venture through its authorized representative shall received instructions, payment from the Employer. The management structure for the project shall be prepared by mutual consultations to enable completion of project to quality requirements within permitted cost and time.

**8. GUARANTEES AND BONDS:**

The Bank Guarantees, Earnest Money, Security Deposits etc. and other Bond shall be furnished jointly by all the parties in the name of joint venture and that shall be legally binding on all the partners of the Joint Venture.

**9. BID SUBMISSION:**

Each party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Employer for the Project Common expenses shall be shared by all the parties in the JV ratio of their actual participation.

**10. INDEMNITY:**

Each party hereto agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

11. For the execution of the respective portions of works, the parties shall make their own arrangements as per mutual agreement/understanding between them from time to time to bring the required finance, plants and equipments, materials, manpower and other resources.

**12. VALIDITY**

This MOU shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the parties agree in writing to extend the validity for a further period.

- a) The bid submitted by the Joint Venture is declared unsuccessful, or
- b) Cancellations/shelving of the project by the Employer for any reasons prior to award of work.
- c) Execution of detailed JV agreement by the parties, setting out detailed terms after award of work buy the employer.

13. The parties undertake not to make any modification/alteration/termination of the MOU of Joint "Venture during the validity of the tender.

14. The parties undertake not to make any changes in this joint venture or terminate this Joint Venture, after submission of the tender bid except when modification becomes inevitable due to succession laws etc. without prior written consent of the Employer. The parties further undertake that in any case Lead Member shall continue to be the Lead Member of the JV.

15. All the members of the JV shall certify that they have not been black listed or debarred by Railways or any other Ministry/Department of the Govt. of India/State Govt. from participation in tenders/contract in the past either in their individual capacity or the JV firm or partnership firm in which they were members/partners.

16. This JV shall be construed under the laws of India.

- 17. Credentials & Qualifying Criteria ie.
  - a) Technical eligibility criteria:
  - b) Financial eligibility criteria.

Now the parties have joined hand to form the JV (MOU) on this \_\_\_\_ day of \_\_\_\_\_ (month) two thousand ten with reference to and in confirmation of their discussions and understanding brought on record on \_\_\_\_\_ (day) (month) (year).

Lead member  
(X)

Member-I  
(Y)

Member-II  
(Z)

(Name of signatory with designation and name of firm should be furnished).

IN WITNESS WHEREOF THE PARTIES, have executed this JV the day, month and year first before written.

Witness

- 1.
- 2.
- 3



**GUIDELINES FOR PARTICIPATION OF JOINT VENTURE FIRMS IN WORKS TENDER**  
**(Rly Board letter no. 2002/CE-I/CT/37, New Delhi dt. 07.09.2011)**  
**(Para 65 of GCC)**

65. Participation of Joint Venture (JV) Firms in Works Tender: This clause shall be applicable for works Tenders of value as approved and communicated by Railway Board from time to time.
- 65.1 Separate identity/name shall be given to the Joint Venture firm.
- 65.2 Number of members in a JV firm shall not be more than three if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five if the work involves more than one department.
- 65.3 A member of JV firm shall not be permitted to participate either in individual capacity or as a member of another JV firm in the same tender.
- 65.4 The tender form shall be purchased and submitted only in the name of the JV firm and not in the name of any constituent member.
- 65.5 The Joint Venture Firm shall be required to submit Earnest Money Deposit (EMD) along with the tender in terms of the provisions contained in Para 5 ( Earnest Money) of Part-I of GCC and giving written confirmation from JV members to the effect that EMD submitted by the Lead Member may be deemed as EMD submitted by JV Firm.
- 65.6 One of the members of the JV firm shall be its **Lead Member** who shall have a majority (at least 51%) share of interest in the JV firm and also must have satisfactorily completed in the last three previous financial years and the current financial year upto the date of opening of the tender, one similar single work for a minimum value of 35% of advertised tender value. The other members shall have a share of not less than 20% each in case of JV firms with up to three members and not less than 10% each in case of JV firms with more than three members. In case of JV firms with foreign member(s), the lead member has to be an Indian firm with a minimum share of 51%.
- 65.7 A copy of Memorandum of Understanding (MOU) executed by the JV members shall be submitted by the JV firm along with the tender. The complete detail of the members of the JV firm, their share and responsibility in the JV firm etc. particularly with reference to financial technical and other obligations shall be furnished in the MOU. (The MOU format for this purpose shall be finalized by the railway in consultation with their law branch and shall be enclosed along with the tender).
- 65.8 Once the tender is submitted, the MOU shall not be modified/altered/terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Earnest money Deposit (EMD) shall be liable to be forfeited.
- 65.13 **Authorized Member**:- Joint Venture members shall authorize one of the members on behalf firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similaresuch action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to the authorized member of the JV firm.
- 65.14 No member of the joint venture firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the employer ( Railways) in respect of the said tender/contract.
- 65.15 Documents to be enclosed by the JV firm along with the tender.
- 65.15.1 In case one or more of the members of the JV firm is/are partnership firm(s), following documents shall be submitted.
- (a) Notary certified copy of the Partnership Deed,

- (b) Consent of all the partners to enter into the Joint Venture Agreement on a stamp paper of appropriate value (in original).
- (c) Power of Attorney (duly registered as per prevailing law) in favour of one of the partners of the partnership firm to sign the JV Agreement on behalf of the partnership firm and create liability against the firm.

65.15.2 In case one or more members is/are Proprietary Firm of HUF, the following documents shall be enclosed:

Affidavit on Stamp paper of appropriate value declaring that his/her Concern is a Proprietary Concern and he/she is sole proprietor of the Concern OR he/she is in position of "KARTA" of Hindu Undivided Family (HUF) and he/she has the authority, power and consent given by other partners to act on behalf of HUF.

65.15.3 In case one or more members is/are limited companies, the following documents shall be submitted:

a) Notary certified copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement, authorizing MD or one of the Directors or Managers of the Company to sign JV Agreement, such other documents required to be signed on behalf of the Company and enter into liability against the company and/or do any other act on behalf of the company.

b) Copy of Memorandum and articles of Association of the Company.

c) Power of Attorney (duly registered as per prevailing law) by the Company authorizing the person to do/act mentioned in the para (a) above.

65.15.4 All the members of the JV shall certify that they are not black-listed or debarred by Railways or any other Ministry/Department of the Govt. of India/State Govt. from participation in tenders/contract on the date of opening of bids either in their individual capacity as members of the JV or the JV firm in which they were/are members.

## 66 Credentials & Qualifying criteria:

Technical and financial eligibility of the JV firm shall be adjudged based on satisfactory fulfillment of the following criteria:

### 16.1 Technical eligibility criteria ( 'a' or 'b' mentioned hereunder):

**(a) Either the JV firm or Lead member of the JV firm must have satisfactorily completed in the last three previous financial years and the current financial year up to the date of opening of the tender, one similar single work for a minimum of 35% of advertised value of the tender.**

**OR**

(b) (i) In case of composite works (e.g. works involving more than one distinct component such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges-substructure, superstructure etc.), for each component, at least 35% of the value of any of such components individually for single similar nature of work should have been satisfactorily completed by the JV firm or by any of the member of the JV firm in the previous three financial years and the current financial year up to the date of opening of tender. The member satisfying technically eligibility criteria for the largest component of the work shall be the lead member and that member shall have a majority (at least 51%) share of interest in the JV firm.

(ii) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity. Any work or set of works shall be considered to be a separate component, only when cost of the component is more than Rs.2 crore each.

(iii) However, as long as the JV Firm or any member of the JV Firm meets with the requirements, in one or more components of the work, and has completed a minimum of 35% of the advertised value of the tender for the same value of the component, and resultantly, all the members of the JV collectively, then meet the prescribed technical eligibility criteria, the JV shall stand technically qualified.

**NOTE:**

Value of a completed work done by a Member in an earlier JV firm shall be reckoned only to the extent of the concerned member's share in that JV firm for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.

**16.2 Financial eligibility criteria:**

**The contractual payments received by the JV firm or the arithmetic sum of contractual payments received by all the members of JV firm** in the previous three financial years and the current financial year up to the date of opening of tender shall be at least 150% of the estimated value of the work as mentioned in the tender.

**NOTE:**

Contractual payment received by a Member in an earlier JV firm shall be reckoned only to the extent of the concerned member's share in that JV firm for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in tender under consideration.

.....

## SPECIAL CONDITIONS RELATING TO SITE DATA AND SPECIFICATIONS

### 3.1 Special Condition Attached In Following Order

- (A) Special Condition
- (B) Special condition (general)

### 4.0 Specifications and Plans

4.1 Some of the relevant IS codes are mentioned as under (with up to date correction slips).

- (i) IS code of practice for plan and reinforcement concrete for general building construction (IS: 456-2000).
- (ii) IS code for use of structure steel in general building construction (IS: 800-1984).
- (iii) IS code of practice for electric welding of mild steel IS 823-1964, IS: 6227-1971.
- (iv) IS code of practice for structure safety of building loading standard (Revised IS: 875-1969).
- (v) IS specification of practice for structural safety of building foundations IS: 1905-1980.
- (vi) IS code of practice for structural safety of building foundations IS: 1964-1966.
- (vii) IRS code of practice for design and construction of pile foundations IS: 2911 part-I, II, III with up to date correction slip.
- (viii) IS Code of practice for pre-stressed concrete with latest amendments (IS: 1343-lastest reprint with correction slips).
- (ix) Criteria for earthquake resistant design of structures.
- (x) IS specifications for un-coated stress-relieved strands for PSC (IS: 6006-1983 with amendment).
- (xi) IS specifications for high tensile steel bars used in pre-stressed concrete (IS: 2090-1983).
- (xii) Building Digest No. 56.
- (xiv) IRC standard specifications and code of practice for road bridges (all sections).
- (xv) IS code of practice for bending and fixing of bans for concrete reinforcement IS: 2502.
- (xvi) IRS code of practice for design of sub-structure and foundation of bridges adopted 1936 revised 1985 here in after referred to "sub-structure code" with all latest correction slips.
- (xvii) Chief Engineer's circulars.

4.2 Latest edition and up to date correction slip in all the above relevant codes will be applicable so far as this work is concerned.

4.3 In case of difference between the provision of codes such as above and any discrepancy in the interpretation of codal provision, decision of the Dy Chief Engineer/Construction or the Chief Engineer/Construction/North/North Central Railway, Allahabad would be treated as final and will be binding upon the contractor.

Any difference of opinion between site engineer and contractor shall be referred to Engineer-in-charge of work. The appeal against Engineer-in-charge shall be with Chief Engineer/North Central Railway whose decision shall be final. Items under this scope shall be deemed to be Excepted Matters.

Apart from the basic data, specifications etc. all items of works shall be governed by the following codes as revised/correct/amended up to the time of submission of the tenders/negotiated cost for acceptance.

The more important IS/BIS/ASTM/MOST Codes, Standards and Publications to Contract are listed hereunder:

A	General
IS:875 (Part 3)	Code of practice for design loads (other than earthquake) for buildings and structures
IS:1322	Bitumen felts for water proofing and damp-proofing
IS:1893	Criteria for earthquake resistant design of structures
IS:2572	Code of Practice for construction of hollow concrete block masonry
IS:3414	Code of practice for design and installation of joints in buildings

IS:6408 (Parts 1,2)	Recommendations for modular co-ordination in building industry – tolerances
IS:10958	General check list of functions of joints in building
IS:11817	Classification of joints in buildings for accommodation of dimensional deviations during construction
IS:11818	Method of test for laboratory determination of air permeability of joints in buildings
IS: 12440	Pre-cast concrete stone masonry blocks
CPWD	Specifications 96.
BS: 476 (Part 7)	Method for classification of the surface spread of flame of products
BS: 476 (Part 20)	Method of determination of the fire resistance of elements of construction (general principles)
BS: 476 (Part 22)	Methods for determination of the fire resistance of non-load bearing elements of construction
BS: 5215	Specification for one-part gun grade polysulphide-based sealants
BS: 5606	Guide to accuracy in building
BS: 6093	Code of practice for the design of joints and jointing in building construction
BS: 8200	Code of practice for the design of non-load bearing external vertical enclosure of building
ASTM C 332	Specification for light weight aggregate for insulating concrete
SP 7	National Building Code of India
SP 23 (S&T)	Hand Book on Concrete Mixes
<b>B</b>	<b>Bitumen</b>
IS: 702	Industrial Bitumen
IS: 3384	Specification for bitumen primer for use in waterproofing and damp-proofing
<b>C</b>	<b>Building Construction Practices</b>
IS: 1838 Parts I and II	Specifications for preformed fillers for expansion joint in concrete pavements and structures.
IS: 1946	Code of Practice for use of fixing devices in walls, ceilings, and floors of solid construction.
IS: 6509	Code of Practice for installation of joints in concrete pavements.
IS: 11134	Code of Practice for setting out of buildings.
IS: 11433	Parts I and II. Specifications for one part Gun grade polysulphide based joint sealant.
IS: 12200	Code of Practice for provision of water stops at transverse contraction joints in masonry and concrete dams
IS: 4130	Demolition of Buildings-Code of safety (2 <sup>nd</sup> Session)
<b>D</b>	<b>Cement</b>
IS: 269	33 grade ordinary Portland cement
IS: 455	Portland Slag Cement
IS: 650	Specification for standard sand for testing cement.
IS: 1489 (Part 1)	Portland pozzolana cement: Flyash based
IS: 1489 (Part 2)	Portland pozzolana cement: Calcined clay based
IS: 3535	Method of Sampling Hydraulic Cements
IS: 4031	(Parts 1 to 13) Methods of physical tests for hydraulic cement.
IS: 4032	Method of chemical analysis of hydraulic cement.
IS: 6925	Methods of test for determination of water soluble chlorides in concrete admixtures.
IS: 8042	White Portland Cement
IS: 8112	Specification for 43 grade ordinary Portland cement.
IS: 12269	Specification for 53 grade ordinary Portland cement.
IS: 12330	Specification for sulphate resistant Portland cement.
<b>E</b>	<b>Concrete</b>
IS: 456	Code of practice for plain and reinforced concrete.
IS: 457	Code of practice for general construction of plain and reinforced concrete for dams and other massive structures.
IS: 460 (Parts I to III)	Specification for Test Sieves

IS: 516	Methods of test for strength of concrete.
IS: 1199	Methods of sampling & analysis of concrete.
IS: 1200	Method of measurement of building and civil engineering
IS: 1343	Code of practice for pre-stressed concrete
IS: 1607	Method of Test Sieving
IS: 2386	Parts I-VIII. Methods of tests for aggregates for concrete.
IS: 2430	Methods of Sampling of Aggregates of Concrete
IS: 2438	Specification for roller pan mixer
IS: 2514	Specification for concrete vibrating tables
IS: 2571	Code of practice for laying in-situ cement concrete flooring
IS: 2645	Specifications for integral cement water proofing compounds
IS: 2722	Specifications for portable swing batchers for concrete (double bucket type)
IS: 2770	Methods of testing bond in reinforced concrete part I pull out test
IS: 3025	Methods of sampling and test (physical and chemical) for water & waste water
IS: 3370	Code of practice for concrete structures for storage of liquids
IS: 3935	Code of practice for composite construction
IS: 4326	Code of practice for earthquake resistant construction of building
IS: 6925	Methods of test for determination of water soluble chlorides in concrete Admixtures
IS: 7242	Specifications for concrete spreaders
IS: 7251	Specifications for concrete finishers
IS: 7861	Parts I & II. Code of practice for extreme weather concreting.
IS: 7969	Safety code for handling and storage of building materials
IS: 8989	Safety code for erection of concrete framed structures
IS: 8142	Methods of test for determining setting time of concrete by penetration resistance
IS: 9103	Specifications for admixtures for concrete
IS: 9013	Method of making, curing and determining compressive strengths of accelerated cured concrete test specimens
IS: 9284	Method of test for abrasion resistance of concrete
IS: 10262	Recommended guidelines for concrete mix design.
MOSTIRC	Specifications for Road and Bridge Works, Ministry of Surface Transport (Roads Wing)
IRS	Concrete Bridge Code
IRC 21-1987	Standard Specifications and Code of Practice for Road Bridges Section III – Cement Concrete (Plain & Reinforced)(First Revision)
ASTM - C - 94	Ready Mix Concrete
<b>F</b>	<b>Construction Plant and Machinery</b>
IS: 1791	Specification for batch type concrete mixers.
IS: 2505	General requirements for concrete vibrators: Immersion type.
IS: 2506	General requirements for screed board concrete vibrators.
IS: 3366	Specification for pan vibrators.
IS: 3558	Code of Practice for use of immersion vibrators for consolidating concrete.
IS: 4656	Specifications for form vibrators for concrete.
IS: 4925	Specification for concrete batching and mixing plant.
IS: 11993	Code of Practice for use of screed board concrete vibrators.
<b>G</b>	<b>Formwork</b>
IS: 4990	Specifications for plywood for concrete shuttering work.
IRC: 87	Guidelines for the design and erection of false work for road bridges.
IS: 806	Code of practice for use of steel tubes in general building construction.
IS: 1161	Specification of steel tubes for structural purposes.
IS: 1239	Specification for mild steel tubes. Tubulars and other wrought steel fittings.
<b>H</b>	<b>Gypsum and Gypsum Board</b>
IS: 2095	Gypsum plaster boards
IS: 2542 (Part 1/Sec 1 to 12)	Methods of test for gypsum plaster, concrete and products: plaster and concrete
IS: 2542 (Part 2/Sec 1 to 8)	Methods of test for gypsum plaster, concrete and products: Gypsum products
IS: 2547 (Part 1)	Gypsum building plaster: Excluding premixed lightweight plaster

IS: 2547 (Part 2)	Gypsum building plaster: Premixed lightweight plaster
<b>I</b>	<b>Handling and Storage</b>
IS: 4082	Recommendation of Stacking and Storage of construction materials
IS: 8348	Code of practice for stacking and packing of stone slabs for transportation
<b>J</b>	<b>Instruments For Testing Cement and Concrete</b>
IS: 5513	Specification for vicat apparatus.
IS: 5514	Specification for apparatus used in Le-Chaterlier test.
IS: 5515	Specification for compaction factor apparatus.
IS: 7320	Specification for concrete slump test apparatus.
IS: 7325	Specification for apparatus to determine constituents of fresh concrete.
IS: 10080	Specification for vibration machine.
IS: 10086	Specification for moulds for use in tests of cement and concrete.
IS: 10510	Specification for vee-bee consistometer.
<b>K</b>	<b>Joint Fillers</b>
IS:1838 (Part 1)	Preformed fillers for expansion joint in concrete pavements and structures (non extruding and resilient type): Bitumen impregnated fibre
<b>L</b>	<b>Paints and Coatings</b>
IS: 102	Ready mixed paint, brushing, red lead, non-setting, priming
IS: 109	Ready mixed paint, brushing, priming, plaster, to Indian Standard Colour No. 361 and 631 white and off white.
IS: 347	Varnish, shellac, for general purpose.
IS: 2074	Ready mixed paint, air drying, red oxide-zinc chrome, priming
BS: 6496	Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with powder organic coatings
BS: EN: 10152	Specification for electrolytically zinc coated cold rolled steel flat products. Technical delivery conditions
ASTM A 164-71	Specification for electrodeposited coatings of zinc on steel
<b>M</b>	<b>Pigment for Cement</b>
BS: 1014	Specification for pigments for Portland cement and Portland cement products
<b>N</b>	<b>Reinforcement &amp; Structural Steel</b>
IS: 280	Mild steel wire for general engineering purposes
IS: 432	Part I. Mild steel and medium tensile steel bars. Part II Hard drawn steel wire.
IS: 814	Parts I & II. Electrodes for metal arc welding of structural steel.
IS: 815	Classification coding of covered electrodes for metal arc welding of structural steels
IS: 816	Code of Practice for use of metal arc welding for general construction in mild steel.
IS: 1566	(Part I) Specifications for hard-drawn steel wire fabric for concrete reinforcement.
IS: 1786	Specification for high strength deformed steel bars and wires for concrete reinforcement.
IS: 2502	Code of Practice for bending and fixing of bars for concrete reinforcement.
IS: 2629	Recommended practice for hot-dip galvanising of iron and steel.
IS: 2751	Code of Practice for welding of mild steel plain and deformed bars for reinforced concrete construction.
IS: 4759	Hot-dip zinc coating on structural steel and other allied products.
IS: 5525	Recommendations for detailing of reinforcement in reinforced concrete works
IS: 9417	Recommendations for welding cold-worked steel bars for reinforced concrete construction.
IS: 14268	Uncoated stress relieved low relaxation steel class 2 for Pre-stressed concrete
IS: 226	Structural steel (Standard Quality)
IS: 800	Code of practice for use of structural steel in general building construction.
IS: 813	Scheme of symbols for welding.
IS: 814	Covered electrodes for metal arc welding of structural steel. (Part I & Part II)
IS: 816	Code of practice for use of metal arc welding for general construction in mild steel.
IS: 822	Code of practice for inspection of welds.
IS: 961	Structural steel (High Tensile)
IS: 1024	Code of practice for use of welding in bridges and structures subject to dynamic loading.
IS: 1161	Steel tubes for structural purposes.

IS: 1182	Recommended practice for radiographic examination of fusion welded butt joints in steel plates.
IS: 2062	Structural steel (Fusion welding quality)
IS: 3757	Specification for high tensile friction grip bolts.
IS: 5624	Specification for foundation bolts.
IS: 3600	Code of practice for testing of fusion welded (Part I) joints and weld metal in steel.
IS: 4923	Hollow steel sections for structural use.
IS: 6227	Code of practice for use of metal arc welding in tubular structure.
IS: 801	Code of practice for use of cold-formed light gauge steel structural members in general building construction.
IS: 811	Specifications for cold-formed light gauge structural steel sections.
<b>O</b>	<b>Sand</b>
IS: 383	Coarse and fine aggregates from natural sources for concrete.
<b>P</b>	<b>Scaffolding</b>
IS: 2750	Specification for steel scaffoldings
IS: 3696 (Part 1)	Safety Code of scaffolds and ladders: Scaffolds
IS: 3696 (Part 2)	Safety Code of scaffolds and ladders: Ladders
IS: 4014 (Part 1)	Code of practice for steel tubular scaffolding: Definition and materials
IS: 4014 (Part 2)	Code of practice for steel tubular scaffolding: Safety regulations for scaffolding
<b>Q</b>	<b>Sealants</b>
IS: 10959	Glossary of terms for sealants for building purposes
IS: 11433 (Part 1)	One part grade polysulphide base joint sealant: General requirements
IS: 11433 (Part 2)	One part grade polysulphide base joint sealant: Methods of test
IS: 13055	Methods of sampling and test for anaerobic adhesives and sealants
BS: 5889	Specification for one-part gun grade silicone-based sealants.
<b>R</b>	<b>Wood</b>
IS: 303	Plywood for General Purposes
IS: 2202 (Part 1)	Wooden flush door shutters (solid core type): Plywood face panels
IS: 2202 (Part 2)	Wooden flush door shutters (solid core (type): Particle face panels and hardboard face panels

## 5.0 Form work

- 5.1 Form work shall be of new steel plates fixed on the angle iron frame of adequate thickness unless otherwise directed by the Engineer-in-charge. It should be watertight sufficiently strong and rigid to resist forces caused by vibration and incidental loads associated with it and keep the form rigid.
- 5.2 If the work is to be executed in close proximity of running track, the shuttering should be so planned so as not to infringe with schedule of minimum moving dimensions, BG of 1963 (1973 reprint)-Revised 2004. Shuttering should be of self-supporting nature and no centering or propping will be permitted on the running track side.
- 5.3 Work shall be executed without disturbing the existing position of running track as shown in plan and entire work should be planned accordingly.
- 5.4 At any stage of work during or after placing the concrete in the structure if the form work is found defective, such concrete shall be removed and work redone with fresh concrete and with adequate rigid form works at the cost of the contractor. The props for the centring wherever permitted shall be supported by the double wedges in order to facilitate causing & removal of the shuttering without jarring. Centring and shuttering should be carefully released in order to prevent the loading being instantly transferred to concrete. The period that shall lapse after the last pour of concrete for easing



removal of centring and shuttering shall be fixed by the Engineer-in-charge and will be binding on the contractor/s.

- 5.5 It may be necessary to make provision for holes/grooves in the form work to house the various services and drainage arrangement and for any projecting bars for which neither any extra payment shall be made to the contractor/s for making these provisions nor any deduction shall be made on a/c of any saving in RCC work due to these provision.
- 5.6 Wherever chamfer or rounded corners are mentioned in the drawing, form work should be such that no chiseling/cutting of CC/RCC is required to obtain requisite profile.
- 5.7 The surface of the form works shall be clean, smooth and free of cement mortar etc.
- 5.8 The contractor shall give the Engineer/his representative due notice before placing any concrete in the forms to carryout inspection of the forms as to their strength, alignment and general fitness but such inspection shall not relieve the contractor of his responsibility for safety of works, men, machinery, materials and for result obtained.

## **6.0 Removal of Form Work**

- 6.1 The Engineer-in-Charge shall be informed in advance by the contractor of his intention to strike any form work.
- 6.2 While fixing the time for removal of form work, due consideration shall be given to the local conditions, character of the structure, the weather and the other conditions that influence the setting of concrete and of the material used in the mix.
- 6.3 The period shall be suitably increased in case of temperature lower than 5 degree Celsius and for any other conditions tending to delay the setting of concrete.
- 6.4 These field operations are controlled by strength tests of concrete, the removal of the load supporting arrangements of soffit may commence when concrete has attained strength equal to twice the stress to which the concrete will be subject to, at the time of striking props including the effect of any further additions of loads. When field operations are not controlled by strength test of the concrete the vertical forms of beam columns & walls may be removed as per orders of the Engineer-in-charge or his representative.
- 6.5 All form work shall be removed without causing any damage to the concrete. Centering shall be gradually and uniformly lowered in such a manner as to avoid any shock or vibrations. Supports shall be removed in such a manner as to permit concrete to take stress due to its own weight uniformly and gradually. Where internal metal ties are permitted, their removable parts shall be extracted without causing any damage to the concrete and the remaining holes filled with mortar. No permanently embedded metal parts shall have less than 40 mm cover to the finished concrete surfaces. Where it is intended to re-use released formwork, it shall be cleaned and made good to the satisfaction of Engineer-in-charge or his representative.

## **7.0 Reinforcement**

### **7.1 APPROVED SPECIFICATION AND MANUFACTURES FOR REINFORCEMENT STEEL FOR RCC WORKS**

- 7.1.1 High strength deformed TMT bars for concrete reinforcement to IS1786:2008 of Fe415D & **preferably Fe 500D category should be used.**
- 7.1.2. HSD (TMT) bars of category and grade Fe 415D or Fe 500D to IS 1786: 2008 from primary producers i.e. SAIL /TATA STEEL /RINL shall only be used for construction of all Railway bridges, ROB/RUB's important service and community structures such as station buildings, community centers, hospitals, water towers /tanks, schools, assembly halls, sheds and framed structures more than 02 stories.

The reinforcement bars from these primary producers may be accepted based on the manufacturers ' test certificate.

- 7.1.3 However, Dy.CE./C in charge of the work can permit use of HSD TMT bars manufactured by secondary producers up to 16 mm dia size in case the required size reinforcement steel from primary producers is not readily available in the market and the work is likely to get held up on this account.
- 7.1.4 For construction of all other structures, the HSD TMT bars of category and grade Fe 415D or Fe500D /550D to IS 1786: 2008 manufactured by secondary producers can be permitted for all sizes.
- 7.1.5 Whenever, use of reinforcement steel is permitted from secondary producers, a reduction of 10% on the accepted rates of reinforcement steel will be applicable for payment of quantity permitted from secondary producers.
- 7.1.6 However following guidelines for testing of reinforcement steel from secondary producers shall be followed before acceptance of material.
- 7.1.7 Up to 25 MT – 1 sample shall be tested for chemical and mechanical properties for each consignment.
- 7.1.8 For each subsequent 25 MT or part there of one additional Sample each shall be tested for mechanical properties.
- 7.1.9 Testing shall be done only at BIS approved laboratories. In addition testing can also be done from any NABL accredited laboratory. This is to ensure that the steel supplied by secondary producers is of good quality and fulfill the requirement of IS 1786 : 2008 of required category/grade of strength.
- 7.2 Every bar shall be inspected before assembling on the works and any defective, brittle, excessively rusted or burnt bars shall be removed. Cracked ends of bars shall be cut out.
- 7.3 Rejected material should be removed from the site by the contractor.
- 7.4 Railway may also take samples during the course of work and get the Steel tested to ascertain. Their conformity to the IS specifications at contractor's cost before a particular lot is put to use. Frequency of the testing shall be as prescribed by relevant IS code.
- 7.5 Payment for the Steel reinforcement shall be made on the basis of standard unit weights per metre to the extent actually consumed on the work as per approved drawings and **nothing extra will be paid for unauthorised over laps** and wastage of Steel involved in cutting the bars to their required sizes. Overlaps for longer length than standard length will be paid extra. **Nothing extra will be payable for over weight Steel and no deduction will be made for underweight** Steel is within the limit of tolerances permitted as per IS: 1786 - 2008.
- 7.6 Steel having unit weights per meter not falling within the tolerances specified in above IS code shall not be accepted.
- 7.7 It shall be the responsibility of the contractor to clean the reinforcement bars with gunny bags, if they are coated with light rust or other impurities. No extra payment will be made on this account.
- 7.8 Welding of reinforcement will not be permitted except in special circumstances with the approval of Engineer in charge.
- 7.9 Binding wire of approved quality GI wire 18 SWG shall be arranged by the contractor himself at his own cost and *Rates for RCC work shall include cost* of this item of work.
- 7.10 **Standard lengths of 12 m only shall be considered for payment of overlap of main reinforcement until unless mentioned otherwise in the relevant items.**
- 7.11 Nothing extra will be paid for unauthorized overlaps and wastage of steel involved in cutting of the bars to their required sizes and only tested steel shall be used.
- 7.12 Pre-cast CC blocks of suitable size and shape of same mix and strength as of structure with binding wires fixed in while casting shall be provided by the contractor to maintain required concrete cover as per plans and directions of the Engineer-in-charge without any extra payment to the contractor in case of cast in-situ pile in foundation. Such blocks may be circular in shape with suitable dai in centre to pass through the reinforcement.

## 8.0 Material

The design mix concrete of strength as indicated as per approved drawings shall be used for sub-structure and super-structure of the bridge. The contractor will submit design mix along with the calculations to the Engineer in-Charge. **The design mix will have to be got approved from the Engineer In-Charge before use in the construction.**

## **9.0 ADDITIONAL SPECIAL CONDITIONS & SPECIFICATIONS**

### **1.1.0 CEMENT**

#### **1.1.1 GENERAL**

#### **1.1.2 MASTER SCHEDULE ITEMS**

The cost of Cement for the work is included in the rates for Master schedule items mentioned in the tender.

#### **NON SCHEDULE ITEMS**

The rates to be quoted by the tenderer shall be inclusive of the cost of the cement .No extra payment towards cost of cement will be payable.

- 1.1.3 The Railway will not supply any cement for the works. The contractor(s)/has/have to procure the cement required for the work from the market and transport the same to the site of work at his/their own cost including all taxes. Octroi etc. and including all lead and handling etc.
- 1.1.4 The cement should be purchased by the contractor(s) only from the authorised, Approved manufacturers or their authorised agent. The contractor(s) should produce the documented proof such as bill Challan , etc. from such authorised manufacturers/ Agents from whom the cement is purchased for every lot of cement brought at site and to be verified by the Railway's representative. The cement brought at site without such documental proof will not be permitted to be used in the work.
- 1.1.5 The cement as approved by the Railway's representative will be properly stacked at site in the godown constructed by the contractor at his own cost. The contractors should keep the cement under their safe custody and will be made accessible to the Railway/ to the Railway's representative to physically verify and check at any time.
- 1.1.6 The contractor will be fully responsible for the safeguard of the cement alongwith other materials and the Railway will not compensate for any damage, loss or theft of the cement or any other materials at site.
- 1.1.7 Any delay in procurement of cement will not be considered as cause for granting extension for the date of completion.

#### **1.1.8 QUALITY OF TESTING.**

The cement used shall be any of the following, with the prior approval of the Engineer.

- (a) 43/53 Grade Ordinary Portland Cement conforming to IS 12269(Latest)
- (b) Rapid hardening Portland Cement conforming to IS:8041(Latest)
- (c) High strength Portland Cement conforming to IS:1040.
- (d) Portland Slag Cement conforming to IS: 455(Latest)

NOTE: Portland slag Cement shall not be used for prestressed concrete works.

- (e) Portland Pozzolana Cement conforming to IS: 1489(Latest)

When Portland Pozzolana Cement is used, it is to be ensured that proper damp curing of concrete is done at least for 14 days and supporting from work is not removed till concrete case attains at least 75% of the design strength

NOTE: Portland Pozzolana Cement IS 1489 shall not be used to PSC works.

In aggressive environment “ where sulfate and Chloride Ions are present in abundance, preferably Ordinary Portland Cement with moderate sulfate resisting properties conforming to specifications as given in table below may be used.

Specification for ordinary portland Cement (With moderate Sulfate resisting properties)

Sr.No	Charactristies	I T E M	Not less than	Not More than
	Ratio of Percentage of lime To and iron oxide,when Calculated by the formula Given in IS:269.		0.80	1.02
2.	Ratio of percentage of alumina to that of iron oxide.		0.86	-
3.	Magnesia(%by wt)		-	5.0
4.	Loss on ignition(%by wt)		-	4.0
5.	Tricalcium acuminate content (C3A)(%)		6.0	10.0
6.	Tricalcium silicate contents		40.0	-
7.	Physical properties fineness (Cm <sup>2</sup> /g)		2800.00	3200.00
8.	Soundness'De Chatalier		-	5.0mm
9.	Setting time			
	(a)Initial(In minutes)		60.0	-
	(b)Final(In minutes)		-	60.0
10.	Compressive strength			
	(a)7 days(N/mm <sup>2</sup> )		29.5	-
	(b)28 days(N/mm <sup>2</sup> )		41.7	-

NOTE : The method of testing to determine the above characteristics and ascertaining the results, shall conform to the procedure prescribed in IS: 269.

The cement should be net weight 50 Kg in bag. Cement bags should be preferably in paper bag polyphone bag packing and should bear the following information in legible markings.

- i) Manufacturer's Name.
  - ii) Registered trade mark of Manufacturer, if any.
  - iii) Type of cement with ISI Code No.
  - iv) Weight of each bag in Kg.
  - v) Date/month of Manufacture with Year.
- 1.1.9 Random specimen samples of cement taken from the lot brought at site should be tested at any authorised/approved Engineering institute/reputed laboratory, for its physical and chemical properties as specified in the IS specification (I-4031) and any other tests as specified by the Engineer or his representative. Some of the tests which should be carried out are :-
- i) Compressive strength.
  - ii) Initial and final setting time.
  - iii) Consistency.
  - iv) Soundness.

These test will be got carried out by the Rly's Representative and the arrangements and cost of tests including cost of cement for testing will be borne by the contractor. Such tests should be done invariably at every change of batch of cement and at times when it is found necessary at the discretion of the site Engineer/ his representative at site.

1.1.10 To ensure quality control test certificate from the Manufactures should be Produced by the contractors, which should conform to the relevant specification.

1.1.11 Rejected lot should be removed from the site immediately by the contractors.

1.1.12 CEMENT CONTENT.  
The appropriate value of minimum cement content for different exposure conditions are given below for RCC and PSC separately.

MINIMUM CEMENT CONTENT		
DISCRPTION	RCC(Kg/m3)	PSC(Kg/m3)
Mild	325	400
Moderate	325	400
Severe	350	425
Very severe	400	450

However, cement content in excess of 530Kg/m<sup>3</sup> should not be used unless special consideration has been given in the design to the increased risk of cracking due to shrinkage in this sections or to early thermal creaking for the increased risk of damage due to alkali silica reactions

#### 1.1.13 CONSUMPTION USE AND ACOUNTAL:

The consumption or use of cement in the works will be at the rate of quantities specified for each item requiring nominal mix and as required for design mix.

In case of designed mixes of concrete the contractors should submit the design of mix duly done by any approved Engineering Institute or Laboratory and the cement required as specified in the design should be used to achieve the specified strength of the concrete.

Proper accounts of the cement for receipt consumption balance etc. should be maintained at site duly verified and signed by the contractors and the Railway Representative/ Engineer.

#### 1.1.14 It is entirely contractor's responsibility to safeguard the cement from damage, loss and theft etc. and railways will not pay any compensation for any such loss, damage or theft.

In case, the cement consumed in the work is lesser than specified ,the cost of such cement used less, will be recovered from the contractor's bill at the market rate increased by 20% codal charges not with standings the fact that required strength is achieve by less quantity of cement used and also provided such works are qualitatively otherwise acceptable to the Railway. In case of excess consumption, no extra cement will be paid to the contractor.

The cement should be fresh and generally consumed within three months of its age. If the cement is older than three months test should be carried out for its loss of strength and other properties and additional/extra quantity of cement will be used as decided by the site Engineer to achieve the required strength . No extra payment will be made by the Railway for such additional quantity used by the contractor.

Cement brought at site by the contractor for a particular work should not be taken to other works site without the written approval/permission of the Railway site Engineer.

Any cement left out on out on completion of works will be property of the contractor. The contractor will be at liberty to dispose off the left over cement. Railway will neither take over the left over cement not will compensate the contractor in any manner what so ever.

- 9.1 Ordinary Portland cement grade-43 conforming to IS-8112/1989 or high strength ordinary Portland cement grade-53 conforming to relevant IS code IS-12269/1987 capable of achieving the required design concrete strength shall normally be used. In case Pozzolana Portland Cement is used, specific approval of Engineer-in-charge shall be taken in advance and necessary precautions regarding formwork, curing etc. as per IRS Concrete Bridge Code shall be taken.
- 9.2 To improve the workability of concrete and cement grout admixtures conforming to IS-6925 and IS-9103 could be permitted subject to satisfactory proven use. Admixtures generating hydrogen, nitrogen, chlorides etc. shall not be used.
- 9.3 Cement content in concrete for PRC work shall neither be less than 400 kg./cum nor more than 540 kg./cum of concrete in design mix. Maximum water cement ratio shall be as follows: -  
Deck slab -0.40  
PSC Girder - 0.40

**10.0 Fine and Coarse Aggregate**

10.1 Fine and coarse aggregate for all types of concrete work shall conform to I.S-383 (Latest Edition).

10.2 In addition to the routine tests, special tests of material will be carried out whenever required by the Engineer. The cost of the special tests will be borne by the contractor. Necessary facilities in the form of moulds, cones, scales, materials labour for casting, curing, specimens and such other facilities as per requisite in any standard concrete tests will be in any cases be afforded by the contractor free of cost. Cement for the tests shall be arranged by the contractor at his own cost and no payment shall be made for this.

**11.0 Water**

11.1 The contractor shall be responsible for the arrangements of water necessary for the works at his own cost and rates quoted shall also include the cost of water or any other arrangements required to be made for procuring water and leading/ transporting and carrying water to the site of the work irrespective of the distance from the source of water. The water shall, however, conform to I.S-456.

11.2 Water shall be tested before starting the work or whenever the quality or source of water changes and testing is required by the Engineer, water shall be tested for its chemical and other impurities to ascertain its suitable for use in concrete and other structural works as per codal provisions at the cost of contractor.

**12.0 Testing of materials**

The contractor shall at his own cost arrange and carry out the tests of materials to be used in the work as and when required by Engineer. The testes shall be carried out in recognized institution and NABL approved Laboratories.

**13.0 SPECIAL CONDITIONS FOR USING CONTRACTOR'S STEEL.****1.2.1 STEEL****1.2.1.1 GENERAL**

1.2.1.2. Railway will not supply any steel for the works included in this tender.

Mild/Ribbed Torque steel bars of various dia meters for reinforcement in RC works and for other items of works as required and structural steel for fabrication items of works, will be procured and transported to site by the contractor/s at his/their own cost.

1.2.1.4 The steel bars/ structural steel shall confirm to the relevant I.S. Specification M.S. Bars should confirm to I.S. 432(Part-I) 1982 and torque steel should confirm to IS 1785/1786 in standard length.

The steel brought at site should be properly stacked diameter with separately and protected from contact with earth water etc. Wherever the treatment of the steel against corrosion is specified, the same should be done as specified in the items and specification

The cost of the steel will be under a separate suitable item as provided in the tender schedule.

Steel supplied for reinforcement shall be kept free of loose mill scales, Loose rust and cost of oil, mud or other material which may destroy or reduce bond till concreting.

Cover for reinforcement. The cover shall be uniform. Minimum clear cover shall be mentioned in the drawing. Suitable size of cover blocks of the same grade as that of concrete shall be cast in controlled conditions with binding wire fixed in it.

Spacing of reinforcement shall be according to drawings supplied by Railway. Proper detailing is essential as any cracked caused by defective detailing will cause Corrosion. All ends of binding wires shall be carefully turned inside so that they do not project out of concrete to cause starting of rusting action.

**1.2.2.0 Only TISCO/SAIL/RINL Steel will be used in execution of work**

1.2.2.1 HSD (TMT) bars of category and grade Fe 415D or Fe 500D/ 550D to IS 1786 : 2008 from primary producers i.e. SAIL /TATA STEEL /RINL shall only be used for construction of all Railway bridges, ROB/RUB's important service and community structures such as station buildings, community centers, hospitals, water towers /tanks, schools, assembly halls , sheds and framed structures more

than 02 stories. The reinforcement bars from these primary producers may be accepted based on the manufacturers' test certificate.

- 1.2.2.2 However, Dy.CE./C in charge of the work can permit use of HSD TMT bars manufactured by secondary producers up to 16 mm dia size in case the required size reinforcement steel from primary producers is not readily available in the market and the work is likely to get held up on this account.
- 1.2.2.3 For construction of all other structures, the HSD TMT bars of category and grade Fe 415D or Fe500D /550D to IS 1786 : 2008 manufactured by secondary producers can be permitted for all sizes.
- 1.2.2.4 *Whenever, use of reinforcement steel is permitted from secondary producers, a reduction of 10% on the accepted rates of reinforcement steel will be applicable for payment of quantity permitted from secondary producers.*
- 1.2.2.5 However following guidelines for testing of reinforcement steel from secondary producers shall be followed before acceptance of material.
- 1.2.2.6 Up to 25 MT – 1 sample shall be tested for chemical and mechanical properties for each consignment.
- 1.2.2.7 For each subsequent 25 MT or part there of one additional Sample each shall be tested for mechanical properties.
- 1.2.2.8 Testing shall be done only at BIS approved laboratories. In addition testing can also be done from any NABL accredited laboratory.
- 1.2.2.9 This is to ensure that the steel supplied by secondary producers is of good quality and fulfill the requirement of IS 1786: 2008 of required category/grade of strength.

1.2.2.10 Rejected material should be removed from the site by the contractor.

1.2.3.0 **CONSUMPTION AND ACCOUNTAL.**

1.2.3.1 The steel should be used in the work as shown in the approved drawings. Overlap if necessary should be provided as required by design and specification but no payment shall be made for extra steel used for providing overlap.

Proper account will be maintained in the registers regarding consumption balance etc. duly signed by the contractor and Railway's representative.

For the purpose of payment linear measurement of reinforcement need for the work will be converted into mass/unit weight No overlaps will be accounted for the payment and no rolling margin will be considered. The cutpieces, wastage and the left out material will be disposed off by the contractor. Railways will not pay any compensation for such cutpieces, wastage or balance left out material.

The steel brought at site by the contractor for a particular work should not be shifted to other works/site without the written approval/permission of the Railway's site Engineer.

1.2.3.5 Welding of reinforcement will not be permitted except in special circumstances under the written approval of the Engineer in charge.

1.3.0 **AGGREGATES.**

Only aggregate conforming to IS 383-1970 shall be used in concrete works whether it be plain or RCC. The provisions in IS 2386-1983 (Pt.2) shall prevail when damage with deleterious material and organic impurities.

1.3.1 Prior to deciding on the source for procurement of constituents on concrete, viz. Fine and coarse aggregate, the contractor shall specifically assess the soluble chloride and sulfate contents of fine and coarse aggregate(at source) and their permissible limit shall be got approved by Railway. Regular checks as directed, shall also be carried out hot oinly of the source of supply of such materials) but also prior to their use in the permanent works to use in that the aggregate do not contain impurities exceeding the permissible limit.

The special requirement to be satisfied are as under: \_

	Fine (Upper Limits)	Coarse(Upper Limits)
a)Chloride content(CL)Max.	0.04% by wt.(Acid soluble)	0.02% by wt(Acid soluble)
b)Sulphate(503)-Max	0.04% by wt.(Acid soluble)	0.04% by wt
c)Potential alkali reactivity	Absent	Absent
d)Water absorption Max..	3% by wt	3% by wt
e)Particle shape mix.	Shape index 53% of Augularity No.9	Flake-ness Index/Elongation index should not beyond 25%
f)Mica maximum.	1%	-
g)Silt contents	3% by wt	-
h)Soundness with Na <sub>2</sub> SO <sub>4</sub> MG SO <sub>4</sub>	10% Max 15%Max	-
i)Particles less than 75 micron-Max.	3% by wt	1% by wt.

The other requirement as regard to the overall limits of harmful salts contents physical. Percentage of aggregate, deleterious substances in aggregate and concrete etc shall confirm the requirements of IS-2386(Part-I & II)-1963.

However, the final decision of acceptance criterion/rejection for aggregate to be used for permanent works shall lie with Railways.

#### 1.4.0 **WATER.**

Water used for mixing and curing shall be clean and free from various amount of oils acids, allcalis, salt, sugar, organic, material or other substances that may be deleterious to concrete or steel. Potable water is generally considers satisfactory for mixing and curing of concrete. The water to be used for these purposes should be conforming to clause 5.4 of IS 456, 2000. The permissible limits of solids in water tested as per IS 3025 are given below.

<u>Sr.No.</u>	<u>Type of Solide</u>	<u>Permissible limits</u>
1	Organic	200 Mg per letere
2	InOrganic	3000Mg per litere
3	Sulphate(as SO3)	400 Mg per litere
4	Chlorides (as CL)	2000Mg per Litere for concrete not containing embedded steel and 50 Mg per Ltr in reinforced Concrete work. 2000Mg per Ltr.
	Suspended matter	

If water available locally doesn't conform to above standards of water, then contractor will have to make his own arrangements to bring water of required standard from some other source of his own cost, for which nothing extra is payable.

*Water shall be tested in start of work and thereafter every three month till completion of work.*

*Water from municipal source need to be got tested once in 6 month.*

1.6.0

#### **ADDITIVES/ ADMIXTURES:-**

If contractor desires, to use any additives/admixtures from the consideration of strength and workability, it should be in accordance with para a No.,4.4 of IRS Bridge Code of practice for plain, reinforced and prestressed concrete for General Bridge construction and extra cost of such additives/admixtures will be borne by the contractor and for which no extra payment will be admissible.

2.0

#### **FORM WORK AND FALSE WORK**

2.1

Form and the false work are very important for all concrete structures in question for these have influence on strength and durability of the structures. For this reason form work must be correctly designed and installed. . The design of the form work shall take in to account the required surface conditions also(appearance compatibility with the required finish). This form work and false work together must provide safe working conditions. Safe access must be provided using additional scaffolding as necessary.

2.2

#### **DESIGN.**

The choice of form work and false work structure is very important , the majority of defects and accidents are attributable to structural deficiencies of form work.

The strength and stability of form work, false work shall be designed for the loads which they are liable to experience in service by method appropriate to their constituent materials. The design shall be checked by calculation, testing, application of accepted rules and must be carried out by competent personnel.

The loads and pressure to which form works and false works are exposed originate mainly form the weight of concrete ( specially the horizontal thrust component of fresh concrete the weight of the form work itself, the laying and fixing of reinforcement load transfer on prestressing and as a result of wind heat fluctuation ground settlement etc. therefore it shall be properly considered in design of form work.

The deformation of work shall be compatible with the tolerance required of the structure, and shall not adversely affect its behavior .Stiffening arrangements shall be provided as per design requirements.

2.3

#### **COMPATABILITY WITH CONCRETING OPERATION.**

a) Form work and false work shall be compatible with the method of planning and vibration envisaged with the prestressive requirements and with the curing schedule



- for the concrete.
- b) For vibration through the form work excessive energy losses through the support (Plastic suspension of the shuttering) should be avoided..
- 2.4 **TIGHTENING OF FORM WORK.**
- a) The form work shall be designed to prevent loss of material during concreting, particular care must be exercised to ensure the grout tightness of the joints between panels of the sheeting and between it and hardened concrete.
- b) Joints can be made grout – tight by ensuring proper contact between the edges of the panels the shape of which may have been specially designed. In some cases joint will need to be sealed with compressible gaskets or taps.
- 2.5 **FIXING THE FORMS**
- a) Where device for holding the form work in place pass through the concrete these shall not affect the concrete.
- b) Ties and spacers left in situ shall not impair either the durability or the appearance of the structure
- 2.6 **STRIKING.**
- a) Form work shall be so designed that it can be correctly removed without damage to the concrete.
- b) Consideration should be given:
- i) To the stresses due to the weight of the concrete and due to any imposed loads.
  - ii) To the striking operations.
  - iii) To environmental conditions.
- 2.7 **ERECTION SUPPORTS.**  
Foundation false work and form work shall be positioned by skilled, personnel with plan and specification.
- 2.8 **ASSEMBLING FALSE AND FORM WORK**  
Particular attention must be paid to the making of structural joint transmission of loads structure equilibrium and resistance to backing and subway.
- 2.9 **TOLERANCES**  
Form work shall be so constructed that the finished concrete is within the required tolerances commutative tolerances shall be considered as well as tolerances on single members.
- 2.10 **PREPARING THE FORM WORK FACES..**  
The sheeting surface intended to come in contact with freshly made concrete shall be clean. Approved releasing Agent shall be applied in thin uniform layer and the concrete should be placed soon enough after this to, prevent loss of its effectiveness.
- 2.11 **CONTROL OF FORM WORK.**
- i) Indicator should be installed at critical points to detect excessive deflection of the form work.
  - ii) Form should be anchored to the props below so that up or lateral movement of any part of the forms will be prevented.
  - iii) Where there is a possibility of movement means of adjustment (welded or jacks) should be provided to permit realignment or readjustment of prop.
  - iv) Where the form work is trafficked by operatives or equipment traffic should neither cause significant deflection nor bear directly on reinforcing steel.
  - v) During and after concreting but before starting of the concrete form work systems should be checked for position. Appropriate adjustment should be made promptly where necessary. If during concreting any weakness develops in form work, any undue settlement or distribution, the work shall be stopped and remedial action taken. Form work shall be continuously watched so that any corrective measures found necessary may be taken. Always work to be done under safe condition and have a method of communication with concrete placing crews in case of emergency.

- 2.12 **STRIKING TIME**  
Forms should be retained in place until the concrete has hardened sufficient withstand without stresses imposed.
- 2.13 **STRIKING METHODS**  
Form work shall be struck when the concrete is sufficient hardened in accordance with the stages of construction as planned without impact loading.
- 2.14 **STABILITY**  
Removal of the shoring support should take into account the time needed for adequate hardening for the concrete, the support and of that on which they rest retention of certain shoring elements may also be deleted by the general stability of the structure.
- 3.0 **MIXING.**  
Mixing shall confirm to the requirements of Clause 9.3.1 of IS 456-2000.
- 4.0 **COMPACTION OF CONCRETE**
- 4.1 Power vibrators including surface vibrator and form vibrator shall be used for compacting concrete.
- 4.2 All concrete members shall be compacted by vibration. Generally internal vibrators shall be used on all sections that are sufficiently large to admit them.
- 4.3 Vibrator shall have operating frequency of at-least 3600 impulses per minute. Higher frequencies up to twice the minimum are preferred.
- 4.4 The following techniques shall be followed for vibrations.
- i) Vibrators shall be distributed so that the concrete becomes a uniformly dense and plastic mass.
  - ii) Vibrator shall be used for compaction only and not for moving concrete.
  - iii) For horizontal and vertical operations of vibrators the spacing of points of vibration shall be such that the/zones of influence overlap.
  - iv) For concrete deposited in layer the vibrators shall be inserted vertically and allowed to sink due to its own weight to the bottom of the layer and be slowly withdrawn. For succeeding layer, the vibrator shall penetrate the surface of the previous layer.
  - v) Compaction shall be according to clause 12.3 of IS 456 2000.
- 5.0 **CURING.**  
Special attention shall be given to curing of concrete in order to ensure maximum Durability and to minimize cracking concrete surface shall be kept continuously wet for a period of at least 15 days . Rapid lowering of concrete temperature, which may result in thermal shock, shall be avoided. Method of curing shall be as per Clause 12.5 of IS 456 2000. All concrete work/RCC work, brick work in cement mortar plaster /pointing etc. shall be continuously cured for the prescribed period as per direction of the Engineer's/representative. Curing shall be done by covering the newly laid concrete with gunny bags and keeping them wet constantly. If it is found that contractor is not properly observing these instructions the Engineer may undertake the curing through another Agency labour without any notice to the contractor at the cost of contractor. The cost incurred alongwith 2% incidental charges and supervision charges @ 12 ½ % of the cost will be debited to the contractor. Intimation of the employment of another agency for curing will be given to the contractor as soon is possible. This intimation in writing to the contractor under the hand of the Engineer in charge of the work shall be conclusive evidence of the employment of another agency.
- Contractor will also have to arrange for curing by approved curing compounds steam curing in certain cases during the progress of work as directed by the Engineer in charge. The rates shall include the cost of all such arrangements.
- 6.0 Sampling and strength test of concrete shall be as per clause 14 and acceptance criteria as per clause 15 of 456 2000.
- 6.1 The water cement ratio shall be as per design mix not exceeding 0.45 approximately as determined by Engineer in charge for different grades of concrete for adequate work ability. Additives containing calcium chloride are forbidden in concrete.. The contractor shall have to furnish the details/ chemical ingredients etc duly tested for the approval of Engineer in charge.
- 6.2 When concreting under water, the mix shall contain No extra cement than for a corresponding Mix for concreting in the dry.
- 6.3 Assembly of reinforcement shall confirm to provision in Clause 11 of IS 456-2000.
- 6.4 Transporting and placing shall be according to clause 12 of IS 456 2000 Transporting of the

concrete shall be done so as to ensure monolithic and dense concrete without hollow honey comb bleeding thereafter.

- 6.5 In case concrete is planned to be poured with USC of the concrete pumps as per provisions of IS code /American code. The concrete mix shall be designed and got approval by Engineer including use of particular plastisizer The cost of plastisizer and extra cement, plant, fuel etc. if reqd. will be supplied by the contractor and for which no extra payment will be made

7.0 **BEARING AREA.**

Bearing area for members shall be finished for the plane so as to give uniform bearing on centre area. Bearing areas shall be in horizontal plane even on grades.

8.0 **QUALITY CONTROL**

Ensuring the required standard of quality for concreting is a must .The important factors to be ensured by the contractor in this connection are.

- i) Proper handling storing transporting of cement
- ii) Deputing of qualified personnel at all stages of construction.
- iii) Testing and inspection of the various materials selected for works.
- iv) Clear and complete detailed working drawing, form work tempering arrangement sinking of well coffer dams etc.
- v) Proper control of dimensions and tolerances.
- vi) Proper proportioning and adequate mixing of concrete.
- vii) Proper handling placing and consolidation of concrete.
- viii) Proper curing.
- ix) Thorough documentation (Up keep of records).

- 13.1 Steel shall be procured and tested as per Para 7.0 above.

- 13.2 Railway will also take samples during the course of work and got the steel tested to ascertain their conformity to the relevant IS specifications at the contractor's cost before a particular lot is to be used. Frequency of testing shall be as prescribed by the relevant IS Code.

**13.3 INSPECTION AND TESTING:**

Every bar shall be inspected before assembling on the works and any defective, brittle, excessively rusted or burnt bars shall be removed. Cracked ends of bars shall be cut out.

No work shall be commenced without the Engineer's approval of bar bending schedule.

Reinforcement steel shall be tested as per Para 7.0 above.

**13.4 Bar bending and Bar bending Schedule:**

All bars will be carefully and accurately bent by approved means in accordance with IS: 2502, and relevant drawings. It shall be ensured that depth of crank is correct as per the bar cutting and bending schedule. Bent bars are not straightened for use in any manner that will injure the material.

Prior to starting bar bending work, the Contractor shall prepare bar bending schedule from the structural drawings supplied to him and get the same approved by Engineer. Any discrepancies and inaccuracies found by the Contractor in the drawings shall be immediately reported to the Engineer whose interpretation and decision there to, shall be accepted.

**14.0 CEMENT:**

- 14.1 Quality test certificate for cement as per IS-4031 Code shall be furnished by the contractor before use of cement supplied.

- 14.2 Railway may also take samples during the course of execution of works and get the cement tested to ascertain its conformity to the relevant IS specifications at contractor's cost before particular lot is put to use. Frequency of testing shall be as prescribed by the relevant IS Code. Following tests shall be carried out:-

- i) Fineness
- ii) Compressive strength
- iii) Initial and final setting time
- iv) Soundness

### 15.0 Coarse Aggregate

15.1 Course Aggregate shall conform to latest IS-383 for grading, strength and other properties. Where required by the Engineer, course aggregate shall be tested for the following tests in accordance with the procedure in the latest IS-383 sieve analysis.

15.2 Determination of Clay, fine silt and fine dust in aggregates, strength of test cubes. organic impurities.

### 16.0 Soundness of aggregates

16.1 For concrete liable to be exposed the action of frost, coarse and fine aggregates shall pass a sodium or magnesium sulphate accelerated soundness test specific in IS: 2386 (Part-V)-1963, the limits being set by agreement between the purchaser and the supplier, except that aggregate failing in the accelerated soundness test may be used if they pass a specified freezing and thawing test satisfactory to the user. Test will be done at contractor's cost.

**Note:** As a general guide, it may be taken that the average loss of weight after 5 cycles shall not exceed the following:

- a) For the aggregate : 10 percent when tested with sodium sulphate ( $\text{Na}_2\text{SO}_4$ ), and 15 percent when tested with magnesium sulphate ( $\text{MgSO}_4$ )
- b) For coarse aggregate : 12 percent when tested with sodium sulphate ( $\text{Na}_2\text{SO}_4$ ), and 18 percent when tested with magnesium sulphate ( $\text{MgSO}_4$ )

16.2 Water shall be tested before starting the work or whenever the quality or source of water changes and testing is required by the Engineer, water shall be tested for its chemical and other impurities to ascertain its suitability for use in concrete and other structural works as per codal provisions at contractor's cost.

### 17.0 Quality control:

17.1 The contractor shall arrange to maintain the quality of the work during the operation of construction and shall ensure that the same is maintained as laid down in the specification for road and bridge works of the Ministry of Surface Transport (Road Wing) Govt. of India or as per satisfaction of the Engineer-in-charge.

17.2 The permissible variation from the specified value shall also conform to these specifications. It shall be sole responsibility of the contractor to arrange for quality control test during the construction as per specification. The Engineer-in-charge shall be empowered to get the quality control tests done through other agency if required, the cost of which shall be borne by the contractor.

### 18.0 FINISHING

18.1 No plastering shall be done over the exposed surface of RCC work, special care should be taken in centering and shuttering and casting to ensure good finish, wherever necessary.

18.2 Rendering in 1:3 (1 cement: 3 coarse sand) shall be done to the satisfaction of Engineer-In-Charge. Nozzle and form vibrators are to be used for RCC work.

### 19.0 Setting up field laboratory and site office by contractor

19.1 The contractor shall set up a field laboratory his own at work site which should be open for use and inspection by the Railway at any times. The laboratory shall be equipped with properly calibrated necessary equipments to carry out the various tests such as sieve analysis electronic weigh balance , compression tests on cubes, slump tests, oven, workability test etc. on aggregate, cement, water and concrete required for acquiring the required quality and standard conforming to codal provisions and Special specifications

19.2 All the pressure gauges, machines, equipments and other measuring the testing equipments of the laboratory shall be got checked/calibrated regularly as directed by the Engineer and the necessary certificates produced to the Engineer.

- 19.3 The Contractor shall render all reasonable assistance and help in making the checks and tests. All the equipments, machinery etc. shall be kept in good working conditions.
- 19.4 Cost of setting up the laboratory, equipping the same, maintaining, conducting all tests on materials and cubes shall be borne by the contractor and shall be deemed to have been included in the rate of relevant NS items.
- 19.5 Contractor will keep an auto level machine, a digital theodolite of 1" least count and steel measuring taps at site laboratory which will be handed over to Railway after completion of work.
- 19.6 Contractor shall setup a well furnished temporary office of 6m X 8m size with attached toilet prior to start the work including furniture like one office table , 8 nos visitors chairs , Almirah for record keeping, execution chair , electrical arrangement with fan and air conditioner at his own cost, Rates will deemed to be inclusive in tendered rates. After the completion of work, All the above assets provided in the temporary office will be the property of Railway. Failing to supply the above assets a amount of Rs.200000/- will be deducted from the 1<sup>st</sup> running bill of contractor.
- 19.7 A laser printer cum photocopier and computer HP make or similar will be supplied by contractor for making day to day progress of work at his own cost , cost of this assets will be deemed to be included in the tendered rates. Failing to supply of these assets an amount of Rs.100000/- will be deducted from the 1<sup>st</sup> running bill of contractor.
- 19.8 Rail cutting machine and rail drilling machine with complete accessories like base stand, 50 nos Hard disc & 10 Nos Augers of different size (26.5mm, 28mm, 32mm) will be supplied by contractor free of cost . Cost of these items deemed to be included in the tendered rates . No extra payment will be paid for this account , failing to supply of these items a amount of Rs.100000/- (One lac) will be recovered from the 1<sup>st</sup> running bill of contractor. After completion of work above small M/C's will be the property of Railways.
- 19.9 Contractor have to depute one literate person having the knowledge of computer at the site office for making daily progress, planning and draw the site sketches for block and other works on his own cost. Computer operator will work under the direct control of engineers representative/ supervisor of work . Failing of above an amount of Rs.30000/- per month will be deducted from the running bill of contractor.
- 19.9(a) Contractor have to deploy one Dak Wahak from site to office of engineer/ supervisor and office to site for carrying & delivering progress, , planning and other relevant records at his own cost , nothing shall be paid extra, rates are deemed to be included in the tendered rate . Failing of above deployment a penalty of Rs.25000/- per month will be recovered from the running bill of contractors.

## **20.0 Concreting**

- 20.1 The concrete shall be mixed properly in mechanical mixer and shall be of proper consistency. The proper consistency shall be determined by Engineer-In charge through tests that shall be carried out by the contractor/s. The Concreting shall be commenced only after the Engineer-in charge has inspected the shuttering, the placement of reinforcement and passed the same. Cost of concrete moulds and other test shall be borne by the contractor/s.
- 20.2 The concrete shall be compacted immediately after placing by means of mechanical vibrator of approved quality.
- 20.3 The mixing time of concrete in mixer will be decided by the Engineer, depending upon the type of work and strength of concrete.
- 20.4 The contractor shall make adequate arrangements for casting of necessary numbers of cubes and cure and finish them as per direction of Engineer.
- 20.5 The contractor shall establish laboratory in field and provide the necessary equipments to carryout all preliminary test and working out the grading and proportioning of aggregate, assessing the moisture content, casting and testing of cubes etc., in order to obtain and maintain uniform quality of work confirming to codal practices.
- 20.6 The exposed surface of plain / R.C.C work shall be rubbed with Carborandum stone and rendered smooth if necessary with cement to leave surface smooth and even. Nothing extra will be paid on this .....

account. Cement for the same will be arranged by the contractor/s at his own cost and no payment shall made.

- 20.7 The controlled concrete ingredients should be weigh batched in approved type weigh- batcher.
- 20.8 In case of difficulty is experienced in placing the concrete of specified mix and approved consistency between and below the reinforcement bars in the bottom of beams and similar structural members, the bars shall be embedded in concrete of improved workability by increasing the proportion of cement by an approved amount and as using aggregates of approved smaller size than specified, for which nothing extra shall be paid.
- 20.9 The contractor shall use plasticisers of approved quality to improve the workability of cement concrete, if so called for by the Engineer-In-Charge for such sections of the PSC/RCC which are very slim/ thin and where adequate space is not available for vibrating the concrete so as to improve its workability.

20.10 The slump of the approved trial mix shall be measured and this slump shall not be exceeded through out all the batches of concrete made from the same materials mixed in the same proportion as the trial mixes and used in those parts of the work as instructed.

## **21.0 Concrete Work-Cold Joints**

### **21.1 Location of construction joints-**

- (i) Due attention should be paid to the location and treatment of cold joints in concrete structure. Construction joints should be provided at locations shown in the drawings only.
- (ii) The location of the construction joints on the drawings shall be in non-aggressive zone. They will not be located in the zone where shear and/or bending moment is maximum. If any additional joint is considered essential, it should be approved by the Chief Engineer/Const. in consultation with concerned DY CE/Design taking the reduction in the strength due to presence of cold joints in to consideration.
- (iii) The joint shall be so located that these are easily accessible for concerting and required treatment. Such location may be where the cross section is relatively small and/or reinforcement is not congested.
- (iv) Beam and slab construction joints shall not be located near the supports. There shall be no construction joint between slab and rib in composite beam construction.
- (v) In box girder soffit and webs must be cast without any joint is will be desirable if the slab is also cast monolithically along with the web otherwise the joint needs to be adequately cared for

### **21.2 Preparation of the surface of the joint**

- i) When the concrete has hardened, it shall be treated by wire brush to remove the latence so as to have undulation of 6 mm. It shall be done without dislodging the coarse aggregates from the concrete mass.
- ii) The reinforcement shall be cleaned of all loose mortars. If there is likely to be some delay in the placement of the next mass of concrete, the reinforcement needs to be protected against rusting.
- iii) The reinforcement and the concrete, which has hardened, will be cleaned off of the rust, loose mortar or other contamination. These shall be cleaned with high-pressure water jet followed by drying with air jet before the fresh concrete is placed.

21.3 In aggressive environment the concrete should be chiselled back to exposure the concrete in a length of 50 mm to ensure that the contaminated concrete is completely removed.

21.4 The old concrete, if cast with stuttering, against which the fresh concrete is to be cast, the shuttering should be applied with a coat of "Retarder" Construction chemical. As soon as the shuttering is removed the latence should be cleared with a high-pressure water jet.

21.5 While casting the fresh concrete, a coat of "Bond Aid" Construction chemical over the already hardened and treated concrete surface shall be provided.

21.6 No extra payment shall be made for preparation of surface, application of retarder and Bond Aid etc. in c/w cold/construction of joints.

## **22.0 GROUTING:**

22.1 Grouting should be carried out with pumps and the use of compressed air should be avoided for grouting cables. The inlet points should preferably be located at the bottom most portions of the cables to effectively prevent the formation of air locks inside the ducts.

22.2 The inlet points should be suitably staggered. Pressure during grouting should be as per approved plan and as per I.R.C and I.S Codes.

22.3 In grouting operation, ducts shall be finally sealed only after ensuring that the consistency and the unit weight of the grout at the exit is as far as possible same as the consistency and the unit weight of the grout being pumped. Till this is achieved, the grout at the exist shall be allowed to over flow.

### **23.0 Concrete Test (PSC/RCC):**

23.1 Concrete shall be tested for slumps, density, crushing strength and modules of rupture tests as directed by the Engineer-in-charge of the work.

23.2 The provision specified in Clause 5.3 of IS-456 for proportioning of ingredients of controlled concrete will apply in general unless otherwise as modified by the Engineer.

23.3 For all concrete work aggregates should be analyzed as per standard test to determine the properties and their grading by taking representative samples of the aggregate. Fixed design calculations along with analysis of aggregate and concrete test cube results for 7 and 28 days should be sent to Dy. Chief Engineer and got his final approval before carrying out the actual work. Such approval, however, will not relieve the contractor of his/their responsibilities, obligations regarding minimum strength required.

23.4 The minimum number of specimen to be casted and standard of acceptance for all goods of concrete shall be in accordance with relevant IS & IRC Codes (Latest Edition)

23.5 The contractor shall establish a field laboratory and provide the necessary equipments to carry out a preliminary tests and working out the grading and preparation of aggregates, assessing the moisture contents, casting of cubes and testing thereof etc. in order to obtain and maintaining uniform quality of work conforming the codal provisions.

### **24.0 LOAD TEST:**

24.1 Load test of the span may have to be carried out by the contractor if so directed by the Chief Engineer/ construction. Tests to destruction are not required to be carried out. This testing of the span will be entirely at the risk of the contractor and he shall make all arrangements and provide all necessary labour and materials for the same.

24.2 The payment will be made to the contractor at the rate quoted for items of the schedule as applicable. The contractor shall prepare all necessary calculations and detail for the test of the span to be carried out not earlier than one month and not later than 3 months after the span under test is completed and submit the same to the Chief Engineer Const., whose prior approval to the above has to be obtained. It should be understood that the load test or tests shall be carried out only when ordered by the chief Engineer/ Const./Dy. Chief Engineer/Const.,

### **25.0 CURING:**

All concrete work in cement mortar, plaster, pointing etc., shall be continuously cured for the prescribed period as per direction of the Engineer, Curing shall be done by covering the newly laid concrete with gunny bags and keeping them wet constantly. If it is found that the contractor is not observing properly these instructions, the Engineer may get the curing done through another agency, labour without any notice to the contractor at the cost of the contractor. The cost incurred along with incidental charges of 2% and along with supervision charges 12 ½ % of the cost will be debited to the contractor.

### **26.0 Painting**

26.1 Painting to underside surface of slab is done as per specifications given below.

- 26.2 The bituminous emulsion and bituminous aluminum to be used for this purpose will have the following compositions.

**BITUMINOUS EMULSIONS**

Bituman 85/40	25.4 parts by weight
Cashew nut shell liquid	3.7 -do-
Bentonite	0.2 -do-
Phosphoric acid	0.375 -do-
Water	39.525 -do-

**BITUMINOUS ALUMINIUM PAINT**

i)	Aluminum paste leading	20 parts by weight
	Bitumunan Medium	80 -do-
	=	<b>100</b>
ii)	Mexphalt 85/25 coal	66 parts by weight
	Coal Tar Naphtha	34 -do-
	=	<b>100</b>

- 26.3 Bituminous emulsion to this specification mentioned in 33.1 above is available under Indian patent No. 56192 for Railways. The aluminum paste and bituminous medium mentioned under item (b) of clause 33.1 above should be obtained in separate containers. The aluminum paint be thoroughly mixed with the bituminous medium before application by a brush.

**27.0 Application**

- 27.1 All dust and dirt should be removed from the surface of the concrete slab by means of stiff broom. The surface should then be scrubbed with water and left damp (Not Wet). The priming coat of emulsion diluted 50% with water and should then be scrubbed into surface. After about six hours drying two coat of emulsion should be applied with an interval of six hours drying between coats, at the rate of not less than one gal. to 100 Sq. ft. After about 12 hours a final coat of bituminous aluminum paint as specified above be applied with a soft brush

**27.0 Temporary Arrangements**

- 27.1 The contractor will be required to submit design calculations along with the detailed drawings for temporary arrangements to be adopted by him for use, if there is delay in submission of temporary arrangement drawings/ design calculations by the contractor, it will be considered delay on the part of the contractor. The Temporary arrangements shall be got designed from qualified Engineer/consultant and required to be got approved from the Railways, nothing extra will be payable if Railways asks the contractor to modify the drawing to suit local conditions and safety of running trains.
- 27.2 Contractor/s may clearly understand that cost of steel and other material to be used for temporary arrangement will be borne by him/them and no payment will be made on this account.
- 27.3 The tenderer/contractor 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 delays in approval of designs and drawings for whatsoever reasons.

**28.0 Service road**

- 28.1 Any service road required by the contractor for his/ their use along the alignment will be provided by the contractor and his/their tendered rates will be deemed to include the cost of provision & maintenance of service road as required by the contractor.
- 28.2 The Railway constructs and maintains service roads according to their requirement and convenience. However, the contractors will be permitted to use the service road free of cost but no claim will be entertained for non provision of service road in any stretch whatsoever.

**29.0 Supply of drawings**



- 29.1 Detailed working drawings shall be supplied by the railway during the course of execution. Contractor can also operate relevant NS items for development of design and drawing of thrust bed, RCC box and Retaining wall.
- 29.2 It may clearly be noted that the Chief Engineer (Const.) shall have full power to make alterations in the drawings and to give such further instruction, directions as may appear to him necessary or proposed for the guidance of the contractor and for the official execution, completion and maintenance of the work.

### **30.0 Measurement**

- 30.1 All work will be paid for at the tendered rates on the basis of actual measurements taken at site. No cognizance will be given for heights and thickness of structural members over those shown in the plans.
- 30.2 The gross dimensions of RCC box, thrust bed & retaining wall etc. exclusive of thickness of plaster shall be measured for purposes of payments. No deduction shall be made from the columns of reinforcement and small cavity holes for drainage etc. up to 40 sq. cm. in area. No payment shall be made for plastering of the exposed area and cost for this element shall be borne by the contractor.
- 30.3 The depth of the beam monolithic with slab will be from bottom of the slab to bottom of beams or from top of beam to top of slabs (in case of inverted beams).
- 30.4 Payment of RCC columns counter fort wall/retaining wall, return wall shall be made up to any height from top of pile cap/slab/strip/foundations as the case may be.

### **31.0 PRELIMINARY SITE TESTING:**

- a) After the materials and mixes have been approved and at least 10 days before any concrete is placed in the works, the contractor shall make preliminary sets of test cubes. Each set shall comprise of nine 150mm cubes, three at a time made from single sample of concrete made from the same manner as that to be placed in the work. Each cube shall be made and tested under the Engineer's supervision in accordance with the procedure in IS: 516-1959. These cubes shall be tested 7 days after and three cubes 28 days after the date of manufacture. The balance cubes shall be preserved by the contractor until the end of the maintenance period unless otherwise required to be tested by the Engineer. Preliminary works test cubes shall be made and tested for all classes of concrete to be used and for all classes of concrete to be used and for all proposed variations of quality, quantity or sources of the aggregates or cement. Should either the 7 days or 28 days test cubes fall below the specified strength and the failure is confirmed by testing the balance cubes, the contractor shall make such changes to the mix design. Aggregate source, aggregate grading, cement, water, and method of mixing or type of mixer as shall produce satisfactory concrete. All cubes shall be properly marked so that they can be easily identified.
- b) Works strength tests for Controlled and ordinary concrete. During the course of the work samples of concrete will be taken and tested at regular intervals and from representative portions of the works. The Engineer will establish a sampling and testing programme in consultation with the contractor before any concrete is placed. The establishment of the programme will not prevent the engineer from procuring samples and testing of any concrete at any time. The sampling and testing will be carried out in accordance with IS 516-1959. One set of six cubes will normally be taken from each batch to be sampled, but the engineer may direct additional cubes to be taken. Three cubes will be tested at 7days and three at 28 days. Should any of the cubes fall below the specified strength the contractor shall, on the Engineer's instructions either alter the mix design, the method of making the concrete, the method of mix control or carry out appropriate remedial measures. Acceptance criteria of concrete as given in IS-456-1978 will be followed. Wherever 7 days concrete strength is not specified it shall be taken to be 65% of the 28 days strength in the case of ordinary cements and 75% in the case of rapid hardening cements. The Engineer may require; the contractor to cut out defective concrete from the work even though the test cubes for the batch is satisfactory.

### **33.0 Time Schedule**

- 33.1 Time is the essence of the contract. The contractor may note that the construction of road over-Bridge should be completed within stipulated time. The whole work is to be completed in all respects in 18 months from the date of the letter of acceptance.
- 34.0 Supply of cement:**
- 34.1 Ordinary Portland cement grade 43/53 conforming to IS-8112-1989 & IS Code IS-12269/1987 respectively will be arranged by the contractor at his own cost. Payment shall be made under relevant SOR/ item.
- 34.2 Supply for cement by contractor at the rate of relevant item will be governed by the following conditions.
- 34.3 Cement for use in works, shall be procured by the contractor from the main producers or their authorized dealers only.
- 34.4 **Cement older than 3 months from the date of manufacture as marked on the bags shall not be accepted.** Cement bags preferably in paper bag packing should bear the following marking:-
- i) Manufacturer's name
  - ii) Regd. trade mark of manufacturer if any
  - iii) Type of cement.
  - iv) Weight of each bag in Kg or no. of bags/ tones.
  - v) Date of manufacture generally marked as week of the year/year of manufacture.
- 34.5 Quality test certificate for cement as per IS 4031 shall be furnished by the contractor/s at his own cost from the manufacturer, before use of cement.
- 34.6 Railway may also take samples during the course of execution of works and get the cement tested to ascertain its conformity to the relevant IS specifications at contractor's cost before a particular lot is put to use. Frequency of testing shall be as prescribed by the relevant IS code. Following test inter-alia shall be carried out.
- i) Fineness
  - ii) Compressive strength
  - iii) Initial and final setting time
  - iv) Consistency
  - v) Soundness.
- 34.7 In case samples tested do not pass that quality tests conducted, the entire batch of cement supplied shall be rejected and returned to the contractor/s.
- 34.8 For storage of cement, the contractor shall have to construct two temporary Godown of size 15 x 10m minimum at his own cost. The contractor shall bring the cement to the site of work only on written instructions from Gazetted officer / in charge of work.
- 34.9 The record of cement brought to the site of work, daily consumption, daily opening balance and closing balance shall be maintained at the site jointly by the inspector in charge of work and contractor/s or his/ their authorized representative. For this purpose, registers duly reconciled and signed by the contractor/s and the inspector in charge of work certifying the opening balance, consumption, closing balance should be maintained.
- 34.10 The contractor shall be the custodian of cement godown and shall keep the godown under his lock and key to ensure safe custody of cement. The contractor shall ensure that the cement once brought to the site and accounted shall be used at the site only and shall not be taken away from site for any other purpose.
- 34.11 The contractor shall make the cement Godown available for inspection along with connected record to the site Engineer or his representative as and when required.

- 34.12 Land for constructing the temporary cement Godown shall be handed over by the Railway on the written request of the contractor free of any rent/license fee.
- 34.13 The contractor shall ensure that after completion of the work and/or termination of the contract for any reason whatsoever, the temporary cement Godown shall be dismantled and all dismantled material /debris shall be removed and the clear site shall be handed over back to Railways. All the released material shall be the property of the contractor/s and no payment shall be made by the Railways for dismantling etc. The final bill and earnest money shall not be released unless the Godown is dismantled and the site is cleared in all respects.

**35.0 Tolerance requirements for the mass of cement:**

- 35.1 Cement supplied one time will be taken as forming one batch. The number of bags taken for sample from each batch shall be as under:-

Batch Size	Sample size
100 to 150	20
151 to 280	32
281 to 500	50
501 to 1200	80
1200 to 3200	125
3201 and above	200

- 35.2 The number of bags in sample showing a minus error greater than 2 percent of the specified net mass (50 kg) shall be not more than 5 percent of bags in the sample. Also the minus error in none of such bags in the sample shall exceed 4 percent of the specified net mass of cement in the bags. In case, the minus error exceeds the percentages herein specified, the entire batch of cement shall be rejected
- 35.3 The consumption of cement on works shall be assessed on the basis of cement contents per unit quantity for various items of works as per NS/IRUSSR-2010 of cement contents per unit quantity as per design in case of designed mix of cement concrete of specified strength. In case of designed mix of concrete of specified strength where the cement is to be used by weight where specifically ordered in the NS item rate or tender conditions, a variation of +1%(max) will be allowed in the consumption of cement works.
- 35.4 Stacking of cement in the Godown shall be done on a layer of wooden sleepers so as to avoid contact of cement bags with the floor; or alternatively scrap of sheets may be used in place of sleepers but these must be placed at least 20 cm above the floor. The bags shall be stacked at least 50 cm clear of the walls to prevent deterioration. The wooden sleepers/scrap GI sheet shall be arranged by the contractor/s at his/their own cost.
- 35.5 Cement shall be stored in such a manner as to permit easy access for proper inspection. Cement should be stacked not more than ten layers high to prevent bursting of bags in the bottom layers and formation of clods. The stacks of cement bags shall be covered with tarpaulin during monsoons so as to obviate the possibility of deterioration of cement by moisture in the atmosphere. Cement that is set or partially set is on no account to be used.
- 35.6 The cement brought to the site/Godown in excess of the requirement calculated based on the cement factors shall be taken back by the contractor/s on completion of the work after written approval from AXEN/XEN on proper documents.
- 35.7 Payment as per relevant items will be made on the basis of quantity of cement actually consumed and the quantity calculated as per cement factor for various items, whichever is less.
- 35.8 Cement actually consumed on works shall normally match the quantity calculated as per cement factors for various items. If, it is discovered that the cement actually consumed at site is less than the quantity ascertained taking into consideration of the cement factors for various items by more than 1%, the cost of the cement not so used (i.e. difference between the quantity of cement calculated as per cement factors and cement actually consumed) shall be recovered at double the quoted rate from the contractor.

35.9 Empty cement bags will be the property of contractor.

### **36.0 Machinery and plant**

36.1 The contractor will be entirely responsible to arrange all necessary machinery, including concrete mixers, 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.

36.2 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 be Railway inability to supply such plant taken as an excuse for slow progress or non-performance of the work.

36.3 If, any plant is loaned by the Railway to the contractor on hire, charge 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
      - a) Light plant - 15% per annum. B) Heavy plant - 10% per annum. c) Special plant - 6% per annum.
- The classification of the plants shall be as per para 3502 of Indian Railway Way and Works Manual.
- c) An additional 10% on the total (I) to (iv) above to meet contingencies.

36.4 The hire charges per day shall be arrived at by dividing the annual hire charges vide (A) & (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 Railway Administration. 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 will be final and binding.

### **37.0 Safety of track and men**

37.1 The tenderer must note that the work is to be executed in the close proximity of running track. All labour and staff must be aware of the running trains. No tools and plants should be brought near the track to infringe the schedule of dimensions. Work very near to the track will be done only under the personal supervision of the authorized representative of the Engineer. Railway will not be responsible for any loss of life or property or delay in speed restrictions/block. It may be ensured that no shuttering scaffolding etc. infringes the schedule of dimension at any time.

37.2 It may be noted by the contractor/Tenderers that excavation/ concreting in foundations is to be done in close proximity of the running track. No temporary arrangements are proposed in the running track to carryout the excavation/ concreting. As such contractor may have to do additional works like structuring, shoring, timbering etc. as per the direction of Engineer-In charge, so that earth does not

give way underneath the track and is fully protected and there is no interruption to the movement of the Railway traffic.

37.3 In case of any dispute regarding interpretation of any above clause, decision of Dy. Chief Engineer/Const will be final and binding upon the contractor.

37.4 The contractor shall have to make his own arrangements for providing telephone/mobile/inspection vehicle facilities at the site of work at his own cost. The telephone/ mobile / inspection vehicle facilities provided by the contractor shall be allowed to be used by the Railway staff without any charge.

### **38.0 SUPPLY OF PROGRESS PHOTOGRAPHS AND ALBUMS:**

38.1 The work covers the supply of colour photographs preferably with digital camera, negatives and albums to serve as a permanent record of various stages/facets of work needed for an authentic documentation as approved by the Engineer.

38.2 The photographs shall be of acceptable quality and a professionally competent photographer shall take them with camera having the facility to record the date of the photographs taken in the prints and the negative. Each photograph in the album shall be suitably captioned.

38.3 The photographs, Albums and materials including negatives shall form a part of the records of North Central Railway and prints of the same cannot be supplied to any body else or published without the written permission North Central Railway. The rates for supply of above shall be presumed to be included in the contract & the contractor would claim no separate payments.

### **39.0 Supply of DVD / VCD:**

39.1 The work covers taking video films of important activities of the works like pushing operation as directed by the Engineer during the currency of the Project and editing them to a video film of playing time not less than 120 minutes. It shall contain narration of the activities in English by a competent narrator. The edition of the film and script of the narration shall be approved by the Engineer.

39.2 The rates for supply of above shall be presumed to be included in the contract & the contractor would claim no separate payments.

### **40.0 Records and Registers:**

40.1 The contractor shall maintain accurate record, 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 made shall be handed over to the Engineer's representative after carrying out the tests.

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

(i) **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 contractor shall report the compliance to the Engineer in good time so that it can be checked.

(ii) **Cement Register:**

This register will be maintained to accord daily receipt and issue of the Cement duly indicating the balance quantity. The quantum of work done for the Cement issued on particular date will also be mentioned.

(iii) **Steel Register:**

This register will record the receipts of Steel items and details of reinforcement and members, wherever Steel is used.

(iv) **Labour Register:**

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

v) **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.

- (vi) Log Book of Events
- (vii) Soil samples & compaction Registers
- (viii) Cube test & Material testing Register
- ix) Technical Register.
- x) Material passing Register.
- xi) Hindrance/Obstruction register.
- xii) Safety Assurance register or as directed by Engineer.

**41.0 Infrastructure Set Up:**

- 41.1 Before starting the work, the contractor shall provide the following infrastructure set-up to facilitate the execution of the work as per the stipulation, at their own cost.
- 41.2 Temporary office/building with DOT/Mobile phones, electricity/water facilities, personal computer/laptop, laborator, Filing Cabinet, Tables & chairs for keeping important information and data relating to the constructions activities from start of the work till its completion without any extra cost, for the official use of Railway Officials.

**42.0 SUPPLY OF ELECTRIC POWER**

- 42.1 The contractor shall be responsible for the arrangement to obtain supply of Electric Power necessary for the work. He shall preferably arrange his own Electric Generating set specially in view of erratic and unreliable Electric supply.
- 42.2 The Railway may make available Electric power required for the work from the Railway 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 gear 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 Electric power supply. The charges for electric consumption at site have to be borne by the contractor at the rates specified by the Railway.
- 42.3 The contractor shall abide by the Indian Electricity Act and the Indian Electricity Rules as amended from time to time.
- 42.4 For failure of Electricity, the Railway will not be responsible and no compensation whatsoever will be entertained on this account.

**43.0 PILE FOUNDATION:**

- 43.1 Construction of pile foundation shall be strictly in accordance with the stipulations made in the I.S. 2911 Part-I/Sec.2-1979 (with up to date amendment) for Bored Cast-in-situ piles and IRC-78: 1983.
- 432 The rates quoted by the contractor/s shall be inclusive of all rates (excluding cost of cement & steel to be supplied by the contractor). The rate also includes manufacturing, driving piles through all types of soils including boulders and such other obstructions as may be encountered at site such as driving through old foundations of structures, CC blocks etc. including anchoring inside rock/find strata to the extant necessary as per design and as desired by the Engineer. The rates is also inclusive of provision of special liner if required; and all tools and plants including all royalties, freights, all lead, lift, crossing of running tracks and labour employed for the purpose of efficient execution of the work. No extra payment whatsoever be made on this account.
- 43.3 For the purpose of payment length of the pile will be measured from the bottom of the pile/pile shoe to the bottom of the pile cap. Any earthwork necessary for the casting and driving of the piles will not be paid separately and the rate should be inclusive of all such work as may be necessary.

- 43.4 The design for the pile cap will be supplied by the Railway. The rate shall include breaking of piles heads cutting, bending hooking and binding pile reinforcement and dowager, if any shuttering and in vibrating the concrete and curing etc. complete.
- 43.5 Steel reinforcement be kept projecting above the pile as per details indicated in the approved plan to serve as anchorage in the pile cap. The finished top of the pile shall project 75mm inside of bottom pile cap.
- 43.6 The rate of the pile cap shall be led to exclude the cost of excavating but including disposal of excavated spoil as directed by the Engineer from the edge of the excavation.
- 43.7 No additional payment shall be paid for extra reinforcement used in overlaps or due to change in sizes/dia of reinforcement bar.

#### **44.0 EMPLOYMENT OF STAFF**

- 44.1 The contract is liable for cancellation if either the contractor himself or any of his employee is found to be a person of Gazetted rank of Engineering Department which includes Civil, Mechanical, Electrical, Signal & Telecommunication Departments of Railways whether pension able or non-pension able who after retirement has sought engagement as contractor for or in connection with the execution of public works whether on Railway, P.W.D. or Defence Forces or as an employee of such contractor within 2 years of his retirement without obtaining the permission of the President of India before taking up such engagement or employment.

#### **44.2 THE CONTRACTOR SHALL EMPLOY THE FOLLOWING TECHNICAL STAFF DURING EXECUTION OF THE WORK:**

In terms of provision of new clause 26A1 to the General Condition of contract (GCC) contractor shall employ following qualified Engineers during execution of the allotted work-

- (a) One qualified graduate engineer when cost of work to be executed is more than 200 lakhs.
- (b) One qualified diploma holder engineer when cost of work to be executed is more than 25 lakhs but less then 200 lakhs.

Technical staff should be available when ever required by the Engineer in charge to take instructions.

In case the contractor fails to employ the qualified engineer, he shall be liable to pay an amount of Rs. 40000/- for Graduate Engineer and Rs. 25000/- for Diploma Holder Engineer for each month or part thereof for the default period for the provision in terms of clause 26A2 of the General Condition of contract (GCC).

The decision of the engineer in charge as to the period for which required technical staff was not employed by the contractor and as to the reasonableness of the amount to be deducted from the contractor, shall be final and binding on the contractor.

#### **44.3 SITE INSPECTION**

Contractor will provide one non AC vehicle preferably TATA Sumo/ Bolero or equivalent in working condition for the day to day inspection as and when required by engineer/ engineers representative round the clock for supervision of Railway officials on the work site till the completion of work .Journey of inspecting official shall be

start from his official HQ's and vehicle shall be provided at the official HQ's of supervisor. Nothing shall be paid on this account and no dispute / claim will be entertained on this account. If the contractor fails to provide the Vehicle, recovery will be done as per prevailing market rate.

#### **45.0 GENERAL**

- 45.1 If, Proper approach road for transporting the various materials are not available, the contractor may have to handle the material involving head load etc. proper spacing for stacking the material may not be given in the yard and it 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. 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, equipments and finance to handle the job shall be considered. Tenderers are required to submit credentials about their experience of having executed these kinds of various works.

After the acceptance letter is issued, contractor will be required to submit the detailed programme for completion of works.

- 45.2 The contractor shall have to make his own arrangements for providing telephone/mobile facilities at his own cost. These facilities provided by the contractor shall be allowed to be used by the Railway staff without any charge.

During pushing operation at each site separate arrangement for boarding/lodging will be at site for Railway staff free of cost.

- 45.3 It may be noted that the work is to be carried out under running traffic where the essential Railway traffic shall be moving all the 24 hours and the work shall have to be carried out without hindering the Railway traffic in any way. Suitable arrangements shall have to be made by the contractor without infringing the schedule of dimensions.

**46. CESS CHARGES**

**Building and other construction works Welfare Cess Act 1996 in Railway Contracts**

*"The tender for carrying out any construction work in UP must get themselves registered from the Registering Officer under section-7 of the Building and other Construction works Act, 1996 and rules made thereto by the UP Govt. and submit certificate of Registration issued from the Registering Officer of the UP Govt ( Labour Deptt.). For enactment of this Act, the tenderer shall be required to pay cess @ 1% of cost of construction work to be deducted from each bill. Cost of material shall be outside the purview of cess, when supplied under a separate schedule items".*



## 47. Price Variation Clause

### Addendum & Corrigendum Slip (ACS) No.6 Indian Railways General Conditions of Contract (GCC).

Railway Board's letter No.2007/CE-I/CT/18 pt 19 , Dated 14.12.2012 and No.2007/CE-I/CT/18 pt 13 , Dated 02.5.2014.

#### Clause 46A-Price Variation Clause.

- 46A.1 Price variation clause shall be applicable only for tenders of value as prescribed by the Ministry of Railways through instructions/circular issued from time to time and irrespective of the contract completion period. Material supplied free of cost by Railway to the contractors shall fall outside the purview of Price Variation Clause. If, in any case, accepted offer includes some specific payment to be made to consultants or some materials supplied by Railway free or at fixed rate, such payments shall be excluded from the gross value of the work for the purpose of payment /recovery of price variation.
- 46A.2 The base month for "Price Variation Clause' shall be taken as month of opening of tender including extensions , if any, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the month of opening of tender. The Price Variation shall be based on the average Price Index of the quarter under consideration.
- 46A.3 Rates accepted by Railway Administration shall hold good till completion of work and no additional individual claim shall be admissible on account of fluctuations in market rates, increase in taxes/ any other levies/tolls etc. except that payment/recovery for overall market situation shall be made as per Price Variation Clause given hereunder.
- 46A.4 Adjustment for variation in prices of material, labour, fuel, explosive, detonators, steel , concreting, ferrous, non-ferrous, insulators, zinc and cement shall be determined in the manner prescribed.
- 46A.5 Components of various items in a contract on which variation in prices be admissible, shall be material , labour, fuel, Explosive, detonators, steel , cement, concreting, ferrous, non-ferrous, insulators, zinc , Erection etc. However, for fixed components, no price variation shall be admissible.
- 46A.6 The percentage of labour component, material component, fuel component etc , in various types of Engineering works shall be as under:

Component	Percentage	Component	Percentage
<b>(A) Earthwork contracts</b>			
Labour component	50%	Other Material Components	15%
Fuel component	20%	Fixed Component*	15%
<b>(B) Ballast and Quarry Products contracts</b>			
Labour component	55%	Other Material Components	15%
Fuel component	15%	Fixed Component*	15%
<b>(C) Tunnelling contracts</b>			
Labour component	45%	Detonators Component	5%
Fuel component	15%	Other Material Components	5%
Explosive component	15%	Fixed Component*	15%
<b>(D) Other works contracts</b>			
Labour component	30%	Fuel component	15%
Material component	40%	Fixed Component*	15%

\* It shall not be considered fore any price variation.

Railway Board's letter No.2007/CE-I/CT/18 pt 19 , Dated 14.12.2012. and No.2007/CE-I/CT/18 pt 13 , Dated 02.5.2014.

46A.7 The amount of variation in prices in several components (Labour material etc) shall be worked out by the following formulae:

(i)	L=	$\frac{Wx(LQ-LB.)x}{LB.}$	$\frac{LC}{100}$
(ii)	M=	$\frac{Mx(MQ-MB.)x}{MB.}$	$\frac{MC}{100}$
(iii)	F=	$\frac{Wx(FQ-FB.)x}{FB.}$	$\frac{FC}{100}$
(iv)	E=	$\frac{Wx(EQ-EB.)x}{EB.}$	$\frac{EC}{100}$
(v)	D=	$\frac{Wx(DQ-DB.)x}{DB.}$	$\frac{DC}{100}$
(vi)	S=Sw x (SQ-SB)		
(vii)	C=CV x (CQ-CB)/CB		

Where,

- L Amount of Price Variation in Labour.  
M Amount of Price Variation in Material.  
F Amount of Price Variation in Fuel.  
E Amount of Price Variation in Explosive.  
D Amount of Price Variation in Detonators.  
S Amount of Price Variation in Steel.  
C Amount of Price Variation in Cement.

Sw. Weight of steel in tonnes supplied by the contractor as per the 'on-account' bill for the month under consideration.

W Gross value of work done by contractor as per on-account bill(s) excluding cost of materials supplied by Railway at fixed price. This will also exclude specific payment, if any, to be made to the consultants engaged by contractors ( such payment will be indicated in the contractor's offer).

CV Value of cement supplied by contractor as per on account bill in the quarter under consideration.

LB.. Consumer Price Index Number for Industrial Workers-All India- Published in R.B.I. Bulletin for the base period.

LQ Consumer Price Index Number for Industrial Workers-All India- Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration.

MB Index Number of wholesale Prices –By Groups and Sub-Groups –All commodities- as published in the R.B.I. Bulletin for the base period.

MQ Index Number of wholesale Prices –By Groups and Sub-Groups –All commodities- as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration.

FB Index Number of wholesale Prices –By Groups and Sub-Groups –for fuel,power, as published in the R.B.I. Bulletin for the base period.

FQ Index Number of wholesale Prices –By Groups and Sub-Groups for fuel, power, as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration.

EB Cost of explosives as fixed by DGS&D in the relevant rate Contract of the firm from whom purchases of explosives are made by the contractor for the base period.

- EQ. Cost of explosives as fixed by DGS&D in the relevant rate Contract of the firm from whom purchases of explosives are made by the contractor for the average price index of the 3 months of the quarter under consideration.
- DB Cost of detonators as fixed by DGS&D in the relevant rate Contract of the firm from whom purchases of detonators are made by the contractor for the base period.
- (DQ) Cost of detonators as fixed by DGS&D in the relevant rate Contract of the firm from whom purchases of detonators are made by the contractor for the average price index of the 3 months of the quarter under consideration.
- SQ SAIL's (Steel Authority of India Limited) ex- works price plus Excise Duty thereof (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing on the first day of the month in which the steel was purchased by the contractor(or) as prevailing on the first day of the month in which steel was brought to the site by the contractor whichever is lower.
- SB SAIL's ex- works price plus Excise Duty thereof (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing on the first day of the month in which the tender was opened.
- CB Index Number of wholesale Price of sub-group (of cement&Lime) as published in RBI Bulletin for the base period.
- CQ Index Number of wholesale Price of sub-group (of cement & Lime )as published in RBI Bulletin for the average price index of the 3 months of the quarter under consideration.
- Cs RBI wholesale Price Index for cement & Lime for the month which is six month prior to date of casting of foundation.
- Co RBI wholesale Price Index for cement & Lime for the month which is one month prior to date of opening of tender.
- LC % of Labour component.
- MC % of Material component
- FC % of Fuel component.
- EC % of Explosive component
- DC % of Detonators component.
- ZC % of Zinc component.

**Authority Railway Board's circular No.2007/CE-I/CT/18 pt 13 , Dated 02.5.2014.**

- 46A.8 The demands for escalation of cost shall be allowed on the basis of provisional indices made available by Reserve Bank of India. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.
- 46A.9 Relevant categories of steel for the purpose of operating Price Variation formula , as mentioned in this clause , based on SAIL's ex-works price plus Excise Duty thereof, shall be as under :

SL	Category of steel supplied in Railway work.	Category of steel produced by SAIL whose Ex-works price plus Excise Duty would be adopted to determine price variation .
1	Reinforcement bars and other rounds	TMT 8mm IS 1786 Fe 415/Fe500
2	All types and sizes of angles.	Angle 65x65x6mm IS 2062 E250A SK.
3	All types and sizes of plates.	M.S.Plates above 10-20mm IS 2062 E250A SK.
4	All types and sizes of channels and joists.	Channels 200x75mm IS 2062 E250A SK.
5	Any other section of steel not covered in the above categories and excluding HTS.	Average of price for the 3 categories covered under SL 1,2 & 3 above.

**46A.10 Price Variation During Extended period of contract.**

The price adjustment as worked out above ,i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under clause 17-A of the General Condition of Contract. However, where extension of time has been granted due to contractor's failure under clause 17-B of the General Conditions of Contract, price adjustment shall be done as follows:

- (a) In case the indices increase above the indices applicable to the last month of original completion period or the extended period under clause 17-A, the price adjustment for the period of extension granted under clause 17-B shall be limited to the amount payable as per the Indices applicable to the last month of the original completion period or the extended period under clause 17-A of the General Condition of Contract ; as the case may be.
- (b) In case the indices fall below the indices applicable to the last month of original/extended period of completion under Clause 17-A as the case may be then the lower indices shall be adopted for the price adjustment for the period of extension under clause 17-B of the General Conditions of Contract.

#### 48.0 COMPLETION DRAWING

- 48.1 The contractor has required to submit the all completion drawings of Road under bridge (Subway). The drawings (Black & white and coloured) shall be prepared in AUTO-CAD and submitted in CD as soft copy as well as on reproducible tracing film of 75 micron double matt type of approved quality available in the market in of minimum size 594 x 841mm indicating all the site details of completed bridges along with notes of specification etc. The rate includes for submission of completion plan of bridges and nothing extra will be paid for this work. **However, if contractor fails to submit the completion drawing of bridges, recovery at the rate of Rs. 5000/- per drawing of each bridge drawings shall be recovered from the contractor's final bill.**

#### 49. LIST OF APPROVED LABORATORIES FOR TESTING OF BALLAST TO BE SUPPLIED.

Head Quarter officer, Engineering branch ALD's L.No.291-W/2/QC/Inspection dated 17.9.15.

- i) Moti Lal Nehru Regional Engg. Collage, Allahabad.
- ii) Institute of Engineering and Rural technology, Allahabad.
- iii) CSP/N.C.Rly/Subedarganj, Allahabad.
- iv) IIT (BHU) Varanasi.
- v) KNIT Sultanpur.
- vi) HBTI Kanpur.
- vii) IIT Kanpur.
- viii) Material test laboratory , Civil Engg. Deptt. AMU Aligarh.
- ix) National Test House, Kamala Nehru Nagar, Gaziabad.
- x) IIT Delhi.
- xi) Delhi Collage of Engineering, Delhi.
- xii) Shri Ram Test House, Delhi.
- xiii) Dayalbagh Engineering Collage, Agra.
- xiv) Madhav Institute of technology, Gwalior.
- xv) Bundel Khand Institute of Technology, Jhansi.
- xvi) Forest Research Institute, Dehradum (For wood work).
- xvii) Any NABL approved laboratories.

#### 50. Special conditions for working of Road Cranes

- 50.1.1.No machine shall be selected to do any lifting on a specific job until its size and characteristics are considered against the weights, dimensions and lift radii of the heaviest and largest loads.
- 50.1.2The contractor shall ensure that a valid Certificate of Fitness is available before use of Road Cranes.
- 50.1.3Contractors can utilize the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories.
- 50.1.4 The laminated photocopies of fitness certificate issued by competent person, the operators photo, manufacturer's load chart and competency certificate shall always be either kept in the operator cabin or pasted on the visible surface of the lifting appliances.
- 50.1.5 All lifting appliances including all parts and gears thereof, whether fixed or movable shall be thoroughly tested and examined by a competent person once at least in every six months or after it has undergone any alterations or repairs liable to affect its strength or stability.

**[B] SPECIAL CONDITION – GENERAL****1.0 LABOUR**

- 1.1 The Principal Contractor/s will be held responsible for the compliance with provision of **Wages Act 1936** and Rules framed there under even in respect of labour employed in his/their sub contractor in the execution of the work contracted by him/them.
- 1.2 The contractor/s shall carry out the provision of any regulation that may be enforced in the area in which work is to be done prohibiting the recruitment of local labour.
- 1.3 The contractor/s shall obtain license from the appropriate licensing officer of the area before commencement of the work and shall produce a copy thereof along with the original to the Dy. CE /Const. to start the work. The original will be taken by the contractor at the time of renewal of license after permission occupancy of his /their tender.
- 1.4 In any case in which by virtue of relevant sections 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 or through petty contractor or sub contractor/s under this contract, then the contractor shall indemnify the Railway fully and 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 (from the Railway) provided that if any dispute arises as to the expenditure incurred by the Railway or provisions of the said amenities, the decision of the Engineer shall be final and binding.
- 1.5 The contractor/s provide Rest shelters, Latrines and Urinals, Washing facilities, First aid and Medical facilities strictly in accordance with the provision of relevant sections of Contractor Labour Central Rules – 1989. If the contractor does not provide these facilities, within the stipulated periods, the Railway will provide these and the cost of the same will be recovered from the contractor/s.
- 1.6 The Railway will not take responsibility or make arrangements for **Supply of Food -Stuff** to the contractor/s his/their staff or laborers.
- 1.7 The contractor shall make his/their own arrangement at his/their own cost for **Supply of Water** to his/their staff and labour and the Railway under take no responsibility for supply of Water to the contractor/s his/their staff or labour or for the work.
- 1.8 The contractor shall take all precautionary measures in order to ensure protection of their own personal moving about or working on the Railway premises and shall have to confirm to the **Rules and Regulation of the Northern Railway**. If unforeseen accident or injury happens while on working the contractor shall be solely responsible for the same.
- 1.9 The contractor/s shall keep/maintain necessary Register/Record, issued employment Cards, & Service certificates to be displayed on the board in accordance with the relevant sections of the **Contract Labour Contract Act Rules-1971**.
- 2.0 **CONTRACTOR RESPONSIBILITY FOR THE TEMPORARY WORK AND MATERIALS:**
- 2.1 The contractor shall from time to time provide at his own cost Dams, Cofferdams, embankment and all other temporary works of what so ever nature and temporary materials necessary for the construction, Completion and maintenance of the works which are the subject of the contract and shall time to time submit for the information of the Engineer and drawings showing the details of type and construction of the temporary dams, Cofferdams, Bridges, Embankment and other works which he proposes to adopt and construct and the exact position in which he proposes to construct them and during the progress of the works, he shall so directed by the Engineer to furnish particulars and drawings of any other temporary works and details of any other temporary materials in use or contemplated to be used by him. He shall be entirely responsible for the Sufficiency, Security and safety of all dam, Cofferdams, Bridges, Embankment, other temporary Railway connections and other temporary works or temporary materials which he may constructed and or employ and for all claims for damages to property or injury to persons arising out of any failure of accident to such dams, Cofferdams, Bridges, Embankment, other temporary works or temporary materials from whatsoever cause such as damages, injury, failure or accident may arise or happens and shall replace construct, repair and maintain the whole of such dams, Cofferdams, Bridges, Structure, Embankment, other temporary works or temporary materials until they are certified by the Engineer to be no longer required for the purpose of the contract.
- 2.2 The Engineer shall be at liberty to require the contractor to modify and or all of the drawings submitted by him in c/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 no examination by the Engineer of the contractor's drawings nor any approval expressed by him regard hereto, or to the material thereof or therefore, either with or without modification shall absolve or relieve the contractor from any or his liabilities in connection therewith under the contract.

2.3 The Contractor shall before handing over the works or any part thereof to the Railways dismantle and remove all temporary works and temporary materials, but such removal shall not effected without the previous written approval of the Engineer and the Contractor shall comply with the directions, If any given by him as the method of the removal and or disposal.

2.4 The contractor will provide the temporary arrangement for casting, which will be as per drawing approved by the Railway. Contractor must come up with his own drawing for temporary arrangement work for Railway approval in case such drawing are not readily available with the Railways. **No extra payments will be made for the same.** The rate is included in the NS items.

3.0 **PROTECTION AND STEPS TO BE TAKEN IN ORDER TO AVOID DANGERS TO RAILWAY INSTALATIONS:**

a) At such of the locations where contractor/s road vehicle are permitted to ply adjacent to the running lines and yard, an experienced gang-man shall be deputed as flagman at the cost of the contractor to prevent accidents. This factor should be borne in mind by the contractor/s while formulating the rates.

b) If the work to be executed is in proximity or the running railway track, the contractor will be required to be followed 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 caused to the contractor or for the rescheduling of the operations or for any other reasons on this account

c) The contractor shall take all precautionary measures in order to ensure protection of his own personnel moving about or working on the railway premises and shall have to conform to the rules and regulations of Northern Railway, If any unforeseen accident or injury happens while on working, the contractor shall be solely responsible for the same.

d) Within the station premises, especially on passenger platform, or near the running track, contractor/s shall ensure sufficient free space for movement of passenger traffic. He must cover and protect the excavation carried out in such areas with a view to avoid the accident. The works must be carried out most carefully in such a way that they do not hinder the railway operation except as agreed to by the railway.

The contractor's employees and workers shall not for any reason operate any appliances or installation of the railway concerning the safety of the trains movements but they should whenever necessary notify to the qualified railway staff who will then take necessary steps.

e) The contractors shall see that no change is caused to railway signaling and transmission wire, stations, installation, communication lines, electric devices, trains of any kind, fencing as well as any rolling stock and in general to all railway installation and equipment in case of any damage is caused to these due to the fault of the contractor on the part of anyone on his behalf all repairs there required will be carried out by the railway at the entire cost of the contractor and **amount of expenses thus incurred will be recovered** from the payment due to him.

f) 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 tracks on the approach of any trains. After the day work, the contractor should ensure that the tools are deposited in proper tool box before the labour proceeds for their homes. Tool issued should not be allowed to fall in and unwanted hand who can tamper with the railway track.

g) The contractor shall employ one 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 and presence of qualified supervisor from the contractor's site is a must at the site of work.

Contractor shall provide **150 mm thick white line with lime at a distance of 3.5 M from centre to existing track.** This white line shall be in the entire length where work is going on and/or the vehicle/machinery are plying along the track. Nothing extra shall be paid for this.

h) Barricading with the help of portable fencing shall be provided in the length where the days work is to

- be done in close vicinity of the track. The fencing shall consist of self supporting precast steel column connected with barbed wire/ red nylon tape. The column shall be of 1.2 M height. This will be placed at a distance of 3.5 M from centre line of the nearest track. Nothing extra shall be paid for this work.
- i) Asstt. Officer/Sr Scale officer shall issue competency certificate after checking license and their working to all drivers of nominated vehicles / machinery, Inspector at site shall ensure that the driver who does not possess the competency certificate will not work at site,
  - j) The area between running line and white line shall not be permitted to become slushy and adequate drainage must be ensured at all times,
  - k) Machine /vehicle shall ply **6 M clear of track** and movement /work **at less than 6 M and up to 3.5M of clear track centre**, shall be done in the presence of the railway employee authorised by the Engineer in-charge. The railway employee so deputed shall ensure safety of the track, with banner flag, hand signal lamps and detonators.
  - l) If vehicle/ machinery/ materials are to come **within 3.5 M of existing track**, work must be done under the presence of an inspector authorized to do safety works. A caution order shall be issued and track will be protected with the banner flag, hand signal lamps and detonators.
  - m) Normally, night working shall be avoided. **A night working shall be permitted by AXEN/XEN 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.
- 4.0 PENALTIES DUE TO UNSAFE WORK:**
- a) In the event of 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.
  - b) Railway administration **reserves the right to terminate the contract** with immediate effect if the contractor is found responsible for causing an accident without giving any further notice/notices to the contractor.
  - c) In the event of contractor not completing the work or leaving it unsafe at the end of days work so they may serve speed restrictions if required to be imposed, track shall be attended to by the railway immediately at the contractor's cost without any further notice. In addition the labour cost recoverable **from the contractor, supervision charges @ 12.50% and train detention charges @ Rs.200000/- every half hour or part thereof shall also be recovered**,
    - a) In the event of contractor starting the job without proper supervision causing an accident, he may be prosecuted under railway act for lawfully interfering with the railway track in addition to the recovery of RS 20000/- as penalty of every such cases, actual losses compensation with damages to railway property,
    - b) All excavation work to be done only under supervision of Railway staff / nominated person, after obtaining due cable clearance from S&T department. In the event of excavation work without Railway supervision, suitable penalty as deemed fit as ₹ 50,000 or part thereof may be imposed on contractor. In the event of cable cut by excavation, positive damage as mutually agreed to in joint note proposed will be binding on contractor.
- 5.0 FLAGMEN**
- 5.1 As such of the locations where contractor/s road vehicles are permitted to ply adjacent to the running lines and yard, an experienced gang man shall be deputed as flagman at the cost of the contractor to prevent accidents. This factor should be borne in mind by the contractor/s while formulating the rates.
  - 5.2 In case of any disputes regarding interpretation of any of the above clauses, decision of the Chief Engineer/Const/ North Central Rly., Allahabad shall be final and binding on the contractor/s.
- 6.0 TAXES CENTRAL, STATE, LOCAL:**
- 6.1 All the rates quoted should be deemed to include all taxes, direct levies under Central or State or Local bodies Acts or Rules, octroi, royalties etc. and similar imports that may be prevailing from time to time in respect of land, structures and all materials supplied in the performance of this contract.
  - 6.2 **Railway will have no responsibility for issue of Form 31 or XXXVIIIth** to the contractor for transportation of any material whatsoever from outside the state border. All such forms will have to be arranged by the contractor at this own cost /resources.

**7.0 WATER:**

7.1 The contractor shall be responsible for the arrangement to obtain **Supply of water** necessary for the works at his own cost and rates quoted include 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 as to relevant IS specifications depending upon the type of work will have to be conformed. Railway has no source of supply of water so far as construction of this work is concerned.

**8.0 NOTICE TO PUBLIC BODIES:**

8.1 The contractor/s shall give to the Municipality, Police and other authorities, all notices that may be required by law and certain all requisite licenses for temporary obstructions, enclosures and pay all fees, taxes and charges, which may be liveable on account of his operations in 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.

**9.0 FIRST AID:**

The contractor shall maintain in a readily accessible site first aid appliance including adequate supply of sterilised cotton wool. The appliances shall be placed under the charge of responsible person who shall be readily available during working hours.

**10.0 TELEPHONE FACILITIES;**

The contractor shall have to make his own arrangements for providing telephone facilities at the site of work at his own cost. The telephone facilities provided by the contractor shall be allow to be used by the Railway staff without any charge.

**11.00 SPECIAL CONDITION OF RUB BLOCK**

11.1 The box segment as per the RDSO drawing are planned to be used. The barrel length to be adopted may also depend upon type of earth in embankment , soil strata in cutting and site conditions etc.

Contractor may like to cast slab and box segment at one centralised depot and then transport to site will be managed by the contractor himself on free of cost nothing shall be paid on this account by Railways.

Precast RCC slab/box to be laid by contractor's road cranes of suitable capacity after excavation and proper levelling of ground.

11.2 For efficient management of traffic block, following minimum nos of machineries in good working order are to be arranged one day before the block planned by the contractor at their own cost for which no any extra payment will be made:-

S.No.	Description	Qty
1	(a)Crane of 300MT to 350MT capacity with 2 operator on each crane and 10 skilled labourers , when taking up work of double line section.	2 Nos + one spare
	(b) Crane of 300MT to 350MT capacity with 2 operator on each crane and 10 skilled labourers , when taking up work of single line section.	1 No + one spare
2	Excavation Tata Hitachi or similar with operator.	2 Nos
3	JCB with tools and operator.	2 Nos
4	Dumper with hydraulic lifts system	6Nos
5	Gas cutting equipment	2 Nos + one spare
6	Mobile Generator Truck with lighting , cutting and welding machine.	1 No
7	Rail cutting machine and rail drilling machine.	1 No each.

As per the requirement of Railway , if the proposed work is to be carried out for RUBs at more than one location in same block provided by Railway, the contractor will have to provide simultaneous set of machineries and all other related arrangements as per instructions of site Engineer.

11.3 Night block working may be required depending upon traffic & block availability. Lighting arrangement will be operated if traffic blocks are given in night time. Following Generators & Hallozen etc to be arranged one day before the block planned by the contractor, for which no extra payment will be made.



S.No.	Description	Qty
2	Electric Generator of 10 KV	1 No + one spare
3	500 Watt Hallozen & Elect wire etc.	15 Nos Hallozen & Electric wire for connection.
4	Electrician & helper.	As per requirement.

- 11.4 If block sanctioned for night duration, contractor will arrange require capacity generator with halogens for lighting purpose as mentioned above at their own.
- 11.5 In sufficient railway land not available at site, contractor will arrange required land at their own cost for which no any extra payment will be made.
- 12 Site specific plan and General arrangement drawing after collecting site details are to be submitted by the contractor based on Railway's type plan within 15 days of award of contract for which no extra payment will be made . Contractor will have to get the drawings approved from Railways and necessary correction/ reversion suggested by Railway will have to be incorporated in the drawing.
- 13 Work is to be done by contractor with his labours, tools & plants as per drawing and instruction of the Railway Engineer at site.
- 14 For erection/launching of fabricated members/ RH Girder, per cast RCC Boxes, slabs and other structure, contractor has to submit his own scheme , which shall be approved by Railway.
- 15 Depending upon site condition , availability of traffic & power block,scheme / methodology of the work may vary at different sites. The work may require CRS sanction depending on the scheme of construction . No extra payment will be made for delay on such account.
16. The contractor should quote rate keeping the site condition in view.
17. Contractor has to arrange all the tools and plants necessary to carry out this work such as Air compressor , welding generator set , drilling arrangement, jack etc. He should have adequate spares available with him to meet out plant beak down during the work.
18. Contractor has to arrange gas cutting equipment to carryout miscellaneous works, as required.
19. Contractor has to carry out necessary & sufficient lighting arrangement at the site during the block time & during execution of work, if required and as per directions of site in charge.
- 20 Contractor has to arrange sufficient number of labour and skilled artisans like Mason, mechanic, welder, black smith, Riveter, Carpenter & Helper etc. Alongwith their tools & equipments required for carryout work.
- 21 The contractor/s have to submit suitable scheme for carry out the work within timeframe. Railway administration may allow contractor to adopt one of the scheme suggested by him. The permission for starting the work will be given only after approval of the scheme (submitted by the contractor) by the Railways.However this does not in any way absolve full proofness of the scheme . Failure during working will be penalized.
22. Contractor should ensure that all his equipment , tools & Plants T tackle do not fail during block. He should keep sufficient spares and trained mechanic to cope up with any unusual situation during the block.
23. The accepted rates shall be deemed to include and cover all fees, taxes, duties royalties , rent etc.
24. Contractor will clear / clean the work site after completion of the work , to the satisfaction of site engineer.
25. Part recovery of income tax , surcharge thereof, WCT , Commercial Tax & sale tax (where applicable & charges as per directives of State & Central Government) shall be recovered from all bills of contractor as per rule in force.
26. The contractor will arrange sufficient labour , all required T&P in sufficient quantity in such a way that there is block bursting on account of storage of labour/T&P. The contractor will be responsible for bursting and he will be penalized for bursting of block , as decided by Railway.
- 27 If any member of girder/ substructure/ protective work is damaged during execution of work, the contractor will make is good to the satisfaction of Railway engineer at his own cost.
- 28 No claim shall be entertained for any compensation on account of delay in getting traffic blocks and imposition of caution order.
29. Any arrangement required for satisfactory execution of work such as scaffolding , diversion of water, approach road, cutting of rivets, welding and removing of components etc. Is to be made by contractor as his own cost.
- 30 Steel section and other material are to be transported by the contractor at his own cost and if any of the material is damaged either during transit of erection the same shall be set right by the contractor at his own cost.
- 31 Suitable/skilled persons will be deployed by contractor as look out man to caution against running trains for safety of contractors labour on running line.

32. During dismantling and relaying of track , contractor will take care , of loose fittings and any short fall will be compensated by contractor for which no extra payment will be made.
33. The contractor has to arrange and manage the work at site in such way that labour and material create no obstruction which affect safety of running train. If any damage is caused by obstruction / activity , the loss will be assigned and recovery will be done by Railway. XEN/AXEN will decide the amount of recovery to be made on this account.
34. All new/ released material will be kept away at the safe specified distance from running track so it does not infringe moving dimension as per direction of engineer at site.
35. The scaffolding will be erected in such away that it will no obstruct running train and road traffic and will not infringe moving dimension.
36. The contractor will be responsible for safe custody / stacking ofg released materials. The released material will be returned back to SSE and stacking will be done at a specified place as directed by site incharge. No extra payment will be made for this.
37. The contractor will provide well furnished one site office of size 4mx6m made with Porta cabin for site supervision from date of actual commencement of work up to physical completion of work for which no extra payment will be made for this.
38. Use of Railway land required by the contractor for constructing temporary offices hutment's etc. For the staff and for storing material etc. Will be permitted to contractor free of cost by Railway , if available.
39. Contractor have to provide temporary arrangement to protect the earth during the course of excavation against sliding/ collapsing at his own cost , no extra payment shall be made to contractor against this temporary work.
40. With is to be executed as per Indian Railway Unified standard specification (work and materials) Volume-I & II as corrected / updated from time to time.

#### **41.0 GENERAL**

- a. The contractor/s are required to complete the works within the specified period as provided in each agreement / works order. Dy Chief Engineer/C is empowered to grant extension to the specified period provided in the order, falling within the financial limits of the powers during the currency of the contract, if considered the same as justified or with penalty as per NCR General Condition of contract, July 2005.
- b. Every possible fluctuation in the market rates of labour, material and General conditions and other such possibilities and every kind should be considered before quoting the rates and no claim due to any reasons whatsoever on this account will be entertained afterwards. Sale Tax or any other tax levied or leviable by the Central or Sales tax of any other taxes of State Govt. or local bodies shall be borne by the contractor which should also be kept in view before tendering; no such taxes on contractors labour and materials will be paid by the Railway.
- c. The contractor will be required to give un-conditional no claim certificate at the time of signing the final bill. Thus no claim certificate furnished by the contractor constitute special agreement under which contractor submits and acknowledged that no money is due to him in connection with executing of the particular contract by him. Thus, after the contractor has given no claim certificate and his final bill has been finalized to him, the contractor cannot ask for any more payment even if post audit records show that he had been paid less, hence after no claim certificate is given, the contractor cannot even ask for arbitration.
- d. The contractor shall have to co-ordinate his work with other deptt i.e. Electrical installation / Signal interlocking work which maybe related to other contractor or done departmentally. No claim of any kind whatsoever shall be entertained if the execution of any such work being also done by the department /contractor is held up due to their interference or as a result of delay in any of these works.
- e. No extra payment will be made for rounding of the corners at the junction of the floors, joints, corners and parapet.
- f. The plan and sites are subject to alterations to suit the local conditions as requirement of the Railway and the contractor will have no claim on account of the change in plan and sites etc.
- g. The Railway shall not be responsible for any loss or damage to contractors' men, materials equipment, tools and plants etc, from any cause whatsoever,
- h. If any work (whether temporary or permanent) or other materials, the value of which has been included in an on account bills is destroyed or damaged or has/have for lay other reasons to be replace 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 become due and recoverable shall in any way prejudice.
- i. The contractor will ensure that minimum waterway of the bridges is blocked during the course of construction and also that such blockage is removed by him at his own cost before the middle of June every year or as directed by the Engineer. Any damage to the bridge work on this account will be the contractor responsibility.
  - j. If the work to be executed is in proximity of the running Railway track, the contractor will be required to observe all precautions and carry out all works that may be necessary to ensure the safety of the running track /trains etc. 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 capsized to the contractor or for the rescheduling of the co-operation's or for any other reasons on this account
  - k. The contractor rates shall also include the cost that may be necessary for stacking the materials, tools, plants, machinery etc. at site of work whether arranged by the contractor or issued by the Railway. The contractor shall ensure that the materials are not stacked closed to the Railway track, which may and endanger the safety of trains and workmen.
  - l. No claim for extra payment shall be entertained on account of interruption of work due to rain, floods, or due to delay in acquisition of land in some portion or any other cause, nor will any extra payment be made for wet excavation on this account. The contractor must nevertheless arrange to carry on this work in rainy season, if necessary. No claim for earthwork done in low lying waterlogged area local pits and depressions containing water will be entertained by the Railway.
  - m. The contractor shall arrange for effective technical supervision of the work and shall be represented by authorized representative at the site of work during the currency of the contract. He will arrange to receive all the dak at the site of work during execution of work,
  - n. The contractor shall be responsible for the arrangement to obtain supply of water necessary for the works as the own cost and rates quoted include the cost of wells or any other arrangements required to get made for procuring water and loading, transporting/conducting water to the site of work, irrespective of the distance from the source quality of water as to relevant ISI specification 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.
  - o. All tests shall be carryout in accordance with ISI code of practice/Indian Railway concrete bridge code. Nothing extra shall be payable to the contractor on this account.
  - p. Sheet piled water proof cofferdams or well point system for lowering the water level or any other suitable arrangements may be required for carrying out the foundation or works and part of the sub structure up to water level. It should be clearly noted that nothing extra shall be paid for all these arrangements and rates should be inclusive of all labour and materials, dewatering and working under water level including timbering shoring, shuttering etc. if required.
  - q. Individual rates or each non-schedule items should be complete finished items, inclusive of all co-operation and charges and nothing extra will be payable on any account.
  - r. There may be a water supply sewerage/any other under ground/overhead line passing at the site of work and any delay in its shifting; adjusting will not entitle the contractor to any claim whatsoever.
  - s. Work will have to be done in close co-operation with the other departments/agencies if any. The Railway will acquire the land wherever required. However, the contractor shall not claim any thing for the delay in the works due to any delay in the land acquisition.
- 42.0 For the day to day execution of work, any clarification required by the contractor have to be obtained from the Engineer in charge in writing and their decision shall be final and binding on contractor.
- 43.0 In case of any dispute regarding interpretation of any of the above clauses, decision of the CAO /Const or Chief Engineer/Const/NC. Railway, Allahabad shall be final and binding on the contractor.

Dy. Chief Engineer/Const/  
North Central Railway, AGC.

For and on behalf of the President of India

I/We agree to abide by the terms and conditions mentioned in all as well as North Central Railway General Conditions of Contract and Regulations for Tenders & Contracts July-2005, IR Unified Standard Specifications for materials and works Vol-I&II -2010 and IT Unified Standard Schedule of Rates -2010 to the extent the later three books are applicable.

**CONTRACTOR**

**For DY.CE/C//AGC**

**Annexure- I****SPECIAL CONDITIONS OF CONTRACT SETTLEMENT OF DISPUTES**

The settlement of disputes and differences arising out of contract shall be done as per clause 63 and 64 of General Conditions of Contract with latest amendment made time to time.

**Annexure - II****DECLARATION**

I /WE, hereby solemnly declare that I/we visited the site of work (as on the top sheet) personally, and have made myself /ourselves fully conversant of the conditions therein and particularly the following: ' '

1. Topography of the area.
2. Soil strata at site of work.
3. Sources and availability of construction material.
4. Rate for construction of material.
5. Availability of local /labour (both skilled and unskilled) and relevant labour rates and labour laws. ' '
6. The existing road and approaches to the site of work and requirement of future service roads /approaches to be constructed by me /us.
7. The availability and rates of private land etc that shall be required by me /us for various purposes.
8. Climatic conditions and availability of working days.

Signaturo of the Tenderer/s.

**CONTRACTOR**

**For DY.CE/C//AGC**

**The list of suppliers for different material to be used in the work**

1. **STEEL** - Only from Primary steel producers
  - i) TATA STEEL.
  - ii) SAIL (Steel Authority Of India)
  - iii) RINL (Rastriya Ispat Nigam Limited)
  
2. **CEMENT**- OPC/ PPC /Grade 43 /53 are to be used only.
  - i) GRASIM
  - ii) L&T
  - iii) ACC
  - iv) AMBUJA
  - v) BIRLA
  - vi) PRISM
  - vii) VIKRAM
  - viii) ULTRA TECH.
  - ix) Other sources approved by Engineer-in-charge.

***Cement from mini plants not permitted.***
  
3. **ADMIXTURES**
  - i) FOS ROCK
  - ii) C.I.B.A
  - iii) M. B. T
  - iv) SIKKA
  - v) Other sources approved by Engineer-in-charge.
  
4. **PRIMARY SOURCE OF SAND & AGREEGATES** – (Sources to be got approved from railway Engineer prior to supply.

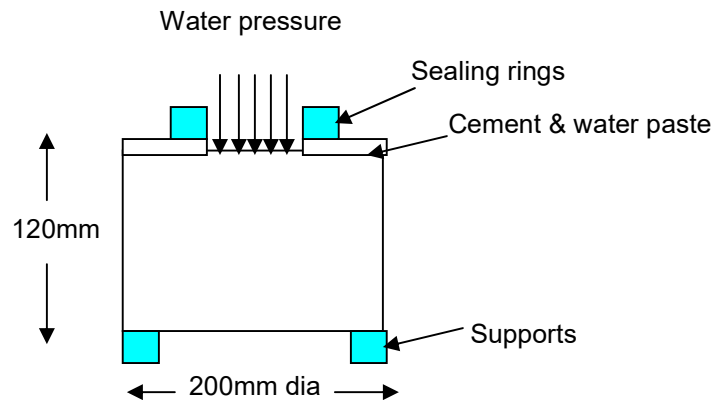
### PERMEABILITY TEST

As durability of concrete depends upon permeability. The permeability test is mandatory for all RCC / PSC works, to control permeability. Permeability test may be conducted as per specification laid down in DIN-1048 PART I. The test is described briefly as given below.

#### Water Permeability Test (DIN-1048 PART-I)

This test is used to measure the penetration of water in the concrete test specimen under pressure. The test is carried out as per the procedure given below:

- i) A test specimen, cylindrical in shape, 200 mm dia and 120mm height, is cast from the fresh concrete like a test cube.
- ii) The test specimen is wet cured for 28 days.
- iii) After 28 days of curing, test specimen is fitted in the machine.
- iv) One bar pressure for 48 hours then 3 bar pressure for 24 hours and then 7 bar pressure for 24 hrs is applied.
- v) The specimen is split into two halves.
- vi) Penetration of water is measured. The maximum value of water penetration is the permeability of concrete.



A permeability value of less than 25 mm indicates very impermeable concrete. The equipments for testing permeability are readily available nowadays or can be manufactured.

**ANNEXURE-V**

Sub: Interim guidelines of reinforcement steel for RCC and PSC works.

Following interim guidelines are issued for adoption on NCR/Construction with the approval of competent authority.

1.0 Approved specification and manufacturers for reinforcement steel for RCC works:

High Strength Deformed (TMT) bars for concrete reinforcement to IS 1786:2008 of Fe 415D /500D category should only be used in lieu of FE 415. The use of Fe 415, 500 & 550 category strength grades should be discontinued. The use of Fe 415D category should also be phased out progressively and **all future designs shall be done with Fe 500D or Fe 550D category strength grades only.**

HSD (TMT) bars of category and grade Fe 415D or Fe 500D/550D to IS 1786: 2008 from primary producers ie. SAIL/TATA STEEL/RINL shall only be used for construction of all Railway bridges, ROB/RUBs important service and community structures such as station buildings, community centers, hospitals, water towers/tanks, schools, assembly halls sheds and framed structures more than 02 stories. The reinforcement bars from these primary producers may be accepted based on the manufacturers test certificate.

However Dy.CE/C in charge of the work can permit use of HSD TMT bars manufactured by secondary producers upto 16 mm dia size in case the required size reinforcement steel from primary producers is not readily available in the market and the work is likely to get held up on this account.

For construction of all other structures, the HSD TMT bars of category and grade Fe 415D or Fe 500D/550D to IS 1786:2008 manufactured by secondary producers can be permitted for all sizes.

Whenever use of reinforcement steel is permitted from secondary producers, a reduction of 10% on the accepted rates of reinforcement steel will be applicable for payment of quantity permitted from secondary producers.

However, following guidelines for testing for reinforcement steel from secondary producers shall be followed before acceptance of material.

- i) Upto 25 MT -1 sample shall be tested for chemical and mechanical properties for each consignment.
- ii) For each subsequent 25 MT or part thereof one additional sample each shall be tested for mechanical properties.
- iii) Testing shall be done only at BIS approved laboratories. List of BIS approved laboratories for testing of HSD bars to IS 1786 is enclosed. In addition testing can also be done from any NABL accredited laboratory.

This is to ensure that the steel supplied by secondary producers is of good quality and fulfill the requirement of IS 1786:2008 of required category/grade of strength.

2.0 The special conditions for supply of reinforcement steel/pre-stressing strands for RCC and PSC works should be modified accordingly for all future tenders.

3.0 These interim guidelines will be reviewed after 6 months and such secondary producers whose quality is consistently found to satisfy the requirements of laid down category/grade of HSD TMT bars as per IS 1786 : 2008 will be considered for inclusion in the list of approved suppliers for reinforcement steel on NCR/Construction.

**FORMAR FOR AFFIDAVIT TO BE UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS.**

(To be executed in presence of public notary on non-judicial stamp paper of the value of Rs.100/-. The stamp paper has to be in the same of the tenderer)\*\*

I.....(Name and designation)\*\* appointed as the attorney/authorized signatory of the tenderer (including its constituents),  
M/s \_\_\_\_\_ (hereinafter called the tenderer) for the purpose of the Tender documents for the work of \_\_\_\_\_ as per the tender No. \_\_\_\_\_ of ( \_\_\_\_\_ Railway), do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer(s) , am/are signing this document after carefully reading the contents.
2. I/we the tenderer(s), also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website [www.ireps.gov.in](http://www.ireps.gov.in). I/ we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/We have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/ credentials submitted alongwith the offer and same shall be binding upon me / us.**
6. **I/We declare that the information and documents submitted alongwith the tender by me/us are correct and I/We are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/We understand that if the certificates regarding eligibility criteria submitted by us are found to be forged/ false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender EMD besides banning of business for five year on entire IR. Further , I/We (insert name of the tenderer)\*\* \_\_\_\_\_ and all my/our constituents understand that my / our offer shall be summarily rejected.
8. I/We also understand that if the certificates submitted by us are found to be false/forged or incorrect at any time after the award of the contract , it will lead to termination of the contract , alongwith forfeiture of EMD/SD and performance guarantee besides any other action provided in the contract including banning of business for five year on entire IR.

DEPONENT  
SEAL AND SIGNATURE  
OF THE TENDERER

## VERIFICATION

I/We above named tenderer do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

DEPONENT  
SEAL AND SIGNATURE  
OF THE TENDERER

Place:  
Dated:

\*\* The contents in Italics are only for guidance purpose. Details as appropriate , are to be filled in suitable by tenderer. Attestation before Magistrate/Notary Public.

**CONTRACTOR**

**For DY.CE/C//AGC**



**NOTES FOR TENDER SCHEDULE**

- 1 Necessary survey should be carried out at the site of work with Railway's representative with latest survey & leveling instruments for collection of all data for preparation of structural design / drawings of cast in situ and precast segmental RCC box, thrust bed and wing / return walls covered in this contract including sub soil data for obtaining soil characteristics for designing the structures as well as thrust bed for doing the work by box pushing technique at the proposed location. The loading has to be taken as 25.0 Tonne and design has to be done as per IRS code.
- 2 The structural drawing / design of cast in situ and precast segmental RCC box and wing / return walls will be prepared by the contractor at his own cost and got approved by Railway for execution . Necessary changes if any required by the Railway shall be made out without any extra payment.
- 3 No work shall be carried out unless and until all drawings are approved by Railways and all design calculation , clarifications required are furnished and got approved.
- 4 The structural design / drgs of thrust bed/ jacking pit/ reaction frame including collection of necessary data to be done by contractor for carrying out the work. The construction of these thrust bed / jacking pit / reaction frame has to be done by the contractors . Extra payment will be made as per relevant item.
- 5 Procurement of plants , jacking equipments , jack pumps, front shield, cutting shield, intermediate jacking station , rear shield etc should be done by contractor by all his own cost and no extra payment will be made. For reduction of friction between soil and precast RCC box during pushing , suitable arrangement has to be made to reduce the disturbance of track to the minimum.
- 6 The cement and steel of approved specification to be procured by the contractor. The tenderer shall submit necessary test certificate at his own cost for material issued in the construction as may be called for by the Railway.
- 7 Jacking the precast boxes to form the opening under the Railway, under traffic conditions. Maximum allowable deviations at any time from the theoretically alignment will be limited to 200mm horizontally and 100 mm vertically. Any deviation beyond this tolerance will have to be rectified by the tenderer their own cost. The necessary jacking scheme to be developed by contractor and it is to be approved by Railway.
- 8 Grouting of all joints after completion of pushing with epoxy compound so as to make them water tight . There should be no leakage. No extra payment will be made.
- 9 Removal of all existing under ground as well as overhead obstruction in the Railway area near the site of the work which are likely to be obstruct to the work of box pushing is to be removed before operation of pushing by the contractor at his own cost. During the box pushing under existing railway track , contractor should ensure that there should be minimum disturbance to track. To achieve this , suitable arrangement of drag sheet / epoxy paint at top of box to reduce friction at site , to be carried out by contractor and no extra payment will be made for the same also the track disturbed, if any during the pushing should be rectified by contractor under the railway supervision to the satisfaction of railway representative at his own cost.
- 10 The removal / disposal of earth after the excavation to be done by contractor as per instructions of engineer at site.
- 11 Tenderer shall prepare and submit a schedule network in the form of PERT CHART or CPM or any other approved form of scheduling network serve as a guide line for carrying out the various items of work, so as to complete the work in stipulated time.
- 12 Necessary provision of opening in the roof of boxes for bentonite pumping , if required for pushing of boxes safely, to be made and bentonite slurry to be injected, for which no extra payment will be made.
- 13 Payment will be made only for approved finished section of concrete. Poorly executed concrete shall have to be demolished and repair shall not be allowed to carry out .
- 14 The main, temperature and other reinforcement of required quantity as per the approved design and drgs for RCC work has to be fixed in position by the contractor as per approved drawing.
- 15 For carrying out the work, if any temporary staging, construction, sheet anchoring etc are required to be carried out, the contractor has to do the necessary arrangements as per the satisfaction of the engineer / incharge and no extra payment for this will be done. The safety of the Railway track lies with the contractor during the working. Therefore, he should take all the precautions and satisfy the engineer at site to ensure that, at all time the work carried out is in safe condition.
- 16 All the temporary works, cutting edge , jacking arrangements will be the property of the contractor and after completion of the work, contractor can take away the material at the time of clearance of the site, if he desired so, otherwise there will be right for him to claim the material afterwards.

**NOTE:**

1. The quantities mentioned are approximate Railway reserve the right to alter the quantities as per requirement. Nothing extra whatsoever shall be paid other than the rates quoted by the tenderer/s for complete job including for lead, lift, ascend, descend, crossing of nallah, obstructions including all crossing of tracks, for Blocks/ caution, level crossing paying octroi, taxes including sales tax, royalty and all other local taxes and charges incidental to the supply of materials.
2. Sale tax, VAT and Income tax will be borne by the Tenderer/s.
3. All conditions mentioned in the tender conditions for the above work already signed by Tenderer/s are also applicable to this and the same is the integral part of the contract.
4. The contractor will take all safety precautions that will be necessary in consultation with concerning officials for working over the running line, nothing extra shall be paid on this account.
5. The contractor shall be fully responsible for any mishap that any occur as a result of the negligent working. Decision of the railway will be final in this matter and will be considered "EXCEPTED MATTER" in addition to other mater mentioned in Clause-63 of GCC-July'2013.

6. Contractor has indemnify the railway from all kind of losses suffered by railway during execution of work or on account of poor work man ship.
7. Block/caution order will be given according to convenience of railways and no compensation etc. will be paid for idle labour / machinery due to non availability of blocks. In case of block bursting and train detention penalties as per clause 4.0 of special conditions (general) will be levied.
8. The contractor will arrange and provide all temporary fencing ballies/wire, rope/rope manila for isolation of work site, endanger for traveling passengers workingmen etc and remove material or debris etc. immediately from the site of work to avoid hindrance or inconvenience to the Railway and road traffic/traveling public and will remove/dump within the specific distance as per instructions of the Engineer in charge.
9. Contractor has to indemnify the Railway from all kind of losses suffered by Railway during execution of work or on account of poor workmanship.

I/we clearly understand that I/we, am/are not entitled to any other payment on any account whatsoever, except the tendered rates for fully complete job.