

## **CHAPTER NO. 21**

### **BRIDGES - FOUNDATION & SUB-STRUCTURE**

#### **Notes for Bridge Chapter 21 & 22:-**

- 1 The rates are based on PPC cement.
- 2 The rates of aggregates, course sand, fine sand & bitumen include carriage of material for the first 5 km from quarry/source.
- 3 The rates of bitumen are based on Panipat Refinery Rates prevailing in July 2010 including all taxes & carriage for the first 5 km from Panipat. In estimate difference of rate may be provided as on date of estimation.
- 4 Quantities of cement given in the rate analysis are approximate for the purpose of estimation. Actual contents should be as per job mix formula and the payment may be adjusted for increase or decrease in cement content accordingly.
- 5 The source of material and samples are required to be approved by the Engineer before the start of work.
- 6 The contractor shall arrange to provide and maintain an adequately equipped field laboratory with well trained staff.
- 7 Charges for Water, needle vibrator have not been included for items as it is assumed that same would be considered under sundries charges.
- 8 The analysis of RCC have been worked out without steel reinforcement but includes formwork Steel Plates not less than 3 mm (Minimum)(including centering and staging).
- 9 The mixing of cement concrete has been considered both by using concrete mixer and batching plant (placed within 1 km). The rates can be adopted depending upon availability of equipment and as approved by Engineer-in-charge.
- 10 The rates of various types of bearings, expansion joints, prestressed concrete assosorries, benotonite, G.I.wire, Metal beam crash barrier, concrete admixtures, H.T.strand etc have been taken in the various analyses as per prevailing rates in the market. During the preparation of the individual estimate of a particular work, these rates may be re-confirmed from the manufacturers.
- 11 The machinery rates have been incorporated as per MOSRT&H Standard Data Book (First Revision) for the 2001-02 after adding escalation 50% calculated on the basis of price index for all commodities.
- 12 The coarse and fine aggregate for cement concrete shall be as per IS:383.
- 13 In the case of open foundation, dewatering shall not be permitted from the time of placing of concrete upto 24 hours after placement.
- 14 The concrete mix used in bottom plug shall have a minimum cement content of 330 kg/cum and a slump of about 150mm to permit easy flow of concrete through tremie to fill-up all cavities.
- 15 In case of cement concrete piles, the minimum grade of concrete shall be M35.

- 16 The quantity of concrete which is required to be stripped off upto a minimum height of 600mm above the designed top level of the pile has been taken into account in the analysis.
- 17 Cost of HT steel has been taken for delivery at site. Hence carriage has not been considered.
- 18 The rates for 6 mm or any other thickness for mastic asphalt may be worked out on pro-rata basis.
- 19 Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.
- 20 In case of viaducts in urban areas, the drainage spouts should be connected with suitably located pipelines to discharge the surface run-off to drains provided at ground level.
- 21 In case of bridges, sufficient length of G.I. Pipe shall be provided to ensure that there is no splashing of water from the drainage spout on the structure.
- 22 The nominal size of aggregates shall be 12.5 mm for depth of joint upto 75 mm and 20 mm for joints of depth more than 75 mm.
- 23 The installation of the expansion joints shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.
- 24 The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.
- 25 The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.
- 26 The rates are without using admixture. Where admixture is required to be used following quantity can be provided for estimate purposes but payment will be made as per actual mix design.

Sr. No.	Grade of Concrete	Where the work is to be done by using Concrete Mixer	Where the work is to be done by using Batch Mixing Plant/RMC	Where the work is to be done by using Batch Mixing Plant & Pumping of Concrete/RMC
i	M-20	-	0.40%	1.00%
ii	M-25	-	0.40%	1.00%
iii	M-30	-	0.40%	1.00%
iv	M-35	0.40%	0.80%	1.00%
v	M-40	0.40%	0.80%	1.00%
vi	M-45	0.40%	0.80%	1.00%
vii	M-50	0.40%	0.80%	1.00%
viii	M-55	0.40%	0.80%	1.00%

- 27 For the execution of works involving the use of skilled labour, extra premium of 10% may be allowed for estimating purpose over and above the premium or abatement fixed for the area concerned. The contractor is to be paid only on the basis of rates of premium and abatement tendered by him on the basic Schedule of Rates i. e. not taking into consideration the 10 per cent applicable weightage in ceiling premium. For isolated works and works in villages, tenders for such works should be clearly invited on this bases. As regards classification of a work under this category, each case should be examined on merit.