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बिहार सरकार

ROAD CONSTRUCTION DEPARTMENT

SCHEDULE OF RATES - 2023

VOLUME – II

(Seventeenth Edition)



6 Lane New Ganga Bridge,
Kachchi Dargah–Bidupur Road

Published by :
State Level Schedule Rate Committee
Bihar, Patna

Effective from 01.04.2023

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बिहार सरकार
GOVERNMENT OF BIHAR

पथ निर्माण विभाग

(राष्ट्रीय उच्च पथ उपभाग सहित)

Road Construction Department

(Including National Highway Wing)

VOLUME-II

(Chapter 12 to 19 & Sub-Analysis)

अनुसूचित दर (दर विश्लेषण सहित)

Schedule of Rates with Analysis

(Seventeenth Edition)

Effective from : 01.04.2023

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First Edition	:	05.12.2006
Second Edition	:	23.05.2007
Third Edition	:	24.03.2008
Fourth Edition	:	01.04.2009
Fifth Edition	:	01.04.2010
Sixth Edition	:	01.05.2011
Seventh Edition	:	02.07.2012
Eighth Edition	:	01.04.2013
Ninth Edition	:	01.04.2014
Tenth Edition	:	01.04.2015
Eleventh Edition	:	01.04.2016
Twelfth Edition	:	01.04.2017
Thirteenth Edition	:	01.04.2018
Fourteenth Edition	:	01.04.2019
Fifteenth Edition	:	01.04.2021
Sixteenth Edition	:	01.04.2022
Seventeenth Edition	**:**	**01.04.2023**

ROAD CONSTRUCTION DEPARTMENT BIHAR

Published by :

CONVENER,
STATE LEVEL SCHEDULE RATE COMMITTEE
-CUM-
ENGINEER-IN-CHIEF (HEAD QUARTER),
ROAD CONSTRUCTION DEPARTMENT
BIHAR, PATNA

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PART - B
BRIDGE WORKS

B. STRUCTURE WORKS

BASIC APPROACH AND GENERAL CONDITIONS FOR THE PREPARATION OF STANDARD DATA BOOK

The basic approach for the preparation of standard Data Book for Bridge Works is indicated as under :

Description of items

The description of items is given briefly and linked with the relevant clause of the MoRT&H Specifications for Road and Bridge Works, which may be referred for detailed description, provisions and interpretation.

Overhead Charges

The overhead charges include the following elements :

i. Site accommodation, setting up plant, access road, water supply, electricity and general site arrangements.

ii. Office furniture, equipment and communications

iii. Expenditure on

Corporate office of contractor

Site supervision

Documentation and "as built" drawings

iv. Mobilisation/de-mobilisation of resources

v. Labour camps with minimum amenities and transportation to work sites

vi. Light vehicles for site supervision including administrative and managerial requirements

vii. Laboratory equipment and quality control including field and laboratory testing

viii. Minor T&P and survey instruments and setting out works, including verification of line, dimensions, trial pits and bore holes, where required

ix. Temporary Diversion

x. Watch and ward

xi. Traffic management during construction

xii. Expenditure on 'safeguarding environment

xiii. Sundries

xiv. Financing Expenditure

xv. Insurance/compensation

For the purpose of calculation of overhead charges, the bridge projects may be categorized into two basic types as under :

Category 1 : New/Widening of Bridge/Structure Works 20 percent

Category 2 : Rehabilitation of Bridges/Structure 30 percent

Contractor Profit : 10 percent of cost of works

Contractor profit is also added on overhead charges.

Basic Inputs

Basic inputs are only given in the standard data book. The rates for material and labour have to be updated by concerned State/UT govt. Officials like E-in-C, CE(NH), State PWDs.

Plants and Equipment

In the analysis of rates, for any items of work, capacity of equipment with corresponding output has been indicated which is most common in use for estimation purpose. Seeing the volume of job, different capacity equipment with corresponding output as indicated in Chapter-20 can be usage for preparing the estimate.

Materials

The rates of material should include basic cost at crushing units, cost of carriage including loading and unloading and stacking of material at site of work and shall be determined through market enquiries.

Labour

Highly skilled labour include mason (1sst class), carpenter, Blacksmith (1st class)/Welder/Plumber/Electrician (1st class), mechanics and other trades.

One mate has been provided for 25 labours.

Carriage of Materials

The unit for vehicle for carriage has been taken as under:

a) In hours where lead is defined including time required for loading and unloading

b) In tonne. km where lead is variable. The loading and unloading for such cases have been provided separately.

General :

Bridge bearing and expansion joints are ready made items commercially produced by specialized firms and in certain cases using imported technology and parts. The rates of these, items are to be obtained directly from different manufacturers approved by the Ministry and shall be adopted after comparison.

Normal method of curing & with curing compound has been covered in the schedule. Analysis for steam curing has been included in the analysis of pre-cast concrete PSC beams.

The testing of materials and finished items of work is covered under overhead charges.

Traffic arrangements during construction are covered under overhead charges. Provisions of temporary diversion, where required shall be governed by Clause 112.

In the items for well foundation, provision for nominal island/temporary protection, deep islands/cofferdams with wooden ballies and sheet piles has been made. The sinking of well foundation in bouldery strata has been included.

In the case of pile foundation, pile dia up to 1.5 m is analysed.

The analysis of steel bridges has been incorporated. For innovative type of structures like cable stayed bridges, suspension bridges, arch bridges, bow string girder bridges, erected by innovative techniques where erection stage is as important as the construction of bridge components in terms of input of machinery, manpower and materials, special analysis is called for.

For some of the items, certain size/specifications have been assumed. If size/specifications other than the same are adopted, corresponding modifications may be made in the inputs of analysis.

The items do not cover all components of bridge project and all situations. There may be specialized items for specific case, which need to be analysed keeping in view the basic approach.

Guide Bund

The items for the guide bund are excavation, embankment and protection works. The rates for these items may be taken from the respective chapters.

In case bridge construction works are to be done on wide and deep water channels in major rivers or in sea creeks etc., provision of floating barrages for taking the construction materials and equipment's inside water shall also be made separately.

Analysis for sinking of wells cover diameter; from 6 m to 12 m and Twin D Type of size 12m×6 m. For other shapes like rectangular or any other size, the rates of sinking may be worked out on pro-rata basis.

The lift for casting of concrete in well staining may be 2 to 2.5 m restricting the free fall of concrete to 1.5 m and concreting layer to 450 mm.

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CHAPTER - 12
BRIDGE FOUNDATION

CHAPTER-12
BRIDGE FOUNDATION

PREAMBLE :

1 Excavation for structures has been provided both by manual and mechanical means. The rate relevant to a particular situation may be adopted.

2 The earth excavated from foundation has been proposed to be backfilled and balance quantity utilized for road work locally except for marshy soil where disposal has been provided.

3 The rock foundations are required to be prepared which has been analysed.

4 In case of rocks, excavation has been considered upto a depth of 3 m only.

5 Embedment of foundation in soft and hard rocks has been provided as required by the specifications.

6 Dewatering has been provided in excavation for foundation. In case dewatering is not required for a particular site condition, the same may be omitted while preparing the estimate.

7 Mixing of cement concrete has been considered only by using batching plant.

8 Concrete batching plant is generally placed within one km of the bridge site. In case of longer lead, transportation cost may be worked out based on tonne km.

9 The coarse and fine aggregate for cement concrete shall be as per IS:383.

10 Description of items has been given very brief. Relevant clauses of MoRT&H Specifications may be referred for detailed specification.

11 The rate analysis for well foundation has been included for diameter varying from 6 m to 12 m. Well for twin D type has also been included.

12 Pneumatic sinking is a specialized job. All safety precaution as per IS:4138 are required to be taken. Medical supervision for such works is considered very essential. Depth of pneumatic sinking has been restricted to 30 m below normal water level.

13 Rate analysis for various types of piles like bored cast-in-situ, driven precast RCC pile and driven steel piles of H section have been included. If the steel casting in case of driven pile is required to be retained, the same is required to be priced separately

14 Pile driving rigs including vibratory hammers are assumed to be self contained with power units and necessary accessories required for driving.

15 The quantity of concrete which is required to be stripped off upto a minimum height of 600 mm above the designed top level of the pile has been taken into account in the rate analysis.

16 The leveling course below the pile cap is proposed with M 15 grade concrete.

17 Steel reinforcement for cement concrete work is required to be protected with the steel plates of thickness not less than 10mm upto top level of well curb. For height above

top of curb, the thickness of steel plate may be reduced to 6 mm. This extra height of steel lining should be limited to 3 m.

18 Appendix-4 of IRC:78 may be referred regarding precautions to be taken during sinking of wells.

19 In case of blasting during sinking of wells the inner face of the curb is required to be protected with the steel plates of thickness not less than 10mm upto top level of well curb. For height above top curb, the thickness of steel plate may be reduced to 6 mm. This extra height of steel lining should be limited to 3 m.

20 The concrete mix used in bottom plug shall have minimum cement content of 330 kg/cum and a slump of about 150 mm to permit easy flow of concrete through tremie to fill-up all cavities.

21 Necessary safety precautions shall be taken for excavation on open foundations for which guidance may be taken from IS:3764.

22 A leveling course of 100 mm thickness in M 10 shall be provided before laying open foundations.

23 In case of open foundation, dewatering shall not be permitted from the time of placing concrete upto 24 hours after placement.

24 In case of open foundations in rock, the trenches around the footing shall be filled-up with concrete of M 15 grade upto a level of 0.6 m for hard rock and 1.5 m for soft rock above the foundation level. The portion above this may be filled by boulders grouted with cement.

25 When there are two or more compartments in a well, the lower edge of the cutting edge of the middle stems of such wells shall be kept about 300 mm above that of outer stems to prevent rocking.

26 The well curb shall be in RCC of mix not leaner than M 25 grade with minimum steel reinforcement of 72 kg/cum excluding bond rods.

27 The top of the bottom plug shall be at least 300 mm above top of curb.

28 No dewatering shall be carried out within 7 days of casting of bottom plug.

29 In case of cement concrete piles, the minimum grade of concrete shall be M 35 with minimum cement content of 400 kg/cum.

30 The top of the pile shall project 5C mm into the pile cap and reinforcement of pile shall be fully anchored in pile cap.

31 The minimum thickness of pile cap should be at least 0.6 m or 1.5 times the diameter of the pile whichever is more.

32 Guidance for piles is to be obtained from IS:2911

33 Concrete in driven cast-in-situ piles shall be cast upto a minimum height of 600 mm above the designated top level of pile, which shall be stripped off to obtain sound concrete either before final set or after 3 days.

CHAPTER-12
FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.01	**Excavation for strucutres**				
	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
I	**Ordinary soil**				
A	**Manual Means**				
(i)	**Depth upto 3 m**	cum	179.70	179.70	179.70
(ii)	**Depth 3 m to 6 m**	cum	231.00	231.00	231.00
(iii)	**Depth above 6 m**	cum	308.00	308.00	308.00
B	**Mechanical Means**				
(i)	**Depth upto 3 m**	cum	98.60	102.30	126.30
(ii)	**Depth 3 m to 6 m**	cum	109.00	113.10	139.60
(iii)	**Depth above 6 m**	cum	122.00	126.40	156.20
II	**Ordinary Rock (not requiring blasting)**				
A	**Manual Means**				
(i)	**Depth upto 3m**	cum	256.70	256.70	256.70
B	**Mechanical Means**	cum	616.10	653.00	673.30
III	**Hard Rock (requiring blasting)**				
	Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000m, all as specified in clause No. 303				
A	**Manual means**	cum	377.10	384.90	418.10
IV	**Hard Rock (blasting prohibited)**				
A	**Mechanical Means**	cum	828.60	855.50	893.80
V	**Marshy Soil**				
A	**Manual means**	cum	751.60	751.60	751.60
B	**Mechanical Means**	cum	259.40	268.40	330.20
VI	**Back Filling in Marshy Foundation Pits**	cum	554.10	554.10	554.10
12.02	**Filling Annular Space around footing in rock**	cum	4322.00	4324.10	4333.50
12.03	**Sand Filling in foundation trenches as per drawing & technical specification**	cum	262.30	264.10	271.90
12.04	**PCC 1:3:6 in Foundation**				
	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	cum	4322.00	4324.10	4333.50

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.05	Brick Masonry Work in Cement Mortar 1:3 in Foundation complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.	cum	6923.70	6928.30	6949.40
12.06 (A)	Cement Mortar 1:3 (1 cement : 3 sand)	cum	4218.30	4218.30	4218.30
(B)	Cement Mortar1:2 (1cement :2 sand)	cum	5184.90	5184.90	5184.90
(C)	Cement Mortar1:4 (1cement :4 sand)	cum	3574.40	3574.40	3574.40
(D)	Cement Mortar1:6 (1cement :6 sand)	cum	2964.62	2964.62	2964.62
12.07	Stone masonry work in cement mortar 1:3 in foundation complete as per drawing and technical specifications.				
(A)	Square Rubble Coursed Rubble masonry (first sort)	cum	4610.80	4610.80	4610.80
(B)	Random Rubble masonry (coursed/uncoursed)	cum	4482.40	4482.40	4482.40
12.08	Plain/Reinfoced Cement concrete in open foundation complete as per drawing and technical specifications.				
A	PCC Grade M15				
Case I	PCC Grade M15 using batching plant & Concrete pump	cum	4614.00	4619.60	4643.30
Case II	PCC Grade M15 using batching plant & manual placing	cum	4884.90	4890.50	4914.20
B	PCC Grade M20				
Case I	PCC Grade M20 using batching plant, transit mixture & Concrete pump	cum	5193.20	5198.70	5222.40
Case II	PCC Grade M20 using batching plant, transit mixer & manual placing	cum	5464.10	5469.70	5493.30
C	RCC Grade M20				
Case I	RCC Grade M20 using batching plant, transit mixture & Concrete pump	cum	5695.70	5701.30	5725.00
Case II	RCC Grade M20 using batching plant, transit mixer & manual placing	cum	5984.50	5990.00	6013.70
D	PCC Grade M25				
Case I	PCC Grade M25 using batching plant, transit mixture & Concrete pump	cum	5677.90	5683.50	5707.20
Case II	PCC Grade M25 using batching plant, transit mixer & manual placing	cum	5948.90	5954.40	5978.10
E	RCC Grade M25				
Case I	RCC Grade M25 using batching plant,transit mixer & Concrete pump	cum	5714.10	5719.70	5743.40
Case II	RCC Grade M25 using batching plant, transit mixer & manual placing	cum	6002.80	6008.40	6032.10
F	PCC Grade M30				
Case I	PCC Grade M30 using batching plant,transit mixer & Concrete pump	cum	5725.10	5730.70	5754.40
Case II	PCC Grade M30 using batching plant, transit mixer & manual placing	cum	5996.10	6001.70	6025.30
G	RCC Grade M30				

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
Case I	**RCC Grade M30 using batching plant,transit mixer & Concrete pump**	cum	5761.00	5766.60	5790.30
Case II	**RCC Grade M30 using batching plant, transit mixer & manual placing**	cum	6049.80	6055.40	6079.00
H	**RCC Grade M35**				
Case I	**RCC Grade M35 using batching plant,transit mixer & Concrete pump**	cum	5913.40	5919.00	5942.70
Case II	**RCC Grade M35 using batching plant, transit mixer & manual placing**	cum	6202.20	6207.80	6231.40
I	**RCC Grade M40**				
Case I	**RCC Grade M40 using batching plant,transit mixer & Concrete pump**	cum	6052.90	6058.50	6082.20
Case II	**RCC Grade M40 using batching plant, transit mixer & manual placing**	cum	6341.70	6347.20	6370.90
J	**RCC Grade M45**				
Case I	**RCC Grade M45 using batching plant,transit mixer & Concrete pump**	cum	6087.20	6092.80	6116.50
Case II	**RCC Grade M45 using batching plant, transit mixer & manual placing**	cum	6376.00	6381.60	6405.20
12.09	**WELL FOUNDATION**				
	Providing and constructing temporary island 24m diameter for construction of Well foundation for 8m dia. Well.				
A	**Assuming depth of water 1.0 m and height of island to be 1.25m including Royalty for earth @ ₹ 18661.1 for each island.**	no.	85413.80	85413.80	85413.80
B	**Assuming depth of water 4.0 m and height of island to be 4.5m including Royalty for earth @₹ 44748.0 for each island**	no.	505087.70	505087.70	505087.70
C	**Providing and constructing one span service road to reach island location from one pier location to another pier loaction**				
	Assuming span length 30m, width of service road 10m and depth of water 1m including Royalty for earth @ ₹495.00 per m length of span	metre	4373.90	4373.90	4373.90
12.10	**Providing and Laying Cutting Edge of Mild Steel weighing 40 kg per metre for Well Foundation complete as per Drawing and Technical Specification.**	MT	119569.10	119570.10	119572.00
12.11	**Plain/Reinforced Cement Concrete, in Well Foundation complete as per Drawing and Technical Specification.**				
A	**Well curb**				
(i)	**RCC M20 Grade**				
Case I	**RCC Grade M20 using batching plant &concrete pump**	cum	6462.20	6462.20	6462.20
Case II	**RCC Grade M20 using batching plant & manual placing**	cum	6742.00	6742.00	6742.00

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
(ii)	RCC M25 Grade				
Case I	RCC Grade M25 using batching plant &concrete pump	cum	6483.50	6483.50	6483.50
Case II	RCC Grade M25 using batching plant & manual placing	cum	6763.20	6763.20	6763.20
(iii)	RCC M30 Grade				
Case I	RCC Grade M30 using batching plant &concrete pump	cum	6537.60	6537.60	6537.60
Case II	RCC Grade M30 using batching plant & manual placing	cum	6817.40	6817.40	6817.40
(iv)	RCC M35 Grade				
Case I	RCC Grade M35 using batching plant &concrete pump	cum	6713.50	6713.50	6713.50
Case II	RCC Grade M35 using batching plant & manual placing	cum	6993.20	6993.20	6993.20
(v)	RCC M40 Grade				
Case I	RCC Grade M40 using batching plant &concrete pump	cum	6874.40	6874.40	6874.40
Case II	RCC Grade M40 using batching plant & manual placing	cum	7154.20	7154.20	7154.20
B	Well steining				
(i)	PCC M15Grade				
Case I	PCC Grade M15 using batching plant & Concrete pump	cum	4779.60	4779.60	4779.60
Case II	PCC Grade M15 using batching plant & manual placing	cum	5054.90	5054.90	5054.90
(ii)	PCC M20 Grade				
Case I	PCC Grade M20 using batching plant & Concrete pump	cum	5392.20	5392.20	5392.20
Case II	PCC Grade M20 using batching plant & manual placing	cum	5667.50	5667.50	5667.50
(iii)	RCC M20 Grade				
Case I	RCC Grade M20 using batching plant &concrete pump	cum	5923.70	5923.70	5923.70
Case II	RCC Grade M20 using batching plant & manual placing	cum	6180.20	6180.20	6180.20
(iv)	PCC M25 Grade				
Case I	PCC Grade M25 using batching plant & Concrete pump	cum	5904.90	5904.90	5904.90
Case II	PCC Grade M25 using batching plant & manual placing	cum	6180.20	6180.20	6180.20
(v)	RCC M25 Grade				
Case I	RCC Grade M25 using batching plant &concrete pump	cum	5943.20	5943.20	5943.20
Case II	RCC Grade M25 using batching plant & manual placing	cum	6199.60	6199.60	6199.60
(vi)	PCC M30 Grade				

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
Case I	PCC Grade M30 using batching plant & Concrete pump	cum	5954.80	5954.80	5954.80
Case II	PCC Grade M30 using batching plant & manual placing	cum	6230.10	6230.10	6230.10
(vii)	RCC M30 Grade				
Case I	RCC Grade M30 using batching plant &concrete pump	cum	5992.80	5992.80	5992.80
Case II	RCC Grade M30 using batching plant & manual placing	cum	6249.30	6249.30	6249.30
(viii)	RCC M35 Grade				
Case I	RCC Grade M35 using batching plant &concrete pump	cum	6154.00	6154.00	6154.00
Case II	RCC Grade M35 using batching plant & manual placing	cum	6410.50	6410.50	6410.50
(ix)	RCC M40 Grade				
Case I	RCC Grade M40 using batching plant &concrete pump	cum	6301.50	6301.50	6301.50
Case II	RCC Grade M40 using batching plant & manual placing	cum	6558.00	6558.00	6558.00
C	Bottom Plug				
(i)	PCC Grade M20				
Case I	PCC Grade M20 using batching plant & concrete pump	cum	5159.90	5159.90	5159.90
Case II	PCC Grade M20 using batching plant & manual placing	cum	5459.20	5459.20	5459.20
(ii)	PCC Grade M25				
Case I	PCC Grade M25 using batching plant & concrete pump	cum	5649.30	5649.30	5649.30
Case II	PCC Grade M25 using batching plant & manual placing	cum	5948.60	5948.60	5948.60
(iii)	PCC Grade M30				
Case I	PCC Grade M30 using batching plant & concrete pump	cum	5696.90	5696.90	5696.90
Case II	PCC Grade M30 using batching plant & manual placing	cum	5996.30	5996.30	5996.30
(iv)	PCC Grade M35				
Case I	PCC Grade M35 using batching plant & concrete pump	cum	5825.30	5825.30	5825.30
Case II	PCC Grade M35 using batching plant & manual placing	cum	6124.60	6124.60	6124.60
D	Intermediate plug				
(i)	Grade M20 PCC				
Case I	PCC Grade M20 using batching plant & Concrete pump	cum	4924.70	4924.70	4924.70
Case II	PCC Grade M20 using batching plant & Manual placing	cum	5210.50	5210.50	5210.50
(ii)	Grade M25 PCC				

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
Case I	PCC Grade M25 using batching plant & Concrete pump	cum	5390.80	5390.80	5390.80
Case II	PCC Grade M25 using batching plant & Manual placing	cum	5676.60	5676.60	5676.60
(iii)	Grade M30 PCC				
Case I	PCC Grade M30 using batching plant & Concrete pump	cum	5436.20	5436.20	5436.20
Case II	PCC Grade M30 using batching plant & Manual placing	cum	5722.00	5722.00	5722.00
E	Top Plug				
(i)	Grade M15 PCC				
Case I	PCC Grade M15 using batching plant & concrete pump	cum	4436.50	4441.90	4464.70
Case II	PCC Grade M15 using batching plant & manual placing	cum	4697.10	4702.40	4725.20
(ii)	Grade M20 PCC				
Case I	PCC Grade M20 using batching plant & concrete pump	cum	4993.40	4998.80	5021.60
Case II	PCC Grade M20 using batching plant & manual placing	cum	5254.00	5259.30	5282.10
(iii)	Grade M25 PCC				
Case I	PCC Grade M25 using batching plant & concrete pump	cum	5459.50	5464.90	5487.70
Case II	PCC Grade M25 using batching plant & manual placing	cum	5720.10	5725.40	5748.20
(iv)	Grade M30 PCC				
Case I	PCC Grade M30 using batching plant & concrete pump	cum	5504.90	5510.30	5533.10
Case II	PCC Grade M30 using batching plant & manual placing	cum	5765.50	5770.80	5793.60
F	Well Cap				
(i)	RCC Grade M20				
Case I	RCC Grade M20 using batching plant, transit mixer & concrete pump	cum	5695.70	5701.30	5725.00
Case II	RCC Grade M20 using batching plant, transit mixer & manual placing	cum	5948.90	5954.40	5978.10
(ii)	RCC Grade M25				
Case I	RCC Grade M25 using batching plant, transit mixer & concrete pump	cum	5714.10	5719.70	5743.40
Case II	RCC Grade M25 using batching plant, transit mixer & manual placing	cum	5967.30	5972.80	5996.50
(iii)	RCC Grade M30				
Case I	RCC Grade M30 using batching plant, transit mixer & concrete pump	cum	5761.00	5766.60	5790.30
Case II	RCC Grade M30 using batching plant, transit mixer & manual placing	cum	6014.20	6019.80	6043.40
(iv)	RCC Grade M35				

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
Case I	**RCC Grade M35 using batching plant, transit mixer & concrete pump**	cum	5913.40	5919.00	5942.70
Case II	**RCC Grade M35 using batching plant, transit mixer & manual placing**	cum	6166.60	6172.20	6195.80
(v)	**RCC Grade M40**				
Case I	**RCC Grade M40 using batching plant, transit mixer & concrete pump**	cum	6052.90	6058.50	6082.20
Case II	**RCC Grade M40 using batching plant, transit mixer & manual placing**	cum	6306.10	6311.60	6335.30
(vi)	**RCC Grade M45**				
Case I	**RCC Grade M45 using batching plant, transit mixer & concrete pump**	cum	6087.20	6092.80	6116.49
Case II	**RCC Grade M45 using batching plant, transit mixer & manual placing**	cum	6340.40	6346.00	6369.60
12.12	**Sinking of 6 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
(A)	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0m**	metre	4042.20	4042.20	4042.20
(ii)	**Beyond 3m upto 10m depth**	metre	5635.70	5635.70	5635.70
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey soil (6m dia. Well)**				
(i)	**Depth below bed level upto 3.0 M**	metre	5663.40	5663.40	5663.40
(ii)	**Beyond 3m upto 10m depth**	metre	12604.50	12604.50	12604.50
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in soft Rock (6m dia well)**	metre	49000.80	49000.80	49000.80
D	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in Hard Rock (6m dia well)**	metre	46578.20	46578.20	46578.20
E	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (6m dia well)**	metre	73259.20	73259.20	73259.20

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.13	**Sinking of 7 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0m**	metre	5927.20	5927.20	5927.20
(ii)	**Beyond 3m upto 10m depth**	metre	7812.20	7812.20	7812.20
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey Soil (7 m dia. Well)**				
(I)	**Depth below bed level upto 3.0 M**	metre	7812.20	7812.20	7812.20
(ii)	**Beyond 3m upto 10m depth**	metre	12492.60	12492.60	12492.60
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in soft Rock (7m dia well)**	metre	63961.20	63961.20	63961.20
D	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in Hard Rock (7m dia well)**	metre	58094.60	58094.60	58094.60
E	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (7m dia well)**	metre	97405.40	97405.40	97405.40
12.14	**Sinking of 8 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0 M**	metre	7229.20	7229.20	7229.20
(ii)	**Beyond 3m upto 10m depth**	metre	8822.70	8822.70	8822.70
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey Soil (8 m dia. Well)**				
(i)	**Depth from bed level upto 3.0 M**	metre	9566.70	9566.70	9566.70

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
(ii)	**Beyond 3m upto 10m depth**	metre	13240.90	13240.90	13240.90
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.14 (A) or (B) irrespective of depth for sinking in soft Rock (8m dia well)**	metre	81040.40	81040.40	81040.40
D	**Extra over item no. 12.14 (A) or (B) irrespective of depth for sinking in Hard Rock (8m dia well)**	metre	71740.50	71740.50	71740.50
E	**Extra over item no. 12.14 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (8m dia well)**	metre	125084.80	125084.80	125084.80
12.15	**Sinking of 9 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0 M**	metre	7362.50	7362.50	7362.50
(ii)	**Beyond 3m upto 10m depth**	metre	9672.20	9672.20	9672.20
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey Soil (9 m dia. Well)**				
(i)	**Depth from bed level upto 3.0 M**	metre	10152.50	10152.50	10152.50
(ii)	**Beyond 3m upto 10m depth**	metre	14250.10	14250.10	14250.10
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.15 A) or (B) irrespective of depth for sinking in soft Rock (9m dia well)**	metre	100240.50	100240.50	100240.50
D	**Extra over item no. 12.15 (A) or (B) irrespective of depth for sinking in Hard Rock (9m dia well)**	metre	87000.30	87000.30	87000.30
E	**Extra over item no. 12.15 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (9m dia well)**	metre	156297.40	156297.40	156297.40

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.16	**Sinking of 10 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0m**	metre	8661.70	8661.70	8661.70
(ii)	**Beyond 3m upto 10m depth**	metre	10258.00	10258.00	10258.00
(iii)	**Beyond 10m upto 20m**				
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**				
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**				
	Rate may be taken from analysis				
B	**Clayey Soil (10 m dia. Well)**				
(I)	**Depth below bed level upto 3.0 M**	metre	11537.90	11537.90	11537.90
(ii)	**Beyond 3m upto 10m depth**	metre	14415.40	14415.40	14415.40
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in soft Rock (10m dia well)**	metre	121560.40	121560.40	121560.40
D	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in Hard Rock (10m dia well)**	metre	103930.40	103930.40	103930.40
E	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (10m dia well)**	metre	191042.80	191042.80	191042.80
12.17	**Sinking of 11 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth from bed level upto 3.0 M**	metre	19442.10	19442.10	19442.10
(ii)	**Beyond 3m upto 10m depth**	metre	16701.70	16701.70	16701.70
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
	Rate may be taken from analysis				
B	**Clayey Soil (11 m dia. Well)**				
(i)	**Depth from bed level upto 3.0 M**	metre	19144.50	19144.50	19144.50
(ii)	**Beyond 3m upto 10m depth**	metre	30060.90	30060.90	30060.90
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.17 (A) or (B) irrespective of depth for sinking in soft Rock 11m dia well)**	metre	144999.50	144999.50	144999.50
D	**Extra over item no. 12.17 (A) or (B) irrespective of depth for sinking in Hard Rock (11m dia well)**	metre	122529.50	122529.50	122529.50
E	**Extra over item no. 12.17 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (11m dia well)**	metre	229321.70	229321.70	229321.70
12.18	**Sinking of 12m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth below bed level upto 3.0 M**	metre	41020.90	41020.90	41020.90
(ii)	**Beyond 3m upto 10m depth**	metre	46884.20	46884.20	46884.20
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey Soil (12 m dia. Well)**				
(i)	**Depth from bed level upto 3.0 M**	metre	46473.10	46473.10	46473.10
(ii)	**Beyond 3m upto 10m depth**	metre	72804.40	72804.40	72804.40
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.18 (A) or (B) irrespective of depth for sinking in soft Rock (12m dia well)**	metre	170559.00	170559.00	170559.00
D	**Extra over item no. 12.18 (A) or (B) irrespective of depth for sinking in Hard Rock (12m dia well)**	metre	142797.80	142797.80	142797.80
E	**Extra over item no. 12.18 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (12m dia well)**	metre	271133.80	271133.80	271133.80

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.19	**Sinking of Twin D Type well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**				
A	**Sandy Soil**				
(i)	**Depth from bed level upto 3.0 M**	metre	9217.00	9217.00	9217.00
(ii)	**Beyond 3m upto 10m depth**	metre	9954.30	9954.30	9954.30
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
B	**Clayey Soil (Twin D Type Well)**				
(i)	**Depth below bed level upto 3.0 M**	metre	11029.70	11029.70	11029.70
(ii)	**Beyond 3m upto 10m depth**	metre	15943.60	15943.60	15943.60
(iii)	**Beyond 10m upto 20m**	metre			
	Rate may be taken from analysis				
(iv)	**Beyond 20m upto 30m**	metre			
	Rate may be taken from analysis				
(v)	**Beyond 30m upto 40m**	metre			
	Rate may be taken from analysis				
C	**Extra over item no. 12.19 (A) or (B) irrespective of depth for sinking in soft Rock**	metre	101127.20	101127.20	101127.20
D	**Extra over item no. 12.19 (A) or (B) irrespective of depth for sinking in Hard Rock**	metre	88203.50	88203.50	88203.50
E	**Extra over item no. 12.19 (A) & (B) irrespective of depth for sinking in Rock bouldery strata**	metre	157775.20	157775.20	157775.20
12.20	**Pneumatic sinking of wells with equipment of approved design, drawing and specifications worked by competent and trained personnel and comprising of compression and decompression chambers, reducers, two air locks separately for men and plant & materials, arrangement for supply of fresh air to working chambers, check valves, exhaust valves, shafts made from steel plates of riveted construction not less than 6 mm thick to withstand an air pressure of 0.50 MPa, controlled blasting of hard rock where required, staircases and 1 m wide landing platforms with railing, arrangement for compression and decompression, electric lighting of 50 V maximum, proper rooms for rest and medical examinations and compliance with safety precautions as per IS:4138, all as per clause1208.8 of MoRTH Specifications.**	cum	53755.20	53764.10	53801.90

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
12.21	Sand Filling in Wells complete as per Drawing and Technical Specifications.	cum	1069.20	1069.20	1069.20
12.22	Providing Steel Liner 10 mm thick for Curbs and 6 mm thick for Steining of Wells including Fabricating and Setting out as per Detailed Drawing.	MT	109275.90	109275.90	109275.90
12.23	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.	metre	8724.80	8733.70	8818.70
12.24	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.	metre	11112.80	11128.70	11279.70
12.25	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.				
	Pile diameter-1200 mm	metre	14428.10	14451.10	14668.60
12.26	Pile diameter-1500 mm	metre	19764.00	19799.90	20139.80
12.27	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-750mm	metre	6520.00	6522.50	6533.00
12.28	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-1000mm	metre	9889.00	9893.30	9911.90
12.29	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-1200mm	metre	14540.90	14547.20	14574.00
12.30	Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-500mm	metre	3902.40	3903.50	3908.20
12.31	Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-750mm	metre	5893.70	5896.20	5906.70
12.32	Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				
	Pile diameter-1000mm	metre	8787.60	8792.10	8810.80
12.33	Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification				

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
	Size of pile-300mm×300mm	metre	3233.10	3233.70	3235.80
12.34	**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**				
	Size of pile-500mm×500mm	metre	4635.50	4636.90	4642.90
12.35	**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**				
	Size of pile-750mm×750mm	metre	7294.00	7297.10	7310.60
12.36	**Driven Vertical Steel Piles complete as per Drawing and & Technical Specification**				
	Section of the pile-H Section steel columm 400×250 mm (ISHB Series)	metre	8862.90	8862.90	8862.90
12.37	**Driven Vertical Steel Piles complete as per Drawing and & Technical Specification**				
	Section of the pile-H Section steel columm 450×250 mm (ISHB Series)	metre	10064.60	10064.60	10064.60
12.38	**Pile Load Test on single Vertical Pile in accordance with IS:2911 (Part-IV)**	MT	#REF!	#REF!	#REF!
12.39	**Dismantling of Reinforced Concrete Pile head complete as per Drawing and Technical Specification**	cum	1510.20	1549.40	1576.50
12.40	**Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification**				
A	**RCC Grade M20**				
Case I	**RCC Grade M20 using batching plant & Concrete pump**	cum	5572.20	5572.20	5572.20
Case II	**RCC Grade M20 using batching plant & manual placing**	cum	5597.70	5597.70	5597.70
B	**RCC Grade M25**				
Case I	**RCC Grade M25 using batching plant & Concrete pump**	cum	5590.60	5590.60	5590.60
Case II	**RCC Grade M25 using batching plant & manual placing**	cum	5616.10	5616.10	5616.10
C	**RCC Grade M30**				
Case I	**RCC Grade M30 using batching plant & Concrete pump**	cum	5637.50	5637.50	5637.50
Case II	**RCC Grade M30 using batching plant & manual placing**	cum	5663.00	5663.00	5663.00
D	**RCC Grade M35**				
Case I	**RCC Grade M35 using batching plant & Concrete pump**	cum	5789.90	5789.90	5789.90

Summary of Rate Analysis

FOUNDATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
Case II	RCC Grade M35 using batching plant & manual placing	cum	5815.40	5815.40	5815.40
E	RCC Grade M40				
Case I	RCC Grade M40 using batching plant & Concrete pump	cum	5929.40	5929.40	5929.40
Case II	RCC Grade M40 using batching plant & manual placing	cum	5954.90	5954.90	5954.90
F	RCC Grade M45				
Case I	RCC Grade M45 using batching plant & Concrete pump	cum	5963.70	5963.70	5963.70
Case II	RCC Grade M45 using batching plant & manual placing	cum	5989.20	5989.20	5989.20
12.41	Levelling Course for Pile cap				
	Providing and laying of PCC M15 levelling course 100 mm thick below the pile cap.				
Case I	*PCC Grade M15 using batching plant & Concrete pump*	cum	4436.50	4441.90	4464.70
Case II	*PCC Grade M15 using batching plant & manual placing*	cum	4697.10	4702.40	4725.20
12.42	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.	MT	82861.80	82917.70	83025.30
12.43	Supplying, Fitting and Placing un-coated Mild steel Reinforcement in Foundation complete as per Drawing and Technical Specifications.	MT	84299.10	84355.00	84462.60

CHAPTER - 12
FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.01	**304**		**Excavation for strucutres**									
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.									
		I	**Ordinary soil**									
			Unit=cum									
			Taking output = 10 cum									
		A	**Manual Means**									
		(i)	**Depth upto 3 m**									
			a) Labour									
			Mate	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		272.22	272.22	272.22	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		163.33	163.33	163.33	
			Cost for 10 cum =(a+b+c)						1796.63	1796.63	1796.63	
			Cost for 10 cum =(a+b+c)						179.66	179.66	179.66	
			Rate per cum = (a+b+c)/10					**Say**	**179.70**	**179.70**	**179.70**	
		Note	1. Cost of dewatering may be added where required upto, 10 percent of labour cost Assessment for dewatering shall be made as per site conditions.									
			2.The excavated earth can be used partially for backfilling of foundation pit and partly for road work except for marshy soil. Hence cost of disposal has not been added except for marshy soil. This remark is common to all cases of item 12.01 excluding marshy soil.									
			3.The cost of shoring and shuttering, where needed, may be added @ 1 percent on cost of excavation for open foundation									
12.01 (I)	**A**	**(ii)**	**Depth 3 m to 6 m**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate/Supervisor	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Mazdoor	day	4.500	4.500	4.500	373.00	1678.50	1678.50	1678.50	L-13
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		349.99	349.99	349.99	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		210.00	210.00	210.00	
			Cost for 10 cum = (a+b+c)						2309.95	2309.95	2309.95	
			Rate per cum= (a+b+c)/10						230.99	230.99	230.99	
								Say	**231.00**	**231.00**	**231.00**	
		Note	Cost of dewatering may be added where required upto 15 percent of labour cost. Assessment for dewatering shall be done as per actual ground conditions.									
12.01 (I)	**A**	**(iii)**	**Depth above 6 m**									
			a) Labour									
			Mate / Supervisor	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		466.66	466.66	466.66	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		279.99	279.99	279.99	
			Cost for 10 cum =(a+b+c)						3079.93	3079.93	3079.93	
			Rate per cum= (a+b+c)/10						307.99	307.99	307.99	
								Say	**308.00**	**308.00**	**308.00**	
		Note	Cost of dewatering may be added where required upto 20 percent of labour cost. Assessment for dewatering shall be done as per actual ground conditions.									
12.01 (I)		**B**	**Mechanical Means**									
		(i)	Depth upto 3 m									
			Unit = cum									
			Taking output = 330cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Hydraulic excavator For excavation									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 1.2 cum bucket capacity	hour	4.627			2778.00	12853.81			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.329		2504.00		13343.82		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.450	2272.00			16926.40	PM3005
			For backfilling (considering 60% of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.776			2778.00	7711.73			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.197		2504.00		8005.29		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.470	2272.00			10155.84	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	198.000			4.95	980.10			PM72001
			(ii) 14 cum capacity	t.km		198.000		5.67		1122.66		PM73001
			(iiii) 10 cum capacity	t.km			198.000	7.04			1393.92	PM74001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		4931.33	5116.56	6317.44	
			d) Contractor's profit @on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2958.80	3069.94	3790.46	
			Cost for 330 cum= a+b+c+d						32546.81	33769.30	41695.10	
			Rate per cum = (a+b+c+d)/330						98.63	102.33	126.35	
								Say	**98.60**	**102.30**	**126.30**	
		Note	Cost of dewatering upto 5 percent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions									
		(ii)	**Depth 3 m to 6 m**									
			Unit = cum									
			Taking output = 300cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Hydraulic excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	4.674			2778.00	12984.37			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.383		2504.00		13479.03		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.525	2272.00			17096.80	PM3005
			For backfilling (considering 60% of the excavated material)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 1.2 cum bucket capacity	hour	2.804			2778.00	7789.51			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.230		2504.00		8087.92		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.515	2272.00			10258.08	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	180.000			4.95	891.00			PM72001
			(ii) 14 cum capacity	t.km		180.000		5.67		1020.60		PM73001
			(iiii) 10 cum capacity	t.km			180.000	7.04			1267.20	PM74001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		4955.18	5139.72	6346.62	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2973.11	3083.83	3807.97	
			Cost for 300 cum= a+b+c+d						32704.22	33922.14	41887.72	
			Rate per cum = (a+b+c+d)/300						109.01	113.07	139.63	
								Say	**109.00**	**113.10**	**139.60**	
		Note	Cost of dewatering upto 7.5 percent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions									
			Mechanical Means									
		(iii)	**Depth above 6 m**									
			Unit = cum									
			Taking output = 270cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Hydraulic excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	4.732			2778.00	13145.50			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.450		2504.00		13646.80		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.619	2272.00			17310.37	PM3005
			For backfilling (considering 60% of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.839			2778.00	7886.74			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.270		2504.00		8188.08		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.571	2272.00			10385.31	PM3005

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Tipper for transportation of excess material to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	162.000			4.95	801.90			PM72001
			(ii) 14 cum capacity	t.km		162.000		5.67		918.54		PM73001
			(iiii) 10 cum capacity	t.km			162.000	7.04			1140.48	PM74001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		4989.04	5172.89	6389.44	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2993.42	3103.74	3833.66	
			Cost for 270 cum= a+b+c+d						32927.63	34141.09	42170.30	
			Rate per cum = (a+b+c+d)/270						121.95	126.45	156.19	
								Say	**122.00**	**126.40**	**156.20**	
		Note	1. Cost of dewatering upto 10 percent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions									
			2. Labour provided for excavation by mechanical means includes that required for trimming of bottom and side slopes.									
12.01		**II**	**Ordinary Rock (not requiring blasting)**									
		A	**Manual Means**									
		(i)	**Depth upto 3m**									
			Unit= cum									
			Taking output =10cum									
			a) Labour									
			Mate / Supervisor	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		388.88	388.88	388.88	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		233.33	233.33	233.33	
			Cost for 10 cum =(a+b+c)						2566.61	2566.61	2566.61	
			Rate per cum= (a+b+c)/10						256.66	256.66	256.66	
								Say	**256.70**	**256.70**	**256.70**	
		Note	Cost of dewatering upto 10 percent of labour cost may be added, where required. Assessment for dewatering shall be made as per site site conditions.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.01 (II)		B	**Mechanical Means**									
			Unit* = *cum									
			Taking output* = *50cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Machinery									
			Hydraulic excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	5.818			2778.00	16162.40			PM3003
			(ii) 1.1 cum bucket capacity	hour		6.845		2504.00		17139.88		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.273	2272.00			16524.26	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.872			2778.00	2422.42			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.005		2504.00		2516.52		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.405	2272.00			3192.16	PM3005
			Jack Hammer	hour	5.818	6.845	7.273	206.00	1198.51	1410.07	1498.24	PM4001
			Tipper for transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	75.000			4.95	371.25			PM72001
			(ii) 14 cum capacity	t-km		75.000		5.67		425.25		PM73001
			(iii) 10 cum capacity	t-km			75.000	7.04			528.00	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.872			2310.00	2014.32			PM6001
			(ii) 14 cum capacity	hour		1.005		2065.00		2075.33		PM6002
			(iii) 10 cum capacity	hour			1.405	1847.00			2595.04	PM6003
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		4667.11	4946.74	5100.87	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2800.26	2968.04	3060.52	
			Cost for 50 cum = a+b+c+d						30802.91	32648.46	33665.71	
			Rate per cum = (a+b+c+d)/50						616.06	652.97	673.31	
								Say	**616.10**	**653.00**	**673.30**	
		Note	1.Cost of dewatering upto 10 percent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			2.In case of rock, foundation beyond 3 m is not dug and hence not included.									
12.01	**302**	**III**	**Hard Rock (requiring blasting)**									
			Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000m, all as specified in clause No. 303									
		A	**Manual means**									
			Unit=cum									
			Taking output=120cum									
			a) Labour									
			Mate	day	0.210	0.210	0.210	397.00	83.37	83.37	83.37	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			b) Machinery									
			Air Compressor	hour	6.000	6.000	6.000	440.00	2640.00	2640.00	2640.00	PM15001
			Jack Hammer for drilling holes @ 4.5 m per hour)	hour	24.000	24.000	24.000	206.00	4944.00	4944.00	4944.00	PM4001
			Jack Hammer (consider 5% of the volume for dressing)	hour	1.024	1.205	1.280	206.00	210.94	248.23	263.68	PM4001
			Hydraulic excavator									
			Excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	1.024			2778.00	2844.67			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.205		2504.00		3017.32		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.280	2272.00			2908.16	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	2.094			2778.00	5817.13			PM3003
			(ii) 1.1 cum bucket capacity	hour		2.411		2504.00		6037.14		PM3004
			(iii) 0.9 cum bucket capacity	hour			3.371	2272.00			7658.91	PM3005

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Tipper for transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	180.000			4.95	891.00			PM72001
			(ii) 14 cum capacity	t-km		180.000		5.67		1020.60		PM73001
			(iii) 10 cum capacity	t-km			180.000	7.04			1267.20	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	2.094			2310.00	4837.14			PM6001
			(ii) 14 cum capacity	hour		2.411		2065.00		4978.72		PM6002
			(iii) 10 cum capacity	hour			3.371	1847.00			6226.24	PM6003
			c) Material									
			Small dia Explosive at 0.40 kg/cum for 120 cum (120×0.40) Explosive at 0.20 kg/cum for secondary blast @ 5% of the total volume (120×0.2×5%)	kg	49.200	49.200	49.200	128.00	6297.60	6297.60	6297.60	M-215
			Electric detonators at 1 per hole for main blast holes (21×3+20×2)=103 nos	no.	69.000	69.000	69.000	6.56	452.64	452.64	452.64	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no.	7.000	7.000	7.000	3.28	22.96	22.96	22.96	M-216
			Detonating fuse coil	m	213.000	213.000	213.000	15.00	3195.00	3195.00	3195.00	M-218
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		6857.24	6997.47	7601.90	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		4114.34	4198.48	4561.14	
			Cost for 120 cum = a+b+c+d+e						45257.79	46183.27	50172.55	
			Rate per cum = (a+b+c+d+e)/120						377.15	384.86	418.10	
								Say	**377.10**	**384.90**	**418.10**	
		Note	Cost of dewatering @ 10 percent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions.									
12.01		**IV**	**Hard Rock (blasting prohibited)**									
			Unit* = *cum									
			Taking output* = *35cum									
		A	**Mechanical Means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
			b) Machinery									
			Jack Hammer	hour	5.973	6.788	7.467	206.00	1230.44	1398.33	1538.20	PM4001
			Hydraulic Excavator Excavator for excavation									
			(i) 1.2 cum bucket capacity	hour	5.973			2778.00	16592.99			PM3003
			(ii) 1.1 cum bucket capacity	hour		6.788		2504.00		16997.15		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.467	2272.00			16965.02	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.611			2778.00	1697.36			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.703		2504.00		1760.31		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.983	2272.00			2233.38	PM3005
			Tipper for **transportation** to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	52.500			4.95	259.88			PM72001
			(ii) 14 cum capacity	t-km		52.500		5.67		297.68		PM73001
			(iii) 10 cum capacity	t-km			52.500	7.04			369.60	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.611			2310.00	1411.41			PM6001
			(ii) 14 cum capacity	hour		0.703		2065.00		1451.70		PM6002
			(iii) 10 cum capacity	hour			0.983	1847.00			1815.60	PM6003
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		4393.97	4536.58	4739.91	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2636.38	2721.95	2843.95	
			Cost for 35 cum = a+b+c+d						29000.18	29941.46	31283.42	
			Rate per cum = (a+b+c+d)/35						828.58	855.47	893.81	
								Say	**828.60**	**855.50**	**893.80**	
			1. Cost of dewatering upto10 percent of (a+b), may be added, where required. Assessment for dewatering shall be made as per site conditions.									
			2.In case of rock, foundation beyond 3 m is not dug and hence not included.									
12.01		**V**	**Marshy Soil**									
			Unit = cum									
			Taking output = 10 cum									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Depth upto 3 m									
		A	**Manual means**									
			a) Labour									
			Mate/Supervisor	day	0.400	0.400	0.400	397.000	158.800	158.800	158.800	L-12
			Mazdoor	day	10.000	10.000	10.000	373.000	3730.000	3730.000	3730.000	L-13
			b) Machinery									
			Tractor-trolley for removal.	hour	2.670	2.670	2.670	676.000	1804.920	1804.920	1804.920	PM12001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1138.744	1138.744	1138.744	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		683.246	683.246	683.246	
			Cost for 10 cum = a+b+c+d						7515.710	7515.710	7515.710	
			Rate per cum = (a+b+c+d)/ 10						751.571	751.571	751.571	
								Say	**751.600**	**751.600**	**751.600**	
		Note	1. Cost of dewatering @ 30 per cent of (a), may be added, where required Assessment for dewatering shall be made as per site conditions.									
			2. Shoring & strutting 15 percent of (a), where required may be added									
			3. It is assumed that Marshy Soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer analysis in item12.01 (i) to (iv) for ordinary soil									
12.01 (V)		**B**	**Mechanical Means**									
			Unit=cum									
			Taking output=260cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Machniery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	8.506			2778.00	23629.67			PM3003
			(ii) 1.1 cum bucket capacity	hour		9.796		2504.00		24529.18		PM3004
			(iii) 0.9 cum bucket capacity	hour			13.695	2272.00			31115.04	PM3005
			Tipper									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			for transportation to dumping yard considering lead @1km									
			(i) 18cum capacity	t-km	390.000			4.95	1930.50			PM72001
			(ii) 14cum capacity	t-km		390.000		5.67		2211.30		PM73001
			(iii) 10cum capacity	t-km			390.000	7.04			2745.60	PM74001
			For loading & unloading time									
			(i) 18cum capacity	hour	8.506			2310.00	19648.86			PM6001
			(ii) 14cum capacity	hour		9.796		2065.00		20228.74		PM6002
			(iii) 10cum capacity	hour			13.695	1847.00			25294.67	PM6003
			c) Material									
			Selected earth for refilling	cum	156.000	156.000	156.000	35.25	5499.00	5499.00	5499.00	M-164
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		10219.38	10571.42	13008.64	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		6131.63	6342.85	7805.18	
			Cost for 260 cum= a+b+c+d+e						67447.92	69771.38	85857.00	
			Rate per cum= (a+b+c+d+e)/260						259.42	268.35	330.22	
								Say	**259.40**	**268.40**	**330.20**	
			1. Cost of dewatering @ 20 percent of (a+b) may be added, where required									
			2. Shoring & strutting @ 10 percent of (a+b), where required may be added.									
			3. It is assumed that marshy soil will be available upto 3 m depth only. For deeper excavation below 3m depth , refer analysis in item 12.01 (i) to (iv) for ordinary soil.									
12.01 (VI)		**VI**	**Back Filling in Marshy Foundation Pits**									
			Unit=cum									
			Taking output= 6 cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor for dressing sides, bottom and backfilling	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Machinery									
			Tractor-trolley for transportation	hour	2.000	2.000	2.000	676.00	1352.00	1352.00	1352.00	PM12001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		503.73	503.73	503.73	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's Profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		302.24	302.24	302.24	
			Cost for 6cum=a=b+c+d						3324.60	3324.60	3324.60	
			Rate per cum= (a+b+c+d)/6						554.10	554.10	554.10	
									554.10	**554.10**	**554.10**	
12.02		**304**	**Filling Annular Space around footing in rock**									
			Unit =cum									
			Taking output=1 cum									
			Lean cement concrete 1:3:6 nominal mix. Rate may be taken as per item 12.04					**Say**	**4322.00**	**4324.10**	**4333.50**	
12.03		**304**	**Sand Filling in Foundation Trenches as per Drawing and Technical Specification (As per Requirement ,Fine Sand/Coarse Sand may be used)**									
			Unit=cum									
			Taking output=100 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Machinery									
			Water tanker (speed @20km/hr and return speed @30km/hr and unloading @ 30 mins per trip)									
			(i) 16kL capacity	hour	0.125×L1+ 0.75			1171.00	1024.63			PM11001
			(ii) 12kL capacity	hour		0.167×L1+1		997.00		1163.50		PM11002
			(iii) 6kL capacity	hour			0.333×L1+2	752.00			1754.42	PM11003
			c) Material									
			Sand (assuming 20 percent voids) at site	cum	120.000	120.000	120.000	144.75	17370.00	17370.00	17370.00	M-006
			Water	KL	18.000	18.000	18.000	60.30	1085.40	1085.40	1085.40	M-191
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		3973.78	4001.56	4119.74	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2384.27	2400.93	2471.84	
			Rate per 100cum =a+b+c+d+e						26226.95	26410.27	27190.28	
			Rate per cum= (a+b+c+d+e)/100						262.27	264.10	271.90	
								Say	**262.30**	**264.10**	**271.90**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.04	2100		**PCC 1:3:6 in Foundation**									
			Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.									
			Unit=cum									
			Taking output=15 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			b) Material									
			Plain cement concrete 1:3:6 nominal mix using batching plant (Rate taken from sub-analysis 21.02)	cum	15.000	15.000	15.000	3010.00	45150.00	45150.00	45150.00	21.02
			Water	KL	3.240	3.240	3.240	60.30	195.37	195.37	195.37	M-191
			c) Machinery									
			Plate compactor	hour	1.000	1.000	1.000	396.00	396.00	396.00	396.00	PM46001
			Water tanker (speed @20km/hr and return speed @30km/hr and unloading @ 30 mins per trip)									
			(i) 16kL capacity	hour	0.023 X L1 +0.135			1171.00	185.02			PM11001
			(ii) 12kL capacity	hour		0.03 X L1 +0.18		997.00		209.37		PM11002
			(iii) 6kL capacity	hour			0.06 X L1 + 0.36	752.00			315.84	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		9822.69	9827.56	9848.85	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		5893.61	5896.53	5909.31	
			Cost for 15cum= a+b+c+d+e						64829.73	64861.87	65002.41	
			Rate per cum= (a+b+c+d+e)/15						4321.98	4324.12	4333.49	
								Say	**4322.00**	**4324.10**	**4333.50**	
		Note	Vibrator is a part of minor T & P which is already included in overhead charges of the contractor									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.05	**1300**		**Brick Masonry Work in Cement Mortar 1:3 in Foundation complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.**									
			Unit* = *cum									
			Taking output* = *5 cum									
			a) Material									
			Bricks Ist class	each	2500.000	2500.000	2500.000	6.364	15910.00	15910.00	15910.00	M-079
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01A)	cum	1.200	1.200	1.200	4218.30	5061.96	5061.96	5061.96	21.01 A
			Water for curing	KL	2.415	2.415	2.415	60.30	145.62	145.62	145.62	M-191
			b) Labour									
			Mate	day	0.480	0.480	0.480	397.00	190.56	190.56	190.56	L-12
			Mason	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Water tanker (speed@ 20km/hr and return speed @ 30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL Capacity	hour	0.017×L1+ 0.101			1171.00	138.18			PM11001
			(ii) 12 KL Capacity	hour		0.022×L1+ 0.134		997.00		155.53		PM11002
			(iii) 6 KL Capacity	hour			0.045×L1+ 0.268	752.00			235.38	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		5245.26	5248.74	5264.70	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		3147.16	3149.24	3158.82	
			Cost for 5 cum = a+b+c+d+e						34618.75	34641.65	34747.05	
			Rate per cum = (a+b+c+d+e)/5						6923.75	6928.33	6949.41	
								Say	**6923.70**	**6928.30**	**6949.40**	
12.06	**Sub-analysis**	**(A)**	**Cement Mortar 1:3 (1 cement : 3 sand)**									
			Unit* = *1 cum									
			Taking output* = *1 cum									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01A)	cum	1.000	1.000	1.000	4218.30	4218.30	4218.30	4218.30	21.01 A
		(B)	**Cement Mortar1:2 (1cement :2 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			Cement mortar 1:2 (Rate taken from sub-analysis 21.01B)	cum	1.000	1.000	1.000	5184.90	5184.90	5184.90	5184.90	21.01 B
		(C)	**Cement Mortar1:4 (1cement :4 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			Cement mortar 1:4 (Rate taken from sub-analysis 21.01C)	cum	1.000	1.000	1.000	3574.40	3574.40	3574.40	3574.40	21.01 C
		(D)	**Cement Mortar1:6 (1cement :6 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			Cement mortar 1:6 (Rate taken from sub-analysis 21.01D)	cum	1.000	1.000	1.000	2964.62	2964.62	2964.62	2964.62	21.01 D
12.07			**Stone masonry work in cement mortar 1:3 in foundation complete as per drawing and technical specifications.**									
			Unit=cum									
			Taking output=5 cum									
		(A)	**Square Rubble Coursed Rubble masonry (first sort)**									
			a) Material									
			Stone	cum	5.500	5.500	5.500	686.03	3773.17	3773.17	3773.17	M-001
			Through and bond stone (35 no. X 0.24m X0.24mX0.39m=0.79cu.m)	each	35.000	35.000	35.000	10.80	378.00	378.00	378.00	M-184
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01A)	cum	1.500	1.500	1.500	4218.30	6327.45	6327.45	6327.45	21.01 A
			b) Labour									
			Mate	day	0.660	0.660	0.660	397.00	262.02	262.02	262.02	L-12
			Mason	day	7.500	7.500	7.500	449.00	3367.50	3367.50	3367.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		3493.03	3493.03	3493.03	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2095.82	2095.82	2095.82	
			Cost for 5 cum = a+b+c+d						23053.98	23053.98	23053.98	
			Rate per cum = (a+b+c+d)/5						4610.80	4610.80	4610.80	
								Say	**4610.80**	**4610.80**	**4610.80**	
		(B)	**Random Rubble masonry (coursed/uncoursed)**									
			Unit=cum									
			Taking output=5 cum									
			a) Material									
			Stone	cum	5.500	5.500	5.500	686.03	3773.17	3773.17	3773.17	M001
			Through and bond stone (35 no. x 0.24m x 0.24m x 0.39m=0.79cu.m)	each	35.000	35.000	35.000	10.80	378.00	378.00	378.00	M-184
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01A)	cum	1.550	1.550	1.550	4218.30	6538.37	6538.37	6538.37	21.01 A
			b) Labour									
			Mate	day	0.600	0.600	0.600	397.00	238.20	238.20	238.20	L-12
			Mason	day	6.000	6.000	6.000	449.00	2694.00	2694.00	2694.00	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		3395.75	3395.75	3395.75	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2037.45	2037.45	2037.45	
			Cost for 5 cum = a+b+c+d						22411.92	22411.92	22411.92	
			Rate per cum = (a+b+c+d)/5						4482.38	4482.38	4482.38	
								Say	**4482.40**	**4482.40**	**4482.40**	
		Note	The labour already considered in cement mortar has beentaken into account while proposing labour for masonry works.									
12.08	**1500,1700 & 2100**		**Plain/Reinfoced Cement concrete in open foundation complete as per drawing and technical specifications.**									
		A	**PCC Grade M15**									
		Case I	**PCC Grade M15 using batching plant & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.03)	cum	30.000	30.000	30.000	3108.60	93258.00	93258.00	93258.00	21.03
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and 30 min for unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4033.20	4038.08	4058.79	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		20972.64	20998.04	21105.71	
			f) Contractor's profit @ on(a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		12583.58	12598.82	12663.42	
			Cost for 30 cum=a+b+c+d+e+f						138419.39	138587.04	139297.67	
			Rate per cum (a+b+c+d+e+f)/30						4613.98	4619.57	4643.26	
								Say	**4614.00**	**4619.60**	**4643.30**	
		Case II	**PCC Grade M15 using batching plant & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.03)	cum	15.000	15.000	15.000	3108.60	46629.00	46629.00	46629.00	21.03
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2135.03	2137.47	2147.80	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		11102.14	11114.83	11168.56	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		6661.29	6668.90	6701.14	
			Cost for 15 cum=a+b+c+d+e+f						73274.15	73357.86	73712.49	
			Rate per cum (a+b+c+d+e+f)/15						4884.94	4890.52	4914.17	
								Say	**4884.90**	**4890.50**	**4914.20**	
12.08		**B**	**PCC Grade M20**									
		Case I	**PCC Grade M20 using batching plant, transit mixture & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.04)	cum	30.000	30.000	30.000	3530.50	105914.94	105914.94	105914.94	21.04
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4539.48	4544.36	4565.07	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		23605.28	23630.68	23738.35	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		14163.17	14178.41	14243.01	
			Cost for 30 cum=a+b+c+d+e+f						155794.84	155962.49	156673.11	
			Rate per cum (a+b+c+d+e+f)/30						5193.16	5198.75	5222.44	
								Say	**5193.20**	**5198.70**	**5222.40**	
		Case II	**PCC Grade M20 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.04)	cum	15.000	15.000	15.000	3530.50	52957.47	52957.47	52957.47	21.04
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2388.17	2390.61	2400.94	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		12418.47	12431.15	12484.88	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		7451.08	7458.69	7490.93	
			Cost for 15 cum=a+b+c+d+e+f						81961.88	82045.58	82400.21	
			Rate per cum (a+b+c+d+e+f)/15						5464.13	5469.71	5493.35	
								Say	**5464.10**	**5469.70**	**5493.30**	
12.08		**C**	**RCC Grade M20**									
		Case I	**RCC Grade M20 using batching plant, transit mixture & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4978.75	4983.64	5004.35	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25889.52	25914.92	26022.59	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15533.71	15548.95	15613.56	
			Cost for 30 cum=a+b+c+d+e+f						170870.85	171038.49	171749.12	
			Rate per cum (a+b+c+d+e+f)/30						5695.69	5701.28	5724.97	
								Say	**5695.70**	**5701.30**	**5725.00**	
		Case II	**RCC Grade M20 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2615.58	2618.02	2628.35	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13601.03	13613.71	13667.45	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8160.62	8168.23	8200.47	
			Cost for 15 cum=a+b+c+d+e+f						89766.81	89850.51	90205.14	
			Rate per cum (a+b+c+d+e+f)/15						5984.45	5990.03	6013.68	
								Say	**5984.50**	**5990.00**	**6013.70**	
12.08		**D**	**PCC Grade M25**									
		Case I	**PCC Grade M25 using batching plant, transit mixture & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4963.20	4968.08	4988.79	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25808.64	25834.04	25941.71	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15485.18	15500.42	15565.02	
			Cost for 30 cum=a+b+c+d+e+f						170336.99	170504.64	171215.27	
			Rate per cum (a+b+c+d+e+f)/30						5677.90	5683.49	5707.18	
								Say	**5677.90**	**5683.50**	**5707.20**	
		Case II	**PCC Grade M25 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			water for cuing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2600.03	2602.47	2612.80	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13520.14	13532.83	13586.56	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8112.09	8119.70	8151.94	
			Cost for 15 cum=a+b+c+d+e+f						89232.95	89316.66	89671.29	
			Rate per cum (a+b+c+d+e+f)/15						5948.86	5954.44	5978.09	
								Say	**5948.90**	**5954.40**	**5978.10**	
12.08		**E**	**RCC Grade M25**									
		Case I	**RCC Grade M25 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4994.83	4999.72	5020.43	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25973.14	25998.54	26106.21	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15583.88	15599.12	15663.73	
			Cost for 30 cum=a+b+c+d+e+f						171422.71	171590.36	172300.99	
			Rate per cum (a+b+c+d+e+f)/30						5714.09	5719.68	5743.37	
								Say	**5714.10**	**5719.70**	**5743.40**	
		Case II	**RCC Grade M25 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.07)	cum	15.000	15.000	15.000	3897.00	58455.00	58455.00	58455.00	21.07
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2623.62	2626.06	2636.39	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13642.84	13655.52	13709.25	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8185.70	8193.31	8225.55	
			Cost for 15 cum=a+b+c+d+e+f						90042.74	90126.45	90481.08	
			Rate per cum (a+b+c+d+e+f)/15						6002.85	6008.43	6032.07	
								Say	**6002.80**	**6008.40**	**6032.10**	
12.08		**F**	**PCC Grade M30**									
		Case I	**PCC Grade M30 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5004.48	5009.36	5030.07	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26023.29	26048.69	26156.36	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15613.97	15629.22	15693.82	
			Cost for 30 cum=a+b+c+d+e+f						171753.72	171921.37	172632.00	
			Rate per cum (a+b+c+d+e+f)/30						5725.12	5730.71	5754.40	
								Say	**5725.10**	**5730.70**	**5754.40**	
		Case II	**PCC Grade M30 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.08)	cum	15.000	15.000	15.000	3918.00	58770.00	58770.00	58770.00	21.08
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2620.67	2623.11	2633.44	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13627.47	13640.16	13693.89	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8176.48	8184.09	8216.33	
			Cost for 15 cum=a+b+c+d+e+f						89941.32	90025.02	90379.65	
			Rate per cum (a+b+c+d+e+f)/15						5996.09	6001.67	6025.31	
								Say	**5996.10**	**6001.70**	**6025.30**	
12.08		**G**	**RCC Grade M30**									
		Case I	**RCC Grade M30 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5035.87	5040.76	5061.47	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26186.55	26211.95	26319.62	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15711.93	15727.17	15791.77	
			Cost for 30 cum=a+b+c+d+e+f						172831.20	172998.85	173709.48	
			Rate per cum (a+b+c+d+e+f)/30						5761.04	5766.63	5790.32	
								Say	**5761.00**	**5766.60**	**5790.30**	
		Case II	**RCC Grade M30 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.09)	cum	15.000	15.000	15.000	3931.20	58968.00	58968.00	58968.00	21.09
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2644.14	2646.58	2656.91	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13749.54	13762.23	13815.96	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8249.73	8257.34	8289.57	
			Cost for 15 cum=a+b+c+d+e+f						90746.99	90830.69	91185.32	
			Rate per cum= (a+b+c+d+e+f)/15						6049.80	6055.38	6079.02	
								Say	**6049.80**	**6055.40**	**6079.00**	
12.08		**H**	**RCC Grade M35**									
		Case I	**RCC Grade M35 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5169.07	5173.96	5194.67	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26879.19	26904.59	27012.26	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16127.51	16142.75	16207.35	
			Cost for 30 cum=a+b+c+d+e+f						177402.63	177570.28	178280.90	
			Rate per cum (a+b+c+d+e+f)/30						5913.42	5919.01	5942.70	
								Say	**5913.40**	**5919.00**	**5942.70**	
		Case II	**RCC Grade M35 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.11)	cum	15.000	15.000	15.000	4042.20	60633.00	60633.00	60633.00	21.11
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2710.74	2713.18	2723.51	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14095.86	14108.55	14162.28	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8457.52	8465.13	8497.37	
			Cost for 15 cum=a+b+c+d+e+f						93032.70	93116.41	93471.03	
			Rate per cum= (a+b+c+d+e+f)/15						6202.18	6207.76	6231.40	
								Say	**6202.20**	**6207.80**	**6231.40**	
12.08		**I**	**RCC Grade M40**									
		Case I	**RCC Grade M40 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5290.99	5295.88	5316.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27513.17	27538.57	27646.24	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16507.90	16523.14	16587.75	
			Cost for 30 cum=a+b+c+d+e+f						181586.92	181754.57	182465.20	
			Rate per cum (a+b+c+d+e+f)/30						6052.90	6058.49	6082.17	
								Say	**6052.90**	**6058.50**	**6082.20**	
		Case II	**RCC Grade M40 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.12)	cum	15.000	15.000	15.000	4143.80	62157.00	62157.00	62157.00	21.12
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30min per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2771.70	2774.14	2784.47	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14412.86	14425.54	14479.27	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8647.71	8655.32	8687.56	
			Cost for 15 cum=a+b+c+d+e+f						95124.85	95208.55	95563.18	
			Rate per cum= (a+b+c+d+e+f)/15						6341.66	6347.24	6370.88	
								Say	**6341.70**	**6347.20**	**6370.90**	
12.08		**J**	**RCC Grade M45**									
		Case I	**RCC Grade M45 using batching plant,transit mixer & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.13)	cum	30.000	30.000	30.000	4168.80	125064.00	125064.00	125064.00	21.13
			water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5320.99	5325.88	5346.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27669.17	27694.57	27802.24	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16601.50	16616.74	16681.35	
			Cost for 30 cum=a+b+c+d+e+f						182616.52	182784.17	183494.80	
			Rate per cum (a+b+c+d+e+f)/30						6087.22	6092.81	6116.49	
								Say	**6087.20**	**6092.80**	**6116.50**	
		Case II	**RCC Grade M45 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost (rate taken from sub-analysis 21.13)	cum	15.000	15.000	15.000	4168.80	62532.00	62532.00	62532.00	21.13
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2786.70	2789.14	2799.47	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14490.86	14503.54	14557.27	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8694.51	8702.12	8734.36	
			Cost for 15 cum=a+b+c+d+e+f						95639.65	95723.35	96077.98	
			Rate per cum= (a+b+c+d+e+f)/15						6375.98	6381.56	6405.20	
								Say	**6376.00**	**6381.60**	**6405.20**	
			WELL FOUNDATION									
12.09	**1200**		**Providing and constructing temporary island 24m diameter for construction of Well foundation for 8m dia. Well.**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		A	**Assuming depth of water 1.0 m and height of island to be 1.25m including Royalty for earth @ ₹ 18661.1 for each**									
			Unit=no.									
			Taking output=1 No.									
			a) Material									
			Earth (compacted)	cum	565.487	565.487	565.487	35.25	19933.42	19933.42	19933.42	M-093
			Sand bags	each	1125.000	1125.000	1125.000	9.90	11137.50	11137.50	11137.50	M-160
			b) Labour									
			Mate	day	0.920	0.920	0.920	397.00	365.24	365.24	365.24	L-12
			Mazdoor for filling sand bags,stitching and placing	day	23.000	23.000	23.000	373.00	8579.00	8579.00	8579.00	L-13
			c) Machinery									
			Crane with grab 1 cum capacity	hour	30.000	30.000	30.000	803.00	24090.00	24090.00	24090.00	PM67001
			Consumables @2.5 percent of (c) above						602.25	602.25	602.25	
			d) Overhead chaerges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		12941.48	12941.48	12941.48	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7764.89	7764.89	7764.89	
			Rate per no. (a+b+c+d+e)						85413.78	85413.78	85413.78	
								Say	**85413.80**	**85413.80**	**85413.80**	
		Note	It is assumed that earth will be available within the working space of crane with grab bucket.									
12.09		**B**	**Assuming depth of water 4.0 m and height of island to be 4.5m including Royalty for earth @ ₹ 44748.0 for each island**									
			Unit=no.									
			Taking output=1 No.									
			a) Material									
			Earth (compacted)	cum	1356.000	1356.000	1356.000	35.25	47799.00	47799.00	47799.00	M-093
			Sand bags	each	9000.000	9000.000	9000.000	9.90	89100.00	89100.00	89100.00	M-160
			Wooden ballies 8" dia and 9m long	each	143.000	143.000	143.000	610.66	87324.38	87324.38	87324.38	M-196
			Wooden ballies 2" dia for bracing	metre	285.000	285.000	285.000	25.25	7196.25	7196.25	7196.25	M-195
			b) Labour									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	8.400	8.400	8.400	397.00	3334.80	3334.80	3334.80	L-12
			Mazdoor for piling 8" dia ballies for piling 8" dia ballies	day	27.000	27.000	27.000	373.00	10071.00	10071.00	10071.00	L-13
			Mazdoor for bracing with 2" dia ballies	day	18.000	18.000	18.000	373.00	6714.00	6714.00	6714.00	L-13
			Mazdoor for filling sand bags,stitching and placing	day	165.000	165.000	165.000	373.00	61545.00	61545.00	61545.00	L-13
			c) Machinery									
			Crane with grab 1 cum capacity	hour	75.000	75.000	75.000	803.00	60225.00	60225.00	60225.00	PM67001
			Consumables and other arrangements for piling ballies @2.5 percent of (a+b+c)						9332.74	9332.74	9332.74	
			d) Overhead chaerges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		76528.43	76528.43	76528.43	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		45917.06	45917.06	45917.06	
			Rate per no. (a+b+c+d+e)						505087.66	505087.66	505087.66	
								Say	**505087.70**	**505087.70**	**505087.70**	
		Note	For other well diameters rate can be worked out on the basis of cross-sectional area of well. The diameter of the island shall be in the conformity with clause 1203.4 of MoRTH specifications.									
12.09		**C**	**Providing and constructing one span service road to reach island location from one pier location to another pier loaction**									
			Assuming span length 30m, width of service road 10m and depth of water 1m including Royalty for earth @₹495.00 per m length of span									
			Unit=meter									
			Taking output=30 metre									
			a) Material									
			Earth	cum	450.000	450.000	450.000	35.25	15862.50	15862.50	15862.50	M-093
			Sand bags	each	300.000	300.000	300.000	9.90	2970.00	2970.00	2970.00	M-160
			b) Labour									
			Mate	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor for filling sand bags, stitching and placing	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
		c) Machinery									
		Front end loader 1 cum capacity	hour	27.000	27.000	27.000	1419.00	38313.00	38313.00	38313.00	PM5003
		Tipper 5.5 cum capacity	hour	28.000	28.000	28.000	1426.00	39928.00	39928.00	39928.00	PM6004
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		19881.36	19881.36	19881.36	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		11928.81	11928.81	11928.81	
		Cost for 30 m (a+b+c+d+e)						131216.95	131216.95	131216.95	
		Rate per m= (a+b+c+d+e)/30						4373.90	4373.90	4373.90	
							Say	**4373.90**	**4373.90**	**4373.90**	
12.10	**1200 & 1900**	**Providing and Laying Cutting Edge of Mild Steel weighing 40 kg per meter for Well Foundation complete as per Drawing and Technical Specification.**									
		Unit=1 MT									
		Taking output=1.0 MT									
		a) Material									
		Structural steel in plates, angles, etc. including 5 percent wastage	tonne	1.050	1.050	1.050	60255.00	63267.75	63267.75	63267.75	M-181
		Nuts & bolts	kg	20.000	20.000	20.000	80.28	1605.60	1605.60	1605.60	M-129
		b) Machinery									
		Hydra Crane of capacity 10T for lifting shifting	hour	8.000	8.000	8.000	931.00	7448.00	7448.00	7448.00	PM63003
		Tipper for									
		Transportation to site									
		(i) 18 cum capacity	t-km	1.05 X L1			4.95	5.20			PM72001
		(ii) 14 cum capacity	t-km		1.05 X L1		5.67		5.95		PM73001
		(iii) 10 cum capacity	t-km			1.05 X L1	7.04			7.39	PM74001
		c) Labour									
		(for cutting , bending, making holes, joining, welding and erecting in position)									
		Mate	day	1.080	1.080	1.080	397.00	428.76	428.76	428.76	L-12
		Fitter	day	4.500	4.500	4.500	449.00	2020.50	2020.50	2020.50	L-08
		Blacksmith	day	4.500	4.500	4.500	449.00	2020.50	2020.50	2020.50	L-25
		Welder	day	4.500	4.500	4.500	503.00	2263.50	2263.50	2263.50	L-02
		Mazdoor	day	13.500	13.500	13.500	373.00	5035.50	5035.50	5035.50	L-13

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Electrodes, cutting gas and other consumables @10 percent of cost of (a) above						6487.34	6487.34	6487.34	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		18116.53	18116.68	18116.97	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		10869.92	10870.01	10870.18	
			Cost for 1 M.T= a+b+c+d+e						119569.09	119570.09	119571.98	
								Say	**119569.10**	**119570.10**	**119572.00**	
12.11	**1200, 1500& 1700**		**Plain/Reinforced Cement Concrete, in Well Foundation complete as per Drawing and Technical Specification.**									
		A	**Well curb**									
		(i)	**RCC M20 Grade**									
12.11 A (i)		**Case I**	**RCC Grade M20 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						24478.18	24478.18	24478.18	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29373.81	29373.81	29373.81	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17624.29	17624.29	17624.29	
			Cost for 30 cum=a+b+c+d+e+f						193867.15	193867.15	193867.15	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum=(a+b+c+d+e+f)/30						6462.24	6462.24	6462.24	
								Say	**6462.20**	**6462.20**	**6462.20**	
12.11 A (i)		**Case II**	**RCC Grade M20 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						12768.98	12768.98	12768.98	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		15322.78	15322.78	15322.78	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		9193.67	9193.67	9193.67	
			Cost for 15 cum=a+b+c+d+e+f						101130.32	101130.32	101130.32	
			Rate per cum=(a+b+c+d+e+f)/15						6742.02	6742.02	6742.02	
								Say	**6742.00**	**6742.00**	**6742.00**	
		(ii)	**RCC M25 Grade**									
12.11 A (ii)		**Case I**	**RCC Grade M25 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			b) Labour									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						24558.58	24558.58	24558.58	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29470.29	29470.29	29470.29	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17682.17	17682.17	17682.17	
			Cost for 30 cum=a+b+c+d+e+f						194503.92	194503.92	194503.92	
			Rate per cum=(a+b+c+d+e+f)/30						6483.46	6483.46	6483.46	
								Say	**6483.50**	**6483.50**	**6483.50**	
12.11 A (ii)		**Case II**	**RCC Grade M25 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.07)	cum	15.000	15.000	15.000	3897.00	58455.00	58455.00	58455.00	21.07
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						12809.18	12809.18	12809.18	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		15371.02	15371.02	15371.02	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		9222.61	9222.61	9222.61	
			Cost for 15 cum=a+b+c+d+e+f						101448.71	101448.71	101448.71	
			Rate per cum=(a+b+c+d+e+f)/15						6763.25	6763.25	6763.25	
								Say	**6763.20**	**6763.20**	**6763.20**	
		(iii)	**RCC M30 Grade**									
12.11 A (iii)		**Case I**	**RCC Grade M30 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						24763.78	24763.78	24763.78	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29716.53	29716.53	29716.53	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17829.92	17829.92	17829.92	
			Cost for 30 cum=a+b+c+d+e+f						196129.10	196129.10	196129.10	
			Rate per cum=(a+b+c+d+e+f)/30						6537.64	6537.64	6537.64	
								Say	**6537.60**	**6537.60**	**6537.60**	
12.11 A (iii)		**Case II**	**RCC Grade M30 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per Cum basic cost (Rate taken from Sub-analysis 21.09)	cum	15.000	15.000	15.000	3931.200	58968.000	58968.000	58968.000	21.09
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						12911.78	12911.78	12911.78	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		15494.14	15494.14	15494.14	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		9296.48	9296.48	9296.48	
			Cost for 15 cum=a+b+c+d+e+f						102261.30	102261.30	102261.30	
			Rate per cum=(a+b+c+d+e+f)/15						6817.42	6817.42	6817.42	
								Say	**6817.40**	**6817.40**	**6817.40**	
		Note	If curb concrete is carried out within steel liner, cost of formwork shall be excluded.									
		(iv)	**RCC M35 Grade**									
12.11 A (iv)		**Case I**	**RCC Grade M35 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						25429.78	25429.78	25429.78	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		30515.73	30515.73	30515.73	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		18309.44	18309.44	18309.44	
			Cost for 30 cum=a+b+c+d+e+f						201403.82	201403.82	201403.82	
			Rate per cum=(a+b+c+d+e+f)/30						6713.46	6713.46	6713.46	
								Say	**6713.50**	**6713.50**	**6713.50**	
12.11 A (iv)		**Case II**	**RCC Grade M35 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.11)	cum	15.000	15.000	15.000	4042.20	60633.00	60633.00	60633.00	21.11
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						13244.78	13244.78	13244.78	
			e) Overhead charges @on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		15893.74	15893.74	15893.74	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		9536.24	9536.24	9536.24	
			Cost for 15 cum=a+b+c+d+e+f						104898.66	104898.66	104898.66	
			Rate per cum=(a+b+c+d+e+f)/15						6993.24	6993.24	6993.24	
								Say	**6993.20**	**6993.20**	**6993.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	If curb concrete is carried out within steel line, cost of formwork shall be excluded									
12.11 A		(v)	**RCC M40 Grade**									
12.11 A (v)		Case I	**RCC Grade M40 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						26039.38	26039.38	26039.38	
			e) Overhead charges @on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		31247.25	31247.25	31247.25	
			f) Contractor's profit @on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		18748.35	18748.35	18748.35	
			Cost for 30 cum=a+b+c+d+e+f						206231.85	206231.85	206231.85	
			Rate per cum=(a+b+c+d+e+f)/30						6874.40	6874.40	6874.40	
								Say	**6874.40**	**6874.40**	**6874.40**	
12.11 A (v)		Case II	**RCC Grade M40 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.12)	cum	15.000	15.000	15.000	4143.80	62157.00	62157.00	62157.00	21.12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @20 percent on cost of concrete i.e cost of material, labour and machinery						13549.58	13549.58	13549.58	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		16259.50	16259.50	16259.50	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		9755.70	9755.70	9755.70	
			Cost for 15 cum=a+b+c+d+e+f						107312.67	107312.67	107312.67	
			Rate per cum=(a+b+c+d+e+f)/15						7154.18	7154.18	7154.18	
		Note	If curb concrete is carried out within steel liner, cost of formwork shall be excluded					**Say**	**7154.20**	**7154.20**	**7154.20**	
12.11		**B**	**Well steining**									
		(i)	**PCC M15Grade**									
12.11 B (i)		**Case I**	**PCC Grade M15 using batching plant & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.03)	cum	30.000	30.000	30.000	3108.60	93258.00	93258.00	93258.00	21.03
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						9875.20	9875.20	9875.20	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		21725.44	21725.44	21725.44	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		13035.26	13035.26	13035.26	
			Cost for 30 cum= a+b+c+d+e+f						143387.90	143387.90	143387.90	
			Rate per cum= (a+b+c+d+e+f)/30						4779.60	4779.60	4779.60	
								Say	**4779.60**	**4779.60**	**4779.60**	
12.11 B (i)		**Case II**	**PCC Grade M15 using batching plant & manual placing**									
			unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.03)	cum	15.000	15.000	15.000	3108.60	46629.00	46629.00	46629.00	21.03
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						5221.99	5221.99	5221.99	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		11488.38	11488.38	11488.38	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		6893.03	6893.03	6893.03	
			Cost for 15 cum= a+b+c+d+e+f						75823.29	75823.29	75823.29	
			Rate per cum= (a+b+c+d+e+f)/15						5054.89	5054.89	5054.89	
								Say	**5054.90**	**5054.90**	**5054.90**	
12.11 B		**(ii)**	**PCC M20 Grade**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.11 B (ii)		Case I	**PCC Grade M20 using batching plant & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.04)	cum	30.000	30.000	30.000	3530.50	105914.94	105914.94	105914.94	21.04
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						11140.89	11140.89	11140.89	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		24509.97	24509.97	24509.97	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		14705.98	14705.98	14705.98	
			Cost for 30 cum= a+b+c+d+e+f						161765.77	161765.77	161765.77	
			Rate per cum= (a+b+c+d+e+f)/30						5392.19	5392.19	5392.19	
								Say	**5392.20**	**5392.20**	**5392.20**	
12.11 B (ii)		Case II	**PCC Grade M20 using batching plant & manual placing**									
			unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.04)	cum	15.000	15.000	15.000	3530.50	52957.47	52957.47	52957.47	21.04
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						5854.84	5854.84	5854.84	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		12880.64	12880.64	12880.64	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		7728.38	7728.38	7728.38	
			Cost for 15 cum= a+b+c+d+e+f						85012.23	85012.23	85012.23	
			Rate per cum= (a+b+c+d+e+f)/15						5667.48	5667.48	5667.48	
								Say	**5667.50**	**5667.50**	**5667.50**	
12.11 B		**(iii)**	**RCC M20 Grade**									
12.11 B (iii)		**Case I**	**RCC Grade M20 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						12239.09	12239.09	12239.09	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26925.99	26925.99	26925.99	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16155.60	16155.60	16155.60	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 30 cum=a+b+c+d+e+f						177711.55	177711.55	177711.55	
			Rate per cum=(a+b+c+d+e+f)/30						5923.72	5923.72	5923.72	
								Say	**5923.70**	**5923.70**	**5923.70**	
12.11 B (iii)		**Case II**	**RCC Grade M20 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						6384.49	6384.49	6384.49	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14045.88	14045.88	14045.88	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8427.53	8427.53	8427.53	
			Cost for 15 cum=a+b+c+d+e+f						92702.79	92702.79	92702.79	
			Rate per cum=(a+b+c+d+e+f)/15						6180.19	6180.19	6180.19	
								Say	**6180.20**	**6180.20**	**6180.20**	
		(iv)	**PCC M25 Grade**									
12.11 B (iv)		**Case I**	**PCC Grade M25 using batching plant & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.000	116508.000	116508.000	21.06
			b) Labour									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.921	36.921	36.921	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.000	449.000	449.000	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.225	494.225	494.225	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.250	806.250	806.250	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.750	1257.750	1257.750	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.850	2449.850	2449.850	PM36001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						12200.200	12200.200	12200.200	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26840.439	26840.439	26840.439	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16104.263	16104.263	16104.263	
			Cost for 30 cum= a+b+c+d+e+f						177146.898	177146.898	177146.898	
			Rate per cum= (a+b+c+d+e+f)/30						5904.897	5904.897	5904.897	
									5904.900	**5904.900**	**5904.900**	
12.11 B (iv)		**Case II**	**PCC Grade M25 using batching plant & manual placing**									
			unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						6384.49	6384.49	6384.49	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14045.88	14045.88	14045.88	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8427.53	8427.53	8427.53	
			Cost for 15 cum= a+b+c+d+e+f						92702.79	92702.79	92702.79	
			Rate per cum= (a+b+c+d+e+f)/15						6180.19	6180.19	6180.19	
								Say	**6180.20**	**6180.20**	**6180.20**	
12.11 B		**(v)**	**RCC M25 Grade**									
12.11 B (v)		**Case I**	**RCC Grade M25 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						12279.29	12279.29	12279.29	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27014.43	27014.43	27014.43	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16208.66	16208.66	16208.66	
			Cost for 30 cum=a+b+c+d+e+f						178295.26	178295.26	178295.26	
			Rate per cum=(a+b+c+d+e+f)/30						5943.18	5943.18	5943.18	
								Say	**5943.20**	**5943.20**	**5943.20**	
12.11 B (v)		**Case II**	**RCC Grade M25 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per Cum basic cost (Rate taken from Sub-analysis 21.07)	cum	15.000	15.000	15.000	3897.00	58455.00	58455.00	58455.00	21.07
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						6404.59	6404.59	6404.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14090.10	14090.10	14090.10	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8454.06	8454.06	8454.06	
			Cost for 15 cum=a+b+c+d+e+f						92994.65	92994.65	92994.65	
			Rate per cum=(a+b+c+d+e+f)/15						6199.64	6199.64	6199.64	
								Say	**6199.60**	**6199.60**	**6199.60**	
12.11B		**(vi)**	**PCC M30 Grade**									
12.11 B (vi)		**Case I**	**PCC Grade M30 using batching plant & Concrete pump**									
			unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						12303.40	12303.40	12303.40	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27067.48	27067.48	27067.48	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16240.49	16240.49	16240.49	
			Cost for 30 cum= a+b+c+d+e+f						178645.36	178645.36	178645.36	
			Rate per cum= (a+b+c+d+e+f)/30						5954.85	5954.85	5954.85	
								Say	**5954.80**	**5954.80**	**5954.80**	
12.11 B (vi)		**Case II**	**PCC Grade M30 using batching plant & manual placing**									
			unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.08)	cum	15.000	15.000	15.000	3918.00	58770.00	58770.00	58770.00	21.08
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material, labour and machinery						6436.09	6436.09	6436.09	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14159.40	14159.40	14159.40	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8495.64	8495.64	8495.64	
			Cost for 15 cum= a+b+c+d+e+f						93452.03	93452.03	93452.03	
			Rate per cum= (a+b+c+d+e+f)/15						6230.14	6230.14	6230.14	
								Say	**6230.10**	**6230.10**	**6230.10**	
12.11 B		**(vii)**	**RCC M30 Grade**									
12.11 B (vii)		**Case I**	**RCC Grade M30 using batching plant &concrete pump**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.65	0.65	0.65	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer	hour	0.65	0.65	0.65	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						12381.89	12381.89	12381.89	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27240.15	27240.15	27240.15	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16344.09	16344.09	16344.09	
			Cost for 30 cum=a+b+c+d+e+f						179785.01	179785.01	179785.01	
			Rate per cum=(a+b+c+d+e+f)/30						5992.83	5992.83	5992.83	
								Say	**5992.80**	**5992.80**	**5992.80**	
12.11 B (vii)		**Case II**	**RCC Grade M30 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.09)	cum	15.000	15.000	15.000	3931.20	58968.00	58968.00	58968.00	21.09
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						6455.89	6455.89	6455.89	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14202.96	14202.96	14202.96	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8521.77	8521.77	8521.77	
			Cost for 15 cum=a+b+c+d+e+f						93739.52	93739.52	93739.52	
			Rate per cum=(a+b+c+d+e+f)/15						6249.30	6249.30	6249.30	
								Say	**6249.30**	**6249.30**	**6249.30**	
12.11 B		**(viii)**	**RCC M35 Grade**									
12.11 B (viii)		**Case I**	**RCC Grade M35 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						12714.89	12714.89	12714.89	
			e) Overhead charges @ on(a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27972.75	27972.75	27972.75	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16783.65	16783.65	16783.65	
			Cost for 30 cum=a+b+c+d+e+f						184620.17	184620.17	184620.17	
			Rate per cum=(a+b+c+d+e+f)/30						6154.01	6154.01	6154.01	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	**6154.00**	**6154.00**	**6154.00**	
12.11 B (viii)		**Case II**	**RCC Grade M35 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.11)	cum	15.000	15.000	15.000	4042.20	60633.00	60633.00	60633.00	21.11
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						6622.39	6622.39	6622.39	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14569.26	14569.26	14569.26	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8741.55	8741.55	8741.55	
			Cost for 15 cum=a+b+c+d+e+f						96157.10	96157.10	96157.10	
			Rate per cum=(a+b+c+d+e+f)/15						6410.47	6410.47	6410.47	
								Say	**6410.50**	**6410.50**	**6410.50**	
12.11 B		**(ix)**	**RCC M40 Grade**									
12.11 B (ix)		**Case I**	**RCC Grade M40 using batching plant &concrete pump**									
			Unit= cum									
			Taking output=30cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			b) Labour									
			For pouring and placing									
			Mate	day	0.133	0.133	0.133	397.00	52.80	52.80	52.80	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						13019.69	13019.69	13019.69	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28643.31	28643.31	28643.31	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17185.99	17185.99	17185.99	
			Cost for 30 cum=a+b+c+d+e+f						189045.86	189045.86	189045.86	
			Rate per cum=(a+b+c+d+e+f)/30						6301.53	6301.53	6301.53	
								Say	**6301.50**	**6301.50**	**6301.50**	
12.11 B (ix)		**Case II**	**RCC Grade M40 using batching plant & manual placing**									
			Unit= cum									
			Taking output=15cum									
			a) Material									
			Per Cum basic cost (Rate taken from Sub-analysis 21.12)	cum	15.000	15.000	15.000	4143.80	62157.00	62157.00	62157.00	21.12
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			d) Formwork @10 percent on cost of concrete i.e cost of material, labour and machinery						6774.79	6774.79	6774.79	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14904.54	14904.54	14904.54	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8942.72	8942.72	8942.72	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 15 cum=a+b+c+d+e+f						98369.95	98369.95	98369.95	
			Rate per cum=(a+b+c+d+e+f)/15						6558.00	6558.00	6558.00	
								Say	**6558.00**	**6558.00**	**6558.00**	
12.11C		**C**	**Bottom Plug**									
		(i)	**PCC Grade M20**									
		Case I	**PCC Grade M20 using batching plant & concrete pump**									
			unit=cum									
			Taking output=30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.04)	cum	30.000	30.000	30.000	3530.50	105914.94	105914.94	105914.94	21.04
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Hydra crane for holding tremie pipe	hour	0.650	0.650	0.650	794.00	516.10	516.10	516.10	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						5344.75	5344.75	5344.75	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		23453.96	23453.96	23453.96	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		14072.37	14072.37	14072.37	
			Cost for 30cum = a+b+c+d+e						154796.12	154796.12	154796.12	
			Rate per cum= (a+b+c+d+e)/30						5159.87	5159.87	5159.87	
								Say	**5159.90**	**5159.90**	**5159.90**	
		Case II	**PCC Grade M20 using batching plant & manual placing**									
			unit=cum									
			Taking output=15 cum									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.04)	cum	15.000	15.000	15.000	3530.50	52957.47	52957.47	52957.47	21.04
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Hydra crane for holding tremie pipe	hour	0.833	0.833	0.833	794.00	661.40	661.40	661.40	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						2826.67	2826.67	2826.67	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		12407.29	12407.29	12407.29	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7444.37	7444.37	7444.37	
			Cost for 15cum = a+b+c+d+e						81888.10	81888.10	81888.10	
			Rate per cum= (a+b+c+d+e)/15						5459.21	5459.21	5459.21	
								Say	**5459.20**	**5459.20**	**5459.20**	
12.11C		**(II)**	**PCC Grade M25**									
		Case I	**PCC Grade M25 using batching plant & concrete pump**									
			unit=cum									
			Taking output=30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Transit truck agitator									
		For transportation (6 cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Hydra crane for holding tremie pipe	hour	0.650	0.650	0.650	794.00	516.10	516.10	516.10	PM63001
		Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						5874.41	5874.41	5874.41	
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		25678.50	25678.50	25678.50	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		15407.10	15407.10	15407.10	
		Cost for 30cum = a+b+c+d+e						169478.10	169478.10	169478.10	
		Rate per cum= (a+b+c+d+e)/30						5649.27	5649.27	5649.27	
							Say	**5649.30**	**5649.30**	**5649.30**	
	Case II	**PCC Grade M25 using batching plant & manual placing**									
		unit=cum									
		Taking output=15 cum									
		a) Material									
		Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
		b) Labour									
		For pouring and placing									
		Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
		Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
		Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
		c) Machinery									
		Transit truck agitator									
		For transportation (6 cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
		For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
		Hydra crane for holding tremie pipe	hour	0.833	0.833	0.833	794.00	661.40	661.40	661.40	PM63001
		Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						3091.50	3091.50	3091.50	
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		13519.56	13519.56	13519.56	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8111.74	8111.74	8111.74	
			Cost for 15cum = a+b+c+d+e						89229.09	89229.09	89229.09	
			Rate per cum= (a+b+c+d+e)/15						5948.61	5948.61	5948.61	
								Say	**5948.60**	**5948.60**	**5948.60**	
12.11C		**(iii)**	**PCC Grade M30**									
		Case I	**PCC Grade M30 using batching plant & concrete pump**									
			unit=cum									
			Taking output=30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Hydra crane for holding tremie pipe	hour	0.650	0.650	0.650	794.00	516.10	516.10	516.10	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						5926.01	5926.01	5926.01	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		25895.22	25895.22	25895.22	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		15537.13	15537.13	15537.13	
			Cost for 30cum = a+b+c+d+e						170908.46	170908.46	170908.46	
			Rate per cum= (a+b+c+d+e)/30						5696.95	5696.95	5696.95	
								Say	**5696.90**	**5696.90**	**5696.90**	
		Case II	**PCC Grade M30 using batching plant & manual placing**									
			unit=cum									
			Taking output=15 cum									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.08)	cum	15.000	15.000	15.000	3918.00	58770.00	58770.00	58770.00	21.08
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Hydra crane for holding tremie pipe	hour	0.833	0.833	0.833	794.00	661.40	661.40	661.40	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						3117.30	3117.30	3117.30	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		13627.92	13627.92	13627.92	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8176.75	8176.75	8176.75	
			Cost for 15cum = a+b+c+d+e						89944.27	89944.27	89944.27	
			Rate per cum= (a+b+c+d+e)/15						5996.28	5996.28	5996.28	
								Say	**5996.30**	**5996.30**	**5996.30**	
12.11C		**(iv)**	**PCC Grade M35**									
		Case I	**PCC Grade M35 using batching plant & concrete pump**									
			unit=cum									
			Taking output=30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.10)	cum	30.000	30.000	30.000	4010.60	120318.00	120318.00	120318.00	21.10
			b) Labour									
			For pouring and placing									
			Mate	day	0.093	0.093	0.093	397.00	36.92	36.92	36.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Hydra crane for holding tremie pipe	hour	0.650	0.650	0.650	794.00	516.10	516.10	516.10	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						6064.91	6064.91	6064.91	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		26478.60	26478.60	26478.60	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		15887.16	15887.16	15887.16	
			Cost for 30cum = a+b+c+d+e						174758.76	174758.76	174758.76	
			Rate per cum= (a+b+c+d+e)/30						5825.29	5825.29	5825.29	
								Say	**5825.30**	**5825.30**	**5825.30**	
		Case II	**PCC Grade M35 using batching plant & manual placing**									
			unit=cum									
			Taking output=15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.10)	cum	15.000	15.000	15.000	4010.60	60159.00	60159.00	60159.00	21.10
			b) Labour									
			For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	t-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Hydra crane for holding tremie pipe	hour	0.833	0.833	0.833	794.00	661.40	661.40	661.40	PM63001
			Add 5 percent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.						3186.75	3186.75	3186.75	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		13919.61	13919.61	13919.61	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8351.77	8351.77	8351.77	
			Cost for 15cum = a+b+c+d+e						91869.42	91869.42	91869.42	
			Rate per cum= (a+b+c+d+e)/15						6124.63	6124.63	6124.63	
								Say	**6124.60**	**6124.60**	**6124.60**	
12.11		**D**	**Intermediate plug**									
		(i)	**Grade M20 PCC**									
			Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc.									
12.11 D (i)		**Case I**	**PCC Grade M20 using batching plant & Concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (i)						3730.83	3730.83	3730.83	
			d) Overhead charges @ on **(a+b+c)**		(@ 20%)	(@ 20%)	(@ 20%)		746.17	746.17	746.17	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		447.70	447.70	447.70	
			Rate per cum= (a+b+c+d+e)						4924.70	4924.70	4924.70	
								Say	**4924.70**	**4924.70**	**4924.70**	
12.11 D (i)		**Case II**	**PCC Grade M20 using batching plant & Manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (i)						3947.32	3947.32	3947.32	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		789.46	789.46	789.46	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		473.68	473.68	473.68	
			Rate per cum= (a+b+c+d+e)						5210.46	5210.46	5210.46	
								Say	**5210.50**	**5210.50**	**5210.50**	
12.11D		**(ii)**	**Grade M25 PCC**									
			Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc.									
12.11 D (i)		**Case I**	**PCC Grade M25 using batching plant & Concrete pump**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (ii)						4083.94	4083.94	4083.94	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		816.79	816.79	816.79	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		490.07	490.07	490.07	
			Rate per cum= (a+b+c+d+e)						5390.80	5390.80	5390.80	
								Say	**5390.80**	**5390.80**	**5390.80**	
12.11 D (ii)		**Case II**	**PCC Grade M25 using batching plant & Manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (ii)						4300.42	4300.42	4300.42	
			d) Overhead charges @ on (a+b+C)		(@ 20%)	(@ 20%)	(@ 20%)		860.08	860.08	860.08	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		516.05	516.05	516.05	
			Rate per cum= (a+b+c+d+e)						5676.55	5676.55	5676.55	
								Say	**5676.60**	**5676.60**	**5676.60**	
12.11D		**(iii)**	**Grade M30 PCC**									
			Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc.									
12.11 D (iii)		**Case I**	**PCC Grade M30 using batching plant & Concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (iii)						4118.34	4118.34	4118.34	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		823.67	823.67	823.67	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		494.20	494.20	494.20	
			Rate per cum= (a+b+c+d+e)						5436.20	5436.20	5436.20	
								Say	**5436.20**	**5436.20**	**5436.20**	
12.11 D (iii)		**Case II**	**PCC Grade M30 using batching plant & Manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.11 (C) (iii)						4334.82	4334.82	4334.82	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		866.96	866.96	866.96	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		520.18	520.18	520.18	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum= (a+b+c+d+e)						5721.96	5721.96	5721.96	
								Say	**5722.00**	**5722.00**	**5722.00**	
12.11		**E**	**Top Plug**									
		(i)	**Grade M15 PCC**									
			Same as item 12.08 (A) excluding formwork									
12.11 E (i)		**Case I**	**PCC Grade M15 using batching plant & concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (A)						3361.00	3365.07	3382.32	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		672.20	673.01	676.46	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		403.32	403.81	405.88	
			Rate per cum= (a+b+c+d+e)						4436.52	4441.89	4464.67	
								Say	**4436.50**	**4441.90**	**4464.70**	
12.11 E (i)		**Case II**	**PCC Grade M15 using batching plant & manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (A)						3558.38	3562.44	3579.67	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		711.68	712.49	715.93	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		427.01	427.49	429.56	
			Rate per cum= (a+b+c+d+e)						4697.06	4702.43	4725.16	
								Say	**4697.10**	**4702.40**	**4725.20**	
12.11 E		**(ii)**	**Grade M20 PCC**									
			Same as item 12.08 (B) excluding formwork									
12.11 E (ii)		**Case I**	**PCC Grade M20 using batching plant & concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (B)						3782.90	3786.97	3804.22	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		756.58	757.39	760.84	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		453.95	454.44	456.51	
			Rate per cum= (a+b+c+d+e)						4993.42	4998.80	5021.57	
								Say	**4993.40**	**4998.80**	**5021.60**	
12.11 E (ii)		**Case II**	**PCC Grade M20 using batching plant & manual placing**									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (B)						3980.28	3984.34	4001.56	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		796.06	796.87	800.31	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		477.63	478.12	480.19	
			Rate per cum= (a+b+c+d+e)						5253.97	5259.33	5282.06	
								Say	**5254.00**	**5259.30**	**5282.10**	
12.11 E		**(iii)**	**Grade M25 PCC**									
			Same as item 12.08 (D) excluding formwork									
12.11 E (iii)		**Case I**	**PCC Grade M25 using batching plant & concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (D)						4136.00	4140.07	4157.32	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		827.20	828.01	831.46	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		496.32	496.81	498.88	
			Rate per cum= (a+b+c+d+e)						5459.52	5464.89	5487.67	
								Say	**5459.50**	**5464.90**	**5487.70**	
12.11 E (iii)		**Case II**	**PCC Grade M25 using batching plant & manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (D)						4333.38	4337.44	4354.67	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		866.68	867.49	870.93	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		520.01	520.49	522.56	
			Rate per cum= (a+b+c+d+e)						5720.06	5725.43	5748.16	
								Say	**5720.10**	**5725.40**	**5748.20**	
12.11 E (iv)		**(iv)**	**Grade M30 PCC**									
			Same as item 12.08 (F) excluding formwork									
12.11 E (iv)		**Case I**	**PCC Grade M30 using batching plant & concrete pump**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (F)						4170.40	4174.47	4191.72	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		834.08	834.89	838.34	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		500.45	500.94	503.01	
			Rate per cum= (a+b+c+d+e)						5504.93	5510.30	5533.08	
								Say	**5504.90**	**5510.30**	**5533.10**	
12.11 E (iv)		**Case II**	**PCC Grade M30 using batching plant & manual placing**									
			Per cum basic cost of labour, Material & Machinery (a+b+c) Rate for concrete may be adopted vide item no. 12.08 (F)						4367.78	4371.84	4389.07	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		873.56	874.37	877.81	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		524.13	524.62	526.69	
			Rate per cum= (a+b+c+d+e)						5765.47	5770.83	5793.57	
								Say	**5765.50**	**5770.80**	**5793.60**	
12.11		**F**	**Well Cap**									
		(i)	**RCC Grade M20**									
		Case I	**RCC Grade M20 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4978.75	4983.64	5004.35	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25889.52	25914.92	26022.59	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15533.71	15548.95	15613.56	
			Cost for 30 cum=a+b+c+d+e+f						170870.85	171038.49	171749.12	
			Rate per cum (a+b+c+d+e+f)/30						5695.69	5701.28	5724.97	
								Say	**5695.70**	**5701.30**	**5725.00**	
		Case II	**RCC Grade M20 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2600.03	2602.47	2612.80	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13520.14	13532.83	13586.56	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8112.09	8119.70	8151.94	
			Cost for 15 cum=a+b+c+d+e+f						89232.95	89316.66	89671.29	
			Rate per cum= (a+b+c+d+e+f)/15						5948.86	5954.44	5978.09	
								Say	**5948.90**	**5954.40**	**5978.10**	
12.11 F		**(ii)**	**RCC Grade M25**									
12.11F (ii)		**Case I**	**RCC Grade M25 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						4994.83	4999.72	5020.43	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25973.14	25998.54	26106.21	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15583.88	15599.12	15663.73	
			Cost for 30 cum=a+b+c+d+e+f						171422.71	171590.36	172300.99	
			Rate per cum (a+b+c+d+e+f)/30						5714.09	5719.68	5743.37	
								Say	**5714.10**	**5719.70**	**5743.40**	
12.11 F (ii)		**Case II**	**RCC Grade M25 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.07)	cum	15.000	15.000	15.000	3897.00	58455.00	58455.00	58455.00	21.07
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2608.07	2610.51	2620.84	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13561.95	13574.64	13628.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8137.17	8144.78	8177.02	
			Cost for 15 cum=a+b+c+d+e+f						89508.89	89592.59	89947.22	
			Rate per cum= (a+b+c+d+e+f)/15						5967.26	5972.84	5996.48	
								Say	**5967.30**	**5972.80**	**5996.50**	
12.11 F		**(iii)**	**RCC Grade M30**									
12.11 F (iii)		**Case I**	**RCC Grade M30 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5035.87	5040.76	5061.47	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26186.55	26211.95	26319.62	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15711.93	15727.17	15791.77	
			Cost for 30 cum=a+b+c+d+e+f						172831.20	172998.85	173709.48	
			Rate per cum (a+b+c+d+e+f)/30						5761.04	5766.63	5790.32	
								Say	**5761.00**	**5766.60**	**5790.30**	
12.11 F (iii)		**Case II**	**RCC Grade M30 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.09)	cum	15.000	15.000	15.000	3931.20	58968.00	58968.00	58968.00	21.09
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2628.59	2631.03	2641.36	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		13668.66	13681.34	13735.07	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8201.19	8208.80	8241.04	
			Cost for 15 cum=a+b+c+d+e+f						90213.13	90296.84	90651.47	
			Rate per cum= (a+b+c+d+e+f)/15						6014.21	6019.79	6043.43	
								Say	**6014.20**	**6019.80**	**6043.40**	
12.11 F		**(iv)**	**RCC Grade M35**									
12.11 F (iv)		**Case I**	**RCC Grade M35 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5169.07	5173.96	5194.67	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		26879.19	26904.59	27012.26	
			f) Contractor's profit@ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16127.51	16142.75	16207.35	
			Cost for 30 cum=a+b+c+d+e+f						177402.63	177570.28	178280.90	
			Rate per cum (a+b+c+d+e+f)/30						5913.42	5919.01	5942.70	
								Say	**5913.40**	**5919.00**	**5942.70**	
12.11 F (iv)		**Case II**	**RCC Grade M35 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.11)	cum	15.000	15.000	15.000	4042.20	60633.00	60633.00	60633.00	21.11
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2695.19	2697.63	2707.96	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14014.98	14027.66	14081.39	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8408.99	8416.60	8448.83	
			Cost for 15 cum=a+b+c+d+e+f						92498.85	92582.55	92937.18	
			Rate per cum= (a+b+c+d+e+f)/15						6166.59	6172.17	6195.81	
								Say	**6166.60**	**6172.20**	**6195.80**	
12.11 F		**(v)**	**RCC Grade M40**									
12.11 F (v)		**Case I**	**RCC Grade M40 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5290.99	5295.88	5316.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27513.17	27538.57	27646.24	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16507.90	16523.14	16587.75	
			Cost for 30 cum=a+b+c+d+e+f						181586.92	181754.57	182465.20	
			Rate per cum (a+b+c+d+e+f)/30						6052.90	6058.49	6082.17	
								Say	**6052.90**	**6058.50**	**6082.20**	
12.11 F (v)		**Case II**	**RCC Grade M40 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.12)	cum	15.000	15.000	15.000	4143.80	62157.00	62157.00	62157.00	21.12
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2756.15	2758.59	2768.92	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14331.97	14344.65	14398.38	
			f) Contractor's profit @on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8599.18	8606.79	8639.03	
			Cost for 15 cum=a+b+c+d+e+f						94590.99	94674.70	95029.33	
			Rate per cum= (a+b+c+d+e+f)/15						6306.07	6311.65	6335.29	
								Say	**6306.10**	**6311.60**	**6335.30**	
12.11 F		**(vi)**	**RCC Grade M45**									
12.11 F (vi)		**Case I**	**RCC Grade M45 using batching plant, transit mixer & concrete pump**									
			Unit=cum									
			Taking output=30 cum									
			a) Material									
			Per cum basic cost (Rate taken from sub-analysis 21.13)	cum	30.000	30.000	30.000	4168.80	125064.00	125064.00	125064.00	21.13
			Water for curing	Kl	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109 X L1+0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1+0.875		997.00		1017.94		PM11002

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.292 X L1+1.75	752.00			1535.58	PM11003
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						5320.99	5325.88	5346.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27669.17	27694.57	27802.24	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16601.50	16616.74	16681.35	
			Cost for 30 cum=a+b+c+d+e+f						182616.52	182784.17	183494.80	
			Rate per cum (a+b+c+d+e+f)/30						6087.22	6092.81	6116.49	
								Say	**6087.20**	**6092.80**	**6116.49**	
12.11 F (vi)		**Case II**	**RCC Grade M45 using batching plant, transit mixer & manual placing**									
			Unit=cum									
			Taking output=15cum									
			a) Material									
			Per cum basic cost (rate taken from sub-analysis 21.13)	cum	15.000	15.000	15.000	4168.80	62532.00	62532.00	62532.00	21.13
			water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			for pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5 X L1	37.5 X L1	37.5 X L1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @20km/hr and return speed @30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055 X L1+0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073 X L1+0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146 X L1 + 0.875	752.00			767.79	PM11003

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @4 percent on cost of concrete i.e. cost of material , labour and machinery						2771.15	2773.59	2783.92	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		14409.97	14422.65	14476.38	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		8645.98	8653.59	8685.83	
			Cost for 15 cum=a+b+c+d+e+f						95105.79	95189.50	95544.13	
			Rate per cum= (a+b+c+d+e+f)/15						6340.39	6345.97	6369.61	
								Say	**6340.40**	**6346.00**	**6369.60**	
12.12	**Section 1200**		**Sinking of 6 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running metre									
			Taking output= 1m									
			Diameter of well=6m									
		(A)	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0m**									
			Rate of sinking =0.50 per hour									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Sinker (skilled)	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
			Sinking helper (semi-skilled)	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	2.000	2.000	2.000	803.00	1606.00	1606.00	1606.00	PM67001
			Consumables in sinking @10 percent of (b)						160.60	160.60	160.60	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		612.45	612.45	612.45	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		367.47	367.47	367.47	
			Rate per metre = (a+b+c+d)						4042.16	4042.16	4042.16	
								Say	**4042.20**	**4042.20**	**4042.20**	
12.12 A		**(i)**	**Beyond 3m upto 10m depth**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate of sinking =0.33 per hour									
			a) Labour									
			Mate	day	0.150	0.150	0.150	397.00	59.55	59.55	59.55	L-12
			Sinker (skilled)	day	1.250	1.250	1.250	472.00	590.00	590.00	590.00	L-15
			Sinking helper (semi-skilled)	day	2.500	2.500	2.500	388.00	970.00	970.00	970.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2,409.00	2,409.00	2,409.00	PM67001
			Consumables in sinking @10 percent of (b)						240.90	240.90	240.90	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		853.89	853.89	853.89	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		512.33	512.33	512.33	
			Rate per metre = (a+b+c+d)						5,635.67	5,635.67	5,635.67	
								Say	**5,635.70**	**5,635.70**	**5,635.70**	
12.12 A		**(iii)**	Beyond 10m upto 20m									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	5917.49	5917.49	5917.49	
			12m					5%	6213.36	6213.36	6213.36	
			13m					5%	6524.03	6524.03	6524.03	
			14m					5%	6850.23	6850.23	6850.23	
			15m					5%	7192.74	7192.74	7192.74	
			16m					5%	7552.38	7552.38	7552.38	
			17m					5%	7930.00	7930.00	7930.00	
			18m					5%	8326.50	8326.50	8326.50	
			19m					5%	8742.82	8742.82	8742.82	
			20m					5%	9179.96	9179.96	9179.96	
12.12 A		**(iv)**	Beyond 20m upto 30m									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	9868.46	9868.46	9868.46	
			22m					7.50%	10608.59	10608.59	10608.59	
			23m					7.50%	11404.24	11404.24	11404.24	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			24m					7.50%	12259.56	12259.56	12259.56	
			25m					7.50%	13179.02	13179.02	13179.02	
			26m					7.50%	14167.45	14167.45	14167.45	
			27m					7.50%	15230.01	15230.01	15230.01	
			28m					7.50%	16372.26	16372.26	16372.26	
			29m					7.50%	17600.18	17600.18	17600.18	
			30m					7.50%	18920.19	18920.19	18920.19	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.12 A		(v)	Beyond 30m upto 40m									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	20812.21	20812.21	20812.21	
			32m					10%	22893.43	22893.43	22893.43	
			33m					10%	25182.77	25182.77	25182.77	
			34m					10%	27701.05	27701.05	27701.05	
			35m					10%	30471.16	30471.16	30471.16	
			36m					10%	33518.27	33518.27	33518.27	
			37m					10%	36870.10	36870.10	36870.10	
			38m					10%	40557.11	40557.11	40557.11	
			39m					10%	44612.82	44612.82	44612.82	
			40m					10%	49074.10	49074.10	49074.10	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.12 B		B	**Clayey soil (6m dia. Well)**									
			Unit=running metre									
			Taking output= 1 metre									
		(i)	**Depth below bed level upto 3.0 M**									
			Rate of sinking = 0.33 m per hour.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.150	0.150	0.150	397.00	59.55	59.55	59.55	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			Consumables in sinking @10 percent of (b)						240.90	240.90	240.90	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		858.09	858.09	858.09	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		514.85	514.85	514.85	
			Rate per metre = (a+b+c+d)						5663.39	5663.39	5663.39	
								Say	**5663.40**	**5663.40**	**5663.40**	
12.12B		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.17 m per hour.									
			a) Labour									
			Mate	day	0.300	0.300	0.300	397.00	119.10	119.10	119.10	L-12
			Sinker (skilled)	day	3.000	3.000	3.000	472.00	1416.00	1416.00	1416.00	L-15
			Sinking helper (semi-skilled)	day	4.500	4.500	4.500	388.00	1746.00	1746.00	1746.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	2.000	2.000	2.000	440.00	880.00	880.00	880.00	PM15001
			Consumables in sinking @10 percent of (b)						569.80	569.80	569.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1909.78	1909.78	1909.78	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1145.87	1145.87	1145.87	
			Rate per metre = (a+b+c+d)						12604.55	12604.55	12604.55	
								Say	**12604.50**	**12604.50**	**12604.50**	
12.12 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	13234.73	13234.73	13234.73	
			12m					5%	13896.46	13896.46	13896.46	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			13m					5%	14591.28	14591.28	14591.28	
			14m					5%	15320.85	15320.85	15320.85	
			15m					5%	16086.89	16086.89	16086.89	
			16m					5%	16891.24	16891.24	16891.24	
			17m					5%	17735.80	17735.80	17735.80	
			18m					5%	18622.59	18622.59	18622.59	
			19m					5%	19553.72	19553.72	19553.72	
			20m					5%	20531.40	20531.40	20531.40	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.12 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	22071.26	22071.26	22071.26	
			22m					7.50%	23726.60	23726.60	23726.60	
			23m					7.50%	25506.10	25506.10	25506.10	
			24m					7.50%	27419.05	27419.05	27419.05	
			25m					7.50%	29475.48	29475.48	29475.48	
			26m					7.50%	31686.14	31686.14	31686.14	
			27m					7.50%	34062.61	34062.61	34062.61	
			28m					7.50%	36617.30	36617.30	36617.30	
			29m					7.50%	39363.60	39363.60	39363.60	
			30m					7.50%	42315.87	42315.87	42315.87	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.12 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			31m					10%	46547.46	46547.46	46547.46	
			32m					10%	51202.20	51202.20	51202.20	
			33m					10%	56322.42	56322.42	56322.42	
			34m					10%	61954.66	61954.66	61954.66	
			35m					10%	68150.13	68150.13	68150.13	
			36m					10%	74965.14	74965.14	74965.14	
			37m					10%	82461.66	82461.66	82461.66	
			38m					10%	90707.82	90707.82	90707.82	
			39m					10%	99778.60	99778.60	99778.60	
			40m					10%	109756.46	109756.46	109756.46	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.12		**C**	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in soft Rock (6m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.490	0.490	0.490	397.00	194.53	194.53	194.53	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	28.274	28.274	28.274	440.00	12440.56	12440.56	12440.56	PM15001
			Pneumatic breaker	hour	56.549	56.549	56.549	206.00	11649.09	11649.09	11649.09	PM4001
			Consumables in sinking @5 percent of (b)						1204.48	1204.48	1204.48	
			Add for dewatering @ of 15 percent of (a+b), if required						4370.65	4370.65	4370.65	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		7424.36	7424.36	7424.36	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4454.62	4454.62	4454.62	
			Rate per metre = (a+b+c+d)						49000.80	49000.80	49000.80	
								Say	**49000.80**	**49000.80**	**49000.80**	
12.12		**D**	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in Hard Rock (6m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	5.655	5.655	5.655	128.00	723.84	723.84	723.84	M-215
			Electric detonators	no	25.000	25.000	25.000	6.56	164.00	164.00	164.00	M-217
			Detonating fuse coil	m	78.000	78.000	78.000	15.00	1170.00	1170.00	1170.00	M-218
			b) Labour									
			Mate	day	0.500	0.500	0.500	397.00	198.50	198.50	198.50	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	26.590	26.590	26.590	440.00	11699.60	11699.60	11699.60	PM15001
			Pneumatic breaker	hour	22.619	22.619	22.619	206.00	4659.51	4659.51	4659.51	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	14.561	14.561	14.561	206.00	2999.57	2999.57	2999.57	PM4001
			Consumables in protected blasting @ 10 percent of (c)						1935.87	1935.87	1935.87	
			Add for dewatering @ of 15 percent of (a+b+c), if required						4288.37	4288.37	4288.37	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		7057.30	7057.30	7057.30	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		4234.38	4234.38	4234.38	
			Rate per metre = (a+b+c+d+e)						46578.19	46578.19	46578.19	
								Say	**46578.20**	**46578.20**	**46578.20**	
12.12		**E**	**Extra over item no. 12.12 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (6m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.410	0.410	0.410	397.00	162.77	162.77	162.77	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	47.124	47.124	47.124	440.00	20734.56	20734.56	20734.56	PM15001
			Pneumatic breaker	hour	94.248	94.248	94.248	206.00	19415.09	19415.09	19415.09	PM4001
			Consumables in in sinking @ 5 percent of (b)						2007.48	2007.48	2007.48	
			Add for dewatering @ of 15 percent of (a+b), if required						6662.99	6662.99	6662.99	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		11099.88	11099.88	11099.88	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		6659.93	6659.93	6659.93	
			Rate per metre = (a+b+c+d)						73259.19	73259.19	73259.19	
								Say	**73259.20**	**73259.20**	**73259.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.13	Section 1200		**Sinking of 7 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running metre									
			Taking output=1m									
			Diameter of well = 7m									
		A	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0m**									
			Rate of sinking = 0.30 m per hour.									
			a) Labour									
			Mate	day	0.150	0.150	0.150	397.00	59.55	59.55	59.55	L-12
			Sinker (skilled)	day	1.250	1.250	1.250	472.00	590.00	590.00	590.00	L-15
			Sinking helper (semi-skilled)	day	2.500	2.500	2.500	388.00	970.00	970.00	970.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	3.250	3.250	3.250	803.00	2609.75	2609.75	2609.75	PM67001
			Consumables in sinking @10 percent of (b)						260.98	260.98	260.98	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		898.06	898.06	898.06	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		538.83	538.83	538.83	
			Rate per metre = (a+b+c+d)						5927.16	5927.16	5927.16	
								Say	**5927.20**	**5927.20**	**5927.20**	
12.13 A		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.22 m per hour.									
			a) Labour									
			Mate	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.000	3.000	3.000	388.00	1164.00	1164.00	1164.00	L-14
			b) Machinery									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	4.500	4.500	4.500	803.00	3613.50	3613.50	3613.50	PM67001
			Consumables in sinking @10 percent of (b)						361.35	361.35	361.35	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1183.66	1183.66	1183.66	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		710.20	710.20	710.20	
			Rate per metre = (a+b+c+d)						7812.17	7812.17	7812.17	
								Say	**7812.20**	**7812.20**	**7812.20**	
12.13 A		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	8202.81	8202.81	8202.81	
			12m					5%	8612.95	8612.95	8612.95	
			13m					5%	9043.60	9043.60	9043.60	
			14m					5%	9495.78	9495.78	9495.78	
			15m					5%	9970.57	9970.57	9970.57	
			16m					5%	10469.10	10469.10	10469.10	
			17m					5%	10992.55	10992.55	10992.55	
			18m					5%	11542.18	11542.18	11542.18	
			19m					5%	12119.29	12119.29	12119.29	
			20m					5%	12725.25	12725.25	12725.25	
12.13 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	13679.64	13679.64	13679.64	
			22m					7.50%	14705.62	14705.62	14705.62	
			23m					7.50%	15808.54	15808.54	15808.54	
			24m					7.50%	16994.18	16994.18	16994.18	
			25m					7.50%	18268.74	18268.74	18268.74	
			26m					7.50%	19638.90	19638.90	19638.90	
			27m					7.50%	21111.82	21111.82	21111.82	
			28m					7.50%	22695.20	22695.20	22695.20	
			29m					7.50%	24397.34	24397.34	24397.34	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			30m					7.50%	26227.14	26227.14	26227.14	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.13 A		(v)	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	28849.86	28849.86	28849.86	
			32m					10%	31734.84	31734.84	31734.84	
			33m					10%	34908.33	34908.33	34908.33	
			34m					10%	38399.16	38399.16	38399.16	
			35m					10%	42239.08	42239.08	42239.08	
			36m					10%	46462.98	46462.98	46462.98	
			37m					10%	51109.28	51109.28	51109.28	
			38m					10%	56220.21	56220.21	56220.21	
			39m					10%	61842.23	61842.23	61842.23	
			40m					10%	68026.45	68026.45	68026.45	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.13 B		B	**Clayey Soil (7 m dia. Well)**									
			Unit= Running metre									
			Taking output= 1 cum									
		(I)	**Depth below bed level upto 3.0 M**									
			Rate of sinking = 0.22 m per hour.									
			a) Labour									
			Mate	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.000	3.000	3.000	388.00	1164.00	1164.00	1164.00	L-14
			b) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	4.500	4.500	4.500	803.00	3613.50	3613.50	3613.50	PM67001
			Consumables in sinking @10 percent of (b)						361.35	361.35	361.35	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1183.66	1183.66	1183.66	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		710.20	710.20	710.20	
			Rate per metre = (a+b+c+d)						7812.17	7812.17	7812.17	
								Say	**7812.20**	**7812.20**	**7812.20**	
12.13 B		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking=0.17 m per hour.									
			a) Labour									
			Mate	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12
			Sinker	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	3.250	3.250	3.250	440.00	1430.00	1430.00	1430.00	PM15001
			Consumables in sinking @ 10 percent of (b)						624.80	624.80	624.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1892.82	1892.82	1892.82	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1135.69	1135.69	1135.69	
			Rate per metre = (a+b+c+d)						12492.59	12492.59	12492.59	
								Say	**12492.60**	**12492.60**	**12492.60**	
12.13 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	13117.23	13117.23	13117.23	
			12m					5%	13773.09	13773.09	13773.09	
			13m					5%	14461.75	14461.75	14461.75	
			14m					5%	15184.83	15184.83	15184.83	
			15m					5%	15944.08	15944.08	15944.08	
			16m					5%	16741.28	16741.28	16741.28	
			17m					5%	17578.34	17578.34	17578.34	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			18m					5%	18457.26	18457.26	18457.26	
			19m					5%	19380.12	19380.12	19380.12	
			20m					5%	20349.13	20349.13	20349.13	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.13 B		(iv)	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	21875.31	21875.31	21875.31	
			22m					7.50%	23515.96	23515.96	23515.96	
			23m					7.50%	25279.66	25279.66	25279.66	
			24m					7.50%	27175.63	27175.63	27175.63	
			25m					7.50%	29213.81	29213.81	29213.81	
			26m					7.50%	31404.84	31404.84	31404.84	
			27m					7.50%	33760.20	33760.20	33760.20	
			28m					7.50%	36292.22	36292.22	36292.22	
			29m					7.50%	39014.14	39014.14	39014.14	
			30m					7.50%	41940.20	41940.20	41940.20	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.13 B		(v)	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	46134.22	46134.22	46134.22	
			32m					10%	50747.64	50747.64	50747.64	
			33m					10%	55822.40	55822.40	55822.40	
			34m					10%	61404.64	61404.64	61404.64	
			35m					10%	67545.11	67545.11	67545.11	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			36m					10%	74299.62	74299.62	74299.62	
			37m					10%	81729.58	81729.58	81729.58	
			38m					10%	89902.54	89902.54	89902.54	
			39m					10%	98892.79	98892.79	98892.79	
			40m					10%	108782.07	108782.07	108782.07	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost(on a) for Kentledge including supports, loading arrangement and Labour).									
12.13		**C**	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in soft Rock (7m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.570	0.570	0.570	397.00	226.29	226.29	226.29	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	38.485	38.485	38.485	440.00	16933.40	16933.40	16933.40	PM15001
			Pneumatic breaker	hour	76.969	76.969	76.969	206.00	15855.61	15855.61	15855.61	PM4001
			Consumables in sinking @5 percent of (b)						1639.45	1639.45	1639.45	
			Add for dewatering @ of 15 percent of (a+b), if required						5792.22	5792.22	5792.22	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		9691.10	9691.10	9691.10	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		5814.66	5814.66	5814.66	
			Rate per metre = (a+b+c+d)						63961.23	63961.23	63961.23	
								Say	**63961.20**	**63961.20**	**63961.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.13		D	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in Hard Rock (7m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	7.697	7.697	7.697	128.00	985.22	985.22	985.22	M-215
			Electric detonators	no	36.000	36.000	36.000	6.56	236.16	236.16	236.16	M-217
			Detonating fuse coil	m	112.000	112.000	112.000	15.00	1680.00	1680.00	1680.00	M-218
			b)Labour									
			Mate	day	0.580	0.580	0.580	397.00	230.26	230.26	230.26	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	33.304	33.304	33.304	440.00	14653.76	14653.76	14653.76	PM15001
			Pneumatic breaker	hour	30.788	30.788	30.788	206.00	6342.33	6342.33	6342.33	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	19.820	19.820	19.820	206.00	4082.92	4082.92	4082.92	PM4001
			Consumables in protected blasting @ 10 percent of (c)						2507.90	2507.90	2507.90	
			Add for dewatering @ of 15 percent of (a+b+c), if required						5099.23	5099.23	5099.23	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		8802.206	8802.206	8802.206	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		5281.323	5281.323	5281.323	
			Rate per metre = (a+b+c+d+e)						58094.558	58094.558	58094.558	
								Say	**58094.60**	**58094.60**	**58094.60**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.13		E	**Extra over item no. 12.13 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (7m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.490	0.490	0.490	397.00	194.53	194.53	194.53	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	64.141	64.141	64.141	440.00	28222.04	28222.04	28222.04	PM15001
			Pneumatic breaker	hour	128.282	128.282	128.282	206.00	26426.09	26426.09	26426.09	PM4001
			Consumables in sinking @5 percent of (b)						2732.41	2732.41	2732.41	
			Add for dewatering @ of 15 percent of (a+b), if required						8954.42	8954.42	8954.42	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		14758.40	14758.40	14758.40	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		8855.04	8855.04	8855.04	
			Rate per metre = (a+b+c+d)						97405.43	97405.43	97405.43	
								Say	**97405.40**	**97405.40**	**97405.40**	
12.14	Section 1200		**Sinking of 8 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running Meter.									
			Taking output=1m									
			Diameter of well-8m.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		A	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0 M**									
			Rate of sinking @ 0.25 m/ hour.									
			a) Labour									
			Mate	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.000	3.000	3.000	388.00	1164.00	1164.00	1164.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	4.000	4.000	4.000	803.00	3212.00	3212.00	3212.00	PM67001
			Consumables in sinking @10 percent of (b)						321.20	321.20	321.20	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1095.33	1095.33	1095.33	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		657.20	657.20	657.20	
			Rate per metre = (a+b+c+d)						7229.19	7229.19	7229.19	
								Say	**7229.20**	**7229.20**	**7229.20**	
12.14 A		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.20 m per hour.									
			a) Labour									
			Mate	day	0.210	0.210	0.210	397.00	83.37	83.37	83.37	L-12
			Sinker (skilled)	day	1.750	1.750	1.750	472.00	826.00	826.00	826.00	L-15
			Sinking helper (semi-skilled)	day	3.500	3.500	3.500	388.00	1358.00	1358.00	1358.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.000	5.000	5.000	803.00	4015.00	4015.00	4015.00	PM67001
			Consumables in sinking @10 percent of (b)						401.50	401.50	401.50	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1336.77	1336.77	1336.77	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		802.06	802.06	802.06	
			Rate per metre = (a+b+c+d)						8822.71	8822.71	8822.71	
								Say	**8822.70**	**8822.70**	**8822.70**	
12.14 A		(iii)	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	9263.84	9263.84	9263.84	

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			12m					5%	9727.03	9727.03	9727.03	
			13m					5%	10213.38	10213.38	10213.38	
			14m					5%	10724.05	10724.05	10724.05	
			15m					5%	11260.25	11260.25	11260.25	
			16m					5%	11823.26	11823.26	11823.26	
			17m					5%	12414.42	12414.42	12414.42	
			18m					5%	13035.15	13035.15	13035.15	
			19m					5%	13686.90	13686.90	13686.90	
			20m					5%	14371.25	14371.25	14371.25	
12.14 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	15449.09	15449.09	15449.09	
			22m					7.50%	16607.77	16607.77	16607.77	
			23m					7.50%	17853.36	17853.36	17853.36	
			24m					7.50%	19192.36	19192.36	19192.36	
			25m					7.50%	20631.79	20631.79	20631.79	
			26m					7.50%	22179.17	22179.17	22179.17	
			27m					7.50%	23842.61	23842.61	23842.61	
			28m					7.50%	25630.80	25630.80	25630.80	
			29m					7.50%	27553.11	27553.11	27553.11	
			30m					7.50%	29619.60	29619.60	29619.60	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.14 A		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	32581.56	32581.56	32581.56	
			32m					10%	35839.71	35839.71	35839.71	
			33m					10%	39423.68	39423.68	39423.68	
			34m					10%	43366.05	43366.05	43366.05	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			35m					10%	47702.66	47702.66	47702.66	
			36m					10%	52472.92	52472.92	52472.92	
			37m					10%	57720.22	57720.22	57720.22	
			38m					10%	63492.24	63492.24	63492.24	
			39m					10%	69841.46	69841.46	69841.46	
			40m					10%	76825.61	76825.61	76825.61	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.14		**B**	**Clayey Soil (8 m dia. Well)**									
			Unit = Running Meter.									
			Taking output = 1 meter									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.18 m per hour.									
			a) Labour									
			Mate	day	0.220	0.220	0.220	397.00	87.34	87.34	87.34	L-12
			Sinker (skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			Sinking helper (semi-skilled)	day	3.500	3.500	3.500	388.00	1358.00	1358.00	1358.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.500	5.500	5.500	803.00	4416.50	4416.50	4416.50	PM67001
			Consumables in sinking @10 percent of (b)						441.65	441.65	441.65	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1449.50	1449.50	1449.50	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		869.70	869.70	869.70	
			Rate per metre = (a+b+c+d)						9566.69	9566.69	9566.69	
								Say	**9566.70**	**9566.70**	**9566.70**	
12.14 B		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking @ 0.17 m/ hour.									
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Sinker	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	4.500	4.500	4.500	388.00	1746.00	1746.00	1746.00	L-14
			b) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	3.500	3.500	3.500	440.00	1540.00	1540.00	1540.00	PM15001
			Consumables in sinking @ 10 percent of (b)						635.80	635.80	635.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2006.19	2006.19	2006.19	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1203.72	1203.72	1203.72	
			Rate per metre = (a+b+c+d)						13240.87	13240.87	13240.87	
								Say	**13240.90**	**13240.90**	**13240.90**	
12.14 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	13902.95	13902.95	13902.95	
			12m					5%	14598.09	14598.09	14598.09	
			13m					5%	15328.00	15328.00	15328.00	
			14m					5%	16094.40	16094.40	16094.40	
			15m					5%	16899.12	16899.12	16899.12	
			16m					5%	17744.07	17744.07	17744.07	
			17m					5%	18631.28	18631.28	18631.28	
			18m					5%	19562.84	19562.84	19562.84	
			19m					5%	20540.98	20540.98	20540.98	
			20m					5%	21568.03	21568.03	21568.03	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.14 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	23185.63	23185.63	23185.63	
			22m					7.50%	24924.56	24924.56	24924.56	
			23m					7.50%	26793.90	26793.90	26793.90	
			24m					7.50%	28803.44	28803.44	28803.44	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			25m					7.50%	30963.70	30963.70	30963.70	
			26m					7.50%	33285.97	33285.97	33285.97	
			27m					7.50%	35782.42	35782.42	35782.42	
			28m					7.50%	38466.10	38466.10	38466.10	
			29m					7.50%	41351.06	41351.06	41351.06	
			30m					7.50%	44452.39	44452.39	44452.39	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.14 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	48897.63	48897.63	48897.63	
			32m					10%	53787.39	53787.39	53787.39	
			33m					10%	59166.13	59166.13	59166.13	
			34m					10%	65082.75	65082.75	65082.75	
			35m					10%	71591.02	71591.02	71591.02	
			36m					10%	78750.12	78750.12	78750.12	
			37m					10%	86625.14	86625.14	86625.14	
			38m					10%	95287.65	95287.65	95287.65	
			39m					10%	104816.42	104816.42	104816.42	
			40m					10%	115298.06	115298.06	115298.06	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.14		C	**Extra over item no. 12.14 (A) or (B) irrespective of depth for sinking in soft Rock (8m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.650	0.650	0.650	397.00	258.05	258.05	258.05	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	50.265	50.265	50.265	440.00	22116.60	22116.60	22116.60	PM15001
			Pneumatic breaker	hour	100.531	100.531	100.531	206.00	20709.39	20709.39	20709.39	PM4001
			Consumables in sinking @5 percent of (b)						2141.30	2141.30	2141.30	
			Add for dewatering @ of 15 percent of (a+b), if required						7414.43	7414.43	7414.43	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		12278.85	12278.85	12278.85	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7367.31	7367.31	7367.31	
			Rate per metre = (a+b+c+d)						81040.43	81040.43	81040.43	
								Say	**81040.40**	**81040.40**	**81040.40**	
12.14		D	**Extra over item no. 12.14 (A) or (B) irrespective of depth for sinking in Hard Rock (8m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	10.053	10.053	10.053	128.00	1286.78	1286.78	1286.78	M-215
			Electric detonators	no	50.000	50.000	50.000	6.56	328.00	328.00	328.00	M-217
			Detonating fuse coil	m	155.000	155.000	155.000	15.00	2325.00	2325.00	2325.00	M-218
			b) Labour									
			Mate	day	0.660	0.660	0.660	397.00	262.02	262.02	262.02	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	41.050	41.050	41.050	440.00	18062.00	18062.00	18062.00	PM15001
			Pneumatic breaker	hour	40.212	40.212	40.212	206.00	8283.67	8283.67	8283.67	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	25.887	25.887	25.887	206.00	5332.72	5332.72	5332.72	PM4001
			Consumables in protected blasting @ 10 percent of (c)						3167.84	3167.84	3167.84	
			Add for dewatering @ of 15 percent of (a+b+c), if required						6361.57	6361.57	6361.57	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		10869.77	10869.77	10869.77	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		6521.86	6521.86	6521.86	
			Rate per metre = (a+b+c+d+e)						71740.49	71740.49	71740.49	
								Say	**71740.50**	**71740.50**	**71740.50**	
12.14		**E**	**Extra over item no. 12.14 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (8m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.570	0.570	0.570	397.00	226.29	226.29	226.29	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	83.776	83.776	83.776	440.00	36861.44	36861.44	36861.44	PM15001

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Pneumatic breaker	hour	167.552	167.552	167.552	206.00	34515.71	34515.71	34515.71	PM4001
			Consumables in sinking @5 percent of (b)						3568.86	3568.86	3568.86	
			Add for dewatering @ of 15 percent of (a+b), if required						11580.44	11580.44	11580.44	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		18952.25	18952.25	18952.25	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		11371.35	11371.35	11371.35	
			Rate per metre = (a+b+c+d)						125084.84	125084.84	125084.84	
								Say	**125084.80**	**125084.80**	**125084.80**	
12.15	**Section 1200**		**Sinking of 9 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running Meter.									
			Taking output=1m									
			Diameter of well-9m.									
		A	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0 M**									
			Rate of sinking @ 0.25 m/ hour.									
			a) Labour									
			Mate	day	0.190	0.190	0.190	397.00	75.43	75.43	75.43	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.250	3.250	3.250	388.00	1261.00	1261.00	1261.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	4.000	4.000	4.000	803.00	3212.00	3212.00	3212.00	PM67001
			Consumables in sinking @10 percent of (b)						321.20	321.20	321.20	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1115.53	1115.53	1115.53	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		669.32	669.32	669.32	
			Rate per metre = (a+b+c+d)						7362.47	7362.47	7362.47	
								Say	**7362.50**	**7362.50**	**7362.50**	
12.15 A		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.18 m per hour.									
			a) Labour									
			Mate	day	0.230	0.230	0.230	397.00	91.31	91.31	91.31	L-12
			Sinker (skilled)	day	1.750	1.750	1.750	472.00	826.00	826.00	826.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.500	5.500	5.500	803.00	4416.50	4416.50	4416.50	PM67001
			Consumables in sinking @10 percent of (b)						441.65	441.65	441.65	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1465.49	1465.49	1465.49	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		879.30	879.30	879.30	
			Rate per metre = (a+b+c+d)						9672.25	9672.25	9672.25	
								Say	**9672.20**	**9672.20**	**9672.20**	
12.15 A		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	10155.81	10155.81	10155.81	
			12m					5%	10663.60	10663.60	10663.60	
			13m					5%	11196.78	11196.78	11196.78	
			14m					5%	11756.62	11756.62	11756.62	
			15m					5%	12344.45	12344.45	12344.45	
			16m					5%	12961.67	12961.67	12961.67	
			17m					5%	13609.76	13609.76	13609.76	
			18m					5%	14290.24	14290.24	14290.24	
			19m					5%	15004.76	15004.76	15004.76	
			20m					5%	15754.99	15754.99	15754.99	
12.15 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			21m					7.50%	16936.62	16936.62	16936.62	
			22m					7.50%	18206.87	18206.87	18206.87	
			23m					7.50%	19572.38	19572.38	19572.38	
			24m					7.50%	21040.31	21040.31	21040.31	
			25m					7.50%	22618.33	22618.33	22618.33	
			26m					7.50%	24314.71	24314.71	24314.71	
			27m					7.50%	26138.31	26138.31	26138.31	
			28m					7.50%	28098.68	28098.68	28098.68	
			29m					7.50%	30206.08	30206.08	30206.08	
			30m					7.50%	32471.54	32471.54	32471.54	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.15 A		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	35718.70	35718.70	35718.70	
			32m					10%	39290.56	39290.56	39290.56	
			33m					10%	43219.62	43219.62	43219.62	
			34m					10%	47541.58	47541.58	47541.58	
			35m					10%	52295.74	52295.74	52295.74	
			36m					10%	57525.32	57525.32	57525.32	
			37m					10%	63277.85	63277.85	63277.85	
			38m					10%	69605.63	69605.63	69605.63	
			39m					10%	76566.20	76566.20	76566.20	
			40m					10%	84222.82	84222.82	84222.82	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.15		**B**	**Clayey Soil (9 m dia. Well)**									
			Unit = Running Meter.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 1 metre									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.17 m per hour.									
			a) Labour									
			Mate	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12
			Sinker (skilled)	day	2.250	2.250	2.250	472.00	1062.00	1062.00	1062.00	L-15
			Sinking helper (semi-skilled)	day	3.750	3.750	3.750	388.00	1455.00	1455.00	1455.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.750	5.750	5.750	803.00	4617.25	4617.25	4617.25	PM67001
			Consumables in sinking @10 percent of (b)						461.73	461.73	461.73	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1538.25	1538.25	1538.25	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		922.95	922.95	922.95	
			Rate per metre = (a+b+c+d)						10152.46	10152.46	10152.46	
								Say	**10152.50**	**10152.50**	**10152.50**	
12.15 B		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking @ 0.15 m/ hour.									
			a) Labour									
			Mate	day	0.300	0.300	0.300	397.00	119.10	119.10	119.10	L-12
			Sinker	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	5.000	5.000	5.000	388.00	1940.00	1940.00	1940.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.500	6.500	6.500	803.00	5219.50	5219.50	5219.50	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	3.750	3.750	3.750	440.00	1650.00	1650.00	1650.00	PM15001
			Consumables in sinking @ 10 percent of (b)						686.95	686.95	686.95	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2159.11	2159.11	2159.11	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1295.47	1295.47	1295.47	
			Rate per metre = (a+b+c+d)						14250.13	14250.13	14250.13	
								Say	**14250.10**	**14250.10**	**14250.10**	
12.15 B		(iii)	**Beyond 10m upto 20m**									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	14962.61	14962.61	14962.61	
			12m					5%	15710.74	15710.74	15710.74	
			13m					5%	16496.27	16496.27	16496.27	
			14m					5%	17321.09	17321.09	17321.09	
			15m					5%	18187.14	18187.14	18187.14	
			16m					5%	19096.50	19096.50	19096.50	
			17m					5%	20051.32	20051.32	20051.32	
			18m					5%	21053.89	21053.89	21053.89	
			19m					5%	22106.58	22106.58	22106.58	
			20m					5%	23211.91	23211.91	23211.91	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.15 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	24952.80	24952.80	24952.80	
			22m					7.50%	26824.27	26824.27	26824.27	
			23m					7.50%	28836.08	28836.08	28836.08	
			24m					7.50%	30998.79	30998.79	30998.79	
			25m					7.50%	33323.70	33323.70	33323.70	
			26m					7.50%	35822.98	35822.98	35822.98	
			27m					7.50%	38509.70	38509.70	38509.70	
			28m					7.50%	41397.93	41397.93	41397.93	
			29m					7.50%	44502.77	44502.77	44502.77	
			30m					7.50%	47840.48	47840.48	47840.48	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.15 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	52624.53	52624.53	52624.53	
			32m					10%	57886.98	57886.98	57886.98	
			33m					10%	63675.68	63675.68	63675.68	
			34m					10%	70043.25	70043.25	70043.25	
			35m					10%	77047.57	77047.57	77047.57	
			36m					10%	84752.33	84752.33	84752.33	
			37m					10%	93227.57	93227.57	93227.57	
			38m					10%	102550.32	102550.32	102550.32	
			39m					10%	112805.35	112805.35	112805.35	
			40m					10%	124085.89	124085.89	124085.89	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.15		**C**	**Extra over item no. 12.15 (A) or (B) irrespective of depth for sinking in soft Rock (9m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.730	0.730	0.730	397.00	289.81	289.81	289.81	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	14.000	14.000	14.000	373.00	5222.00	5222.00	5222.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	63.617	63.617	63.617	440.00	27991.48	27991.48	27991.48	PM15001
			Pneumatic breaker	hour	127.235	127.235	127.235	206.00	26210.41	26210.41	26210.41	PM4001
			Consumables in sinking @5 percent of (b)						2710.09	2710.09	2710.09	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add for dewatering @ of 15 percent of (a+b), if required						9237.48	9237.48	9237.48	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		15187.95	15187.95	15187.95	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		9112.77	9112.77	9112.77	
			Rate per metre = (a+b+c+d)						100240.50	100240.50	100240.50	
								Say	**100240.50**	**100240.50**	**100240.50**	
12.15		**D**	**Extra over item no. 12.15 (A) or (B) irrespective of depth for sinking in Hard Rock (9m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	12.723	12.723	12.723	128.00	1628.54	1628.54	1628.54	M-215
			Electric detonators	no	65.000	65.000	65.000	6.56	426.40	426.40	426.40	M-217
			Detonating fuse coil	m	202.000	202.000	202.000	15.00	3030.00	3030.00	3030.00	M-218
			b) Labour									
			Mate	day	0.740	0.740	0.740	397.00	293.78	293.78	293.78	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	49.828	49.828	49.828	440.00	21924.32	21924.32	21924.32	PM15001
			Pneumatic breaker	hour	50.894	50.894	50.894	206.00	10484.16	10484.16	10484.16	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	32.763	32.763	32.763	206.00	6749.18	6749.18	6749.18	PM4001
			Consumables in protected blasting @ 10 percent of (c)						3915.77	3915.77	3915.77	
			Add for dewatering @ of 15 percent of (a+b+c), if required						7771.90	7771.90	7771.90	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		13181.86	13181.86	13181.86	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7909.12	7909.12	7909.12	
			Rate per metre = (a+b+c+d+e)						87000.27	87000.27	87000.27	
								Say	**87000.30**	**87000.30**	**87000.30**	
12.15		**E**	**Extra over item no. 12.15 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (9m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.650	0.650	0.650	397.00	258.05	258.05	258.05	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	106.029	106.029	106.029	440.00	46652.76	46652.76	46652.76	PM15001
			Pneumatic breaker	hour	212.058	212.058	212.058	206.00	43683.95	43683.95	43683.95	PM4001
			Consumables in sinking @5 percent of (b)						4516.84	4516.84	4516.84	
			Add for dewatering @ of 15 percent of (a+b), if required						14541.04	14541.04	14541.04	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		23681.43	23681.43	23681.43	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		14208.86	14208.86	14208.86	
			Rate per metre = (a+b+c+d)						156297.41	156297.41	156297.41	
								Say	**156297.40**	**156297.40**	**156297.40**	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.16	Section 1200		**Sinking of 10 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running metre									
			Taking output=1m									
			Diameter of well = 10m									
		A	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0m**									
			Rate of sinking = 0.20 m per hour.									
			a) Labour									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.500	3.500	3.500	388.00	1358.00	1358.00	1358.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.000	5.000	5.000	803.00	4015.00	4015.00	4015.00	PM67001
			Consumables in sinking @10 percent of (b)						401.50	401.50	401.50	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1312.38	1312.38	1312.38	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		787.43	787.43	787.43	
			Rate per metre = (a+b+c+d)						8661.71	8661.71	8661.71	
								Say	**8661.70**	**8661.70**	**8661.70**	
12.16 A		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.17 m per hour.									
			a) Labour									
			Mate	day	0.250	0.250	0.250	397.00	99.25	99.25	99.25	L-12
			Sinker (skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			Sinking helper (semi-skilled)	day	4.250	4.250	4.250	388.00	1649.00	1649.00	1649.00	L-14
			b) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.750	5.750	5.750	803.00	4617.25	4617.25	4617.25	PM67001
			Consumables in sinking @10 percent of (b)						461.73	461.73	461.73	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1554.25	1554.25	1554.25	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		932.55	932.55	932.55	
			Rate per metre = (a+b+c+d)						10258.02	10258.02	10258.02	
								Say	**10258.00**	**10258.00**	**10258.00**	
12.16 A		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	10770.90	10770.90	10770.90	
			12m					5%	11309.45	11309.45	11309.45	
			13m					5%	11874.92	11874.92	11874.92	
			14m					5%	12468.66	12468.66	12468.66	
			15m					5%	13092.10	13092.10	13092.10	
			16m					5%	13746.70	13746.70	13746.70	
			17m					5%	14434.04	14434.04	14434.04	
			18m					5%	15155.74	15155.74	15155.74	
			19m					5%	15913.52	15913.52	15913.52	
			20m					5%	16709.20	16709.20	16709.20	
12.16 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	17962.39	17962.39	17962.39	
			22m					7.50%	19309.57	19309.57	19309.57	
			23m					7.50%	20757.79	20757.79	20757.79	
			24m					7.50%	22314.62	22314.62	22314.62	
			25m					7.50%	23988.22	23988.22	23988.22	
			26m					7.50%	25787.34	25787.34	25787.34	
			27m					7.50%	27721.39	27721.39	27721.39	
			28m					7.50%	29800.49	29800.49	29800.49	
			29m					7.50%	32035.53	32035.53	32035.53	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			30m					7.50%	34438.19	34438.19	34438.19	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.16 A		(v)	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	37882.01	37882.01	37882.01	
			32m					10%	41670.21	41670.21	41670.21	
			33m					10%	45837.23	45837.23	45837.23	
			34m					10%	50420.96	50420.96	50420.96	
			35m					10%	55463.05	55463.05	55463.05	
			36m					10%	61009.36	61009.36	61009.36	
			37m					10%	67110.29	67110.29	67110.29	
			38m					10%	73821.32	73821.32	73821.32	
			39m					10%	81203.45	81203.45	81203.45	
			40m					10%	89323.80	89323.80	89323.80	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.16 B		B	**Clayey Soil (10 m dia. Well)**									
			Unit= Running metre									
			Taking output= 1 cum									
		(I)	**Depth below bed level upto 3.0 M**									
			Rate of sinking = 0.18 m per hour.									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Sinker (skilled)	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	5.500	5.500	5.500	388.00	2134.00	2134.00	2134.00	L-14
			b) Machinery									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Consumables in sinking @10 percent of (b)						481.80	481.80	481.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1748.17	1748.17	1748.17	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1048.90	1048.90	1048.90	
			Rate per metre = (a+b+c+d)						11537.91	11537.91	11537.91	
								Say	**11537.90**	**11537.90**	**11537.90**	
12.16 B		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking=0.15 m per hour.									
			a) Labour									
			Mate	day	0.340	0.340	0.340	397.00	134.98	134.98	134.98	L-12
			Sinker	day	3.000	3.000	3.000	472.00	1416.00	1416.00	1416.00	L-15
			Sinking helper (semi-skilled)	day	5.500	5.500	5.500	388.00	2134.00	2134.00	2134.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	4.000	4.000	4.000	440.00	1760.00	1760.00	1760.00	PM15001
			Consumables in sinking @ 10 percent of (b)						657.80	657.80	657.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2184.16	2184.16	2184.16	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1310.49	1310.49	1310.49	
			Rate per metre = (a+b+c+d)						14415.43	14415.43	14415.43	
								Say	**14415.40**	**14415.40**	**14415.40**	
12.16 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	15136.17	15136.17	15136.17	
			12m					5%	15892.98	15892.98	15892.98	
			13m					5%	16687.63	16687.63	16687.63	
			14m					5%	17522.01	17522.01	17522.01	
			15m					5%	18398.11	18398.11	18398.11	
			16m					5%	19318.01	19318.01	19318.01	
			17m					5%	20283.92	20283.92	20283.92	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			18m					5%	21298.11	21298.11	21298.11	
			19m					5%	22363.02	22363.02	22363.02	
			20m					5%	23481.17	23481.17	23481.17	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.16 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	25242.26	25242.26	25242.26	
			22m					7.50%	27135.42	27135.42	27135.42	
			23m					7.50%	29170.58	29170.58	29170.58	
			24m					7.50%	31358.37	31358.37	31358.37	
			25m					7.50%	33710.25	33710.25	33710.25	
			26m					7.50%	36238.52	36238.52	36238.52	
			27m					7.50%	38956.41	38956.41	38956.41	
			28m					7.50%	41878.14	41878.14	41878.14	
			29m					7.50%	45019.00	45019.00	45019.00	
			30m					7.50%	48395.43	48395.43	48395.43	
		b	Add 5 percent of cost for dewatering of the cost (on a), if required									
		c	Add 25 percent of cost (on a) for kentledge including supports, loading arrangement & labour)									
12.16 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	53234.97	53234.97	53234.97	
			32m					10%	58558.47	58558.47	58558.47	
			33m					10%	64414.31	64414.31	64414.31	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			34m					10%	70855.75	70855.75	70855.75	
			35m					10%	77941.32	77941.32	77941.32	
			36m					10%	85735.45	85735.45	85735.45	
			37m					10%	94309.00	94309.00	94309.00	
			38m					10%	103739.90	103739.90	103739.90	
			39m					10%	114113.89	114113.89	114113.89	
			40m					10%	125525.28	125525.28	125525.28	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.16		**C**	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in soft Rock (10m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.810	0.810	0.810	397.00	321.57	321.57	321.57	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	16.000	16.000	16.000	373.00	5968.00	5968.00	5968.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	78.540	78.540	78.540	440.00	34557.60	34557.60	34557.60	PM15001
			Pneumatic breaker	hour	157.080	157.080	157.080	206.00	32358.48	32358.48	32358.48	PM4001
			Consumables in sinking @5 percent of (b)						3345.80	3345.80	3345.80	
			Add for dewatering @ of 15 percent of (a+b), if required						11261.27	11261.27	11261.27	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		18418.25	18418.25	18418.25	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		11050.95	11050.95	11050.95	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per metre = (a+b+c+d)						121560.42	121560.42	121560.42	
								Say	**121560.40**	**121560.40**	**121560.40**	
12.16		**D**	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in Hard Rock (10m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	15.708	15.708	15.708	128.00	2010.62	2010.62	2010.62	M-215
			Electric detonators	no	82.000	82.000	82.000	6.56	537.92	537.92	537.92	M-217
			Detonating fuse coil	m	255.000	255.000	255.000	15.00	3825.00	3825.00	3825.00	M-218
			b)Labour									
			Mate	day	0.820	0.820	0.820	397.00	325.54	325.54	325.54	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	14.000	14.000	14.000	373.00	5222.00	5222.00	5222.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	59.640	59.640	59.640	440.00	26241.60	26241.60	26241.60	PM15001
			Pneumatic breaker	hour	62.832	62.832	62.832	206.00	12943.39	12943.39	12943.39	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	40.448	40.448	40.448	206.00	8332.29	8332.29	8332.29	PM4001
			Consumables in protected blasting @ 10 percent of (c)						4751.73	4751.73	4751.73	
			Add for dewatering @ of 15 percent of (a+b+c), if required						9335.79	9335.79	9335.79	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		15747.03	15747.03	15747.03	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		9448.22	9448.22	9448.22	
			Rate per metre = (a+b+c+d+e)						103930.38	103930.38	103930.38	
								Say	**103930.40**	**103930.40**	**103930.40**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.16		**E**	**Extra over item no. 12.16 (A) or (B) irrespective of depth for sinking in Rock bouldery strata (10m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.730	0.730	0.730	397.00	289.81	289.81	289.81	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	14.000	14.000	14.000	373.00	5222.00	5222.00	5222.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	130.900	130.900	130.900	440.00	57596.00	57596.00	57596.00	PM15001
			Pneumatic breaker	hour	261.799	261.799	261.799	206.00	53930.59	53930.59	53930.59	PM4001
			Consumables in sinking @5 percent of (b)						5576.33	5576.33	5576.33	
			Add for dewatering @ of 15 percent of (a+b), if required						17836.19	17836.19	17836.19	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		28945.88	28945.88	28945.88	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		17367.53	17367.53	17367.53	
			Rate per metre = (a+b+c+d)						191042.83	191042.83	191042.83	
									191042.80	**191042.80**	**191042.80**	
12.17	**Section 1200**		**Sinking of 11 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running Meter.									
			Taking output=0.5m									
			Diameter of well-11m.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		A	**Sandy Soil**									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.15 m/ hour.									
			a) Labour									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	3.300	3.300	3.300	388.00	1280.40	1280.40	1280.40	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Consumables in sinking @10 percent of (b)						481.80	481.80	481.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1472.88	1472.88	1472.88	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		883.73	883.73	883.73	
			Cost for 0.50m = a+b+c+d						9721.04	9721.04	9721.04	
			Rate per metre = (a+b+c+d)/0.5						19442.08	19442.08	19442.08	
								Say	**19442.10**	**19442.10**	**19442.10**	
12.17 A		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.13 m per hour.									
			a) Labour									
			Mate	day	0.260	0.260	0.260	397.00	103.22	103.22	103.22	L-12
			Sinker (skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			Sinking helper (semi-skilled)	day	4.500	4.500	4.500	388.00	1746.00	1746.00	1746.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	4.000	4.000	4.000	803.00	3212.00	3212.00	3212.00	PM67001
			Consumables in sinking @10 percent of (b)						321.20	321.20	321.20	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1265.28	1265.28	1265.28	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		759.17	759.17	759.17	
			Cost for 0.50m = a+b+c+d						8350.87	8350.87	8350.87	
			Rate per metre = (a+b+c+d)/0.5						16701.75	16701.75	16701.75	
								Say	**16701.70**	**16701.70**	**16701.70**	
12.17 A		(iii)	**Beyond 10m upto 20m**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	17536.79	17536.79	17536.79	
			12m					5%	18413.62	18413.62	18413.62	
			13m					5%	19334.31	19334.31	19334.31	
			14m					5%	20301.02	20301.02	20301.02	
			15m					5%	21316.07	21316.07	21316.07	
			16m					5%	22381.88	22381.88	22381.88	
			17m					5%	23500.97	23500.97	23500.97	
			18m					5%	24676.02	24676.02	24676.02	
			19m					5%	25909.82	25909.82	25909.82	
			20m					5%	27205.31	27205.31	27205.31	
12.17 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	29245.71	29245.71	29245.71	
			22m					7.50%	31439.14	31439.14	31439.14	
			23m					7.50%	33797.07	33797.07	33797.07	
			24m					7.50%	36331.85	36331.85	36331.85	
			25m					7.50%	39056.74	39056.74	39056.74	
			26m					7.50%	41986.00	41986.00	41986.00	
			27m					7.50%	45134.95	45134.95	45134.95	
			28m					7.50%	48520.07	48520.07	48520.07	
			29m					7.50%	52159.07	52159.07	52159.07	
			30m					7.50%	56071.00	56071.00	56071.00	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.17 A		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			31m					10%	61678.10	61678.10	61678.10	
			32m					10%	67845.91	67845.91	67845.91	
			33m					10%	74630.50	74630.50	74630.50	
			34m					10%	82093.55	82093.55	82093.55	
			35m					10%	90302.91	90302.91	90302.91	
			36m					10%	99333.20	99333.20	99333.20	
			37m					10%	109266.52	109266.52	109266.52	
			38m					10%	120193.17	120193.17	120193.17	
			39m					10%	132212.49	132212.49	132212.49	
			40m					10%	145433.74	145433.74	145433.74	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.17		B	**Clayey Soil (11 m dia. Well)**									
			Unit = Running Meter.									
			Taking output = 0.5 meter									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.10 m per hour.									
			a) Labour									
			Mate	day	0.260	0.260	0.260	397.00	103.22	103.22	103.22	L-12
			Sinker (skilled)	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.000	5.000	5.000	803.00	4015.00	4015.00	4015.00	PM67001
			Consumables in sinking @10 percent of (b)						401.50	401.50	401.50	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1450.34	1450.34	1450.34	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		870.21	870.21	870.21	
			Cost for 0.5m= a+b+c+d						9572.27	9572.27	9572.27	
			Rate per metre = (a+b+c+d)/0.5						19144.54	19144.54	19144.54	
								Say	**19144.50**	**19144.50**	**19144.50**	
12.17 B		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking @ 0.08 m/ hour.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.370	0.370	0.370	397.00	146.89	146.89	146.89	L-12
			Sinker	day	3.500	3.500	3.500	472.00	1652.00	1652.00	1652.00	L-15
			Sinking helper (semi-skilled)	day	5.750	5.750	5.750	388.00	2231.00	2231.00	2231.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	4.250	4.250	4.250	440.00	1870.00	1870.00	1870.00	PM15001
			Consumables in sinking @ 10 percent of (b)						668.80	668.80	668.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2277.34	2277.34	2277.34	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1366.40	1366.40	1366.40	
			Cost for 0.5m= a+b+c+d						15030.43	15030.43	15030.43	
			Rate per metre = (a+b+c+d)/0.5						30060.86	30060.86	30060.86	
								Say	**30060.90**	**30060.90**	**30060.90**	
12.17 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	31563.95	31563.95	31563.95	
			12m					5%	33142.14	33142.14	33142.14	
			13m					5%	34799.25	34799.25	34799.25	
			14m					5%	36539.21	36539.21	36539.21	
			15m					5%	38366.17	38366.17	38366.17	
			16m					5%	40284.48	40284.48	40284.48	
			17m					5%	42298.71	42298.71	42298.71	
			18m					5%	44413.64	44413.64	44413.64	
			19m					5%	46634.32	46634.32	46634.32	
			20m					5%	48966.04	48966.04	48966.04	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.17 B		**(iv)**	**Beyond 20m upto 30m**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	52638.49	52638.49	52638.49	
			22m					7.50%	56586.38	56586.38	56586.38	
			23m					7.50%	60830.36	60830.36	60830.36	
			24m					7.50%	65392.63	65392.63	65392.63	
			25m					7.50%	70297.08	70297.08	70297.08	
			26m					7.50%	75569.36	75569.36	75569.36	
			27m					7.50%	81237.06	81237.06	81237.06	
			28m					7.50%	87329.84	87329.84	87329.84	
			29m					7.50%	93879.58	93879.58	93879.58	
			30m					7.50%	100920.55	100920.55	100920.55	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.17 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	111012.61	111012.61	111012.61	
			32m					10%	122113.87	122113.87	122113.87	
			33m					10%	134325.25	134325.25	134325.25	
			34m					10%	147757.78	147757.78	147757.78	
			35m					10%	162533.56	162533.56	162533.56	
			36m					10%	178786.91	178786.91	178786.91	
			37m					10%	196665.60	196665.60	196665.60	
			38m					10%	216332.16	216332.16	216332.16	
			39m					10%	237965.38	237965.38	237965.38	
			40m					10%	261761.92	261761.92	261761.92	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.17		C	**Extra over item no. 12.17 (A) or (B) irrespective of depth for sinking in soft Rock 11m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.890	0.890	0.890	397.00	353.33	353.33	353.33	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	18.000	18.000	18.000	373.00	6714.00	6714.00	6714.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	95.033	95.033	95.033	440.00	41814.52	41814.52	41814.52	PM15001
			Pneumatic breaker	hour	190.066	190.066	190.066	206.00	39153.60	39153.60	39153.60	PM4001
			Consumables in sinking @5 percent of (b)						4048.41	4048.41	4048.41	
			Add for dewatering @ of 15 percent of (a+b), if required						13485.74	13485.74	13485.74	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		21969.62	21969.62	21969.62	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		13181.77	13181.77	13181.77	
			Rate per metre = (a+b+c+d)						144999.48	144999.48	144999.48	
								Say	**144999.50**	**144999.50**	**144999.50**	
12.17		D	**Extra over item no. 12.17 (A) or (B) irrespective of depth for sinking in Hard Rock (11m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	19.007	19.007	19.007	128.00	2432.90	2432.90	2432.90	M-215
			Electric detonators	no	101.000	101.000	101.000	6.56	662.56	662.56	662.56	M-217
			Detonating fuse coil	m	314.000	314.000	314.000	15.00	4710.00	4710.00	4710.00	M-218
			b) Labour									
			Mate	day	0.900	0.900	0.900	397.00	357.30	357.30	357.30	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	16.000	16.000	16.000	373.00	5968.00	5968.00	5968.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	70.484	70.484	70.484	440.00	31012.96	31012.96	31012.96	PM15001
			Pneumatic breaker	hour	76.027	76.027	76.027	206.00	15661.56	15661.56	15661.56	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	48.942	48.942	48.942	206.00	10082.05	10082.05	10082.05	PM4001
			Consumables in protected blasting @ 10 percent of (c)						5675.66	5675.66	5675.66	
			Add for dewatering @ of 15 percent of (a+b+c), if required						11053.14	11053.14	11053.14	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		18565.07	18565.07	18565.07	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		11139.04	11139.04	11139.04	
			Rate per metre = (a+b+c+d+e)						122529.49	122529.49	122529.49	
								Say	**122529.50**	**122529.50**	**122529.50**	
12.17		**E**	**Extra over item no. 12.17 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (11m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.810	0.810	0.810	397.00	321.57	321.57	321.57	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	16.000	16.000	16.000	373.00	5968.00	5968.00	5968.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	158.389	158.389	158.389	440.00	69691.16	69691.16	69691.16	PM15001
			Pneumatic breaker	hour	316.777	316.777	316.777	206.00	65256.06	65256.06	65256.06	PM4001
			Consumables in sinking @5 percent of (b)						6747.36	6747.36	6747.36	
			Add for dewatering @ of 15 percent of (a+b), if required						21465.94	21465.94	21465.94	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		34745.72	34745.72	34745.72	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		20847.43	20847.43	20847.43	
			Rate per metre = (a+b+c+d)						229321.75	229321.75	229321.75	
								Say	**229321.70**	**229321.70**	**229321.70**	
12.18	**Section 1200**		**Sinking of 12m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running Meter.									
			Taking output=0.25m									
			Diameter of well-12m.									
		A	**Sandy Soil**									
		(i)	**Depth below bed level upto 3.0 M**									
			Rate of sinking @ 0.05 m/ hour.									
			a) Labour									
			Mate	day	0.230	0.230	0.230	397.00	91.31	91.31	91.31	L-12
			Sinker (skilled)	day	1.750	1.750	1.750	472.00	826.00	826.00	826.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.000	6.000	6.000	803.00	4818.00	4818.00	4818.00	PM67001
			Consumables in sinking @10 percent of (b)						481.80	481.80	481.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1553.82	1553.82	1553.82	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		932.29	932.29	932.29	
			Cost for 0.25m= a+b+c+d						10255.23	10255.23	10255.23	
			Rate per metre = (a+b+c+d)/0.25						41020.90	41020.90	41020.90	
								Say	**41020.90**	**41020.90**	**41020.90**	
12.18 A		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking = 0.038 m per hour.									
			a) Labour									
			Mate	day	0.290	0.290	0.290	397.00	115.13	115.13	115.13	L-12
			Sinker (skilled)	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	4.750	4.750	4.750	388.00	1843.00	1843.00	1843.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.500	6.500	6.500	803.00	5219.50	5219.50	5219.50	PM67001
			Consumables in sinking @10 percent of (b)						521.95	521.95	521.95	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1775.92	1775.92	1775.92	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1065.55	1065.55	1065.55	
			Cost for 0.25m= a+b+c+d						11721.05	11721.05	11721.05	
			Rate per metre = (a+b+c+d)/0.25						46884.18	46884.18	46884.18	
								Say	**46884.20**	**46884.20**	**46884.20**	
12.18 A		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	49228.41	49228.41	49228.41	
			12m					5%	51689.83	51689.83	51689.83	
			13m					5%	54274.32	54274.32	54274.32	
			14m					5%	56988.04	56988.04	56988.04	
			15m					5%	59837.44	59837.44	59837.44	
			16m					5%	62829.31	62829.31	62829.31	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			17m					5%	65970.78	65970.78	65970.78	
			18m					5%	69269.32	69269.32	69269.32	
			19m					5%	72732.78	72732.78	72732.78	
			20m					5%	76369.42	76369.42	76369.42	
12.18 A		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	82097.13	82097.13	82097.13	
			22m					7.50%	88254.41	88254.41	88254.41	
			23m					7.50%	94873.49	94873.49	94873.49	
			24m					7.50%	101989.01	101989.01	101989.01	
			25m					7.50%	109638.18	109638.18	109638.18	
			26m					7.50%	117861.04	117861.04	117861.04	
			27m					7.50%	126700.62	126700.62	126700.62	
			28m					7.50%	136203.17	136203.17	136203.17	
			29m					7.50%	146418.41	146418.41	146418.41	
			30m					7.50%	157399.79	157399.79	157399.79	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.18 A		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	173139.77	173139.77	173139.77	
			32m					10%	190453.74	190453.74	190453.74	
			33m					10%	209499.12	209499.12	209499.12	
			34m					10%	230449.03	230449.03	230449.03	
			35m					10%	253493.93	253493.93	253493.93	
			36m					10%	278843.33	278843.33	278843.33	
			37m					10%	306727.66	306727.66	306727.66	
			38m					10%	337400.42	337400.42	337400.42	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			39m					10%	371140.47	371140.47	371140.47	
			40m					10%	408254.51	408254.51	408254.51	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.18		**B**	**Clayey Soil (12 m dia. Well)**									
			Unit = Running Meter.									
			Taking output = 0.25metre									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.04 m per hour.									
			a) Labour									
			Mate	day	0.300	0.300	0.300	397.00	119.10	119.10	119.10	L-12
			Sinker (skilled)	day	3.000	3.000	3.000	472.00	1416.00	1416.00	1416.00	L-15
			Sinking helper (semi-skilled)	day	4.500	4.500	4.500	388.00	1746.00	1746.00	1746.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.250	6.250	6.250	803.00	5018.75	5018.75	5018.75	PM67001
			Consumables in sinking @10 percent of (b)						501.88	501.88	501.88	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1760.35	1760.35	1760.35	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1056.21	1056.21	1056.21	
			Cost for 0.25m=a+b+c+d						11618.28	11618.28	11618.28	
			Rate per metre = (a+b+c+d)/0.25						46473.11	46473.11	46473.11	
								Say	**46473.10**	**46473.10**	**46473.10**	
12.18 B		**(ii)**	**Beyond 3m upto 10m depth**									
			Rate of sinking @ 0.03 m/ hour.									
			a) Labour									
			Mate	day	0.390	0.390	0.390	397.00	154.83	154.83	154.83	L-12
			Sinker	day	3.750	3.750	3.750	472.00	1770.00	1770.00	1770.00	L-15
			Sinking helper (semi-skilled)	day	6.000	6.000	6.000	388.00	2328.00	2328.00	2328.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	8.330	8.330	8.330	803.00	6688.99	6688.99	6688.99	PM67001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	4.500	4.500	4.500	440.00	1980.00	1980.00	1980.00	PM15001
			Consumables in sinking @ 10 percent of (b)						866.90	866.90	866.90	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2757.74	2757.74	2757.74	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1654.65	1654.65	1654.65	
			Cost for 0.25m=a+b+c+d						18201.11	18201.11	18201.11	
			Rate per metre = (a+b+c+d)/0.25						72804.44	72804.44	72804.44	
								Say	**72804.40**	**72804.40**	**72804.40**	
12.18 B		**(iii)**	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	76444.62	76444.62	76444.62	
			12m					5%	80266.85	80266.85	80266.85	
			13m					5%	84280.19	84280.19	84280.19	
			14m					5%	88494.20	88494.20	88494.20	
			15m					5%	92918.91	92918.91	92918.91	
			16m					5%	97564.86	97564.86	97564.86	
			17m					5%	102443.10	102443.10	102443.10	
			18m					5%	107565.26	107565.26	107565.26	
			19m					5%	112943.52	112943.52	112943.52	
			20m					5%	118590.70	118590.70	118590.70	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.18 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	127485.00	127485.00	127485.00	
			22m					7.50%	137046.37	137046.37	137046.37	
			23m					7.50%	147324.85	147324.85	147324.85	
			24m					7.50%	158374.21	158374.21	158374.21	
			25m					7.50%	170252.28	170252.28	170252.28	
			26m					7.50%	183021.20	183021.20	183021.20	

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			27m					7.50%	196747.79	196747.79	196747.79	
			28m					7.50%	211503.88	211503.88	211503.88	
			29m					7.50%	227366.67	227366.67	227366.67	
			30m					7.50%	244419.17	244419.17	244419.17	
		b	Add 5 percent of cost for dewatering of the cost (on a), if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.18 B		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	268861.08	268861.08	268861.08	
			32m					10%	295747.19	295747.19	295747.19	
			33m					10%	325321.91	325321.91	325321.91	
			34m					10%	357854.10	357854.10	357854.10	
			35m					10%	393639.51	393639.51	393639.51	
			36m					10%	433003.46	433003.46	433003.46	
			37m					10%	476303.81	476303.81	476303.81	
			38m					10%	523934.19	523934.19	523934.19	
			39m					10%	576327.61	576327.61	576327.61	
			40m					10%	633960.37	633960.37	633960.37	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									
12.18		**C**	**Extra over item no. 12.18 (A) or (B) irrespective of depth for sinking in soft Rock (12m dia well)**									
			Unit=Running Meter.									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Taking output=1m									
			a) Labour									
			Mate	day	0.970	0.970	0.970	397.00	385.09	385.09	385.09	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	20.000	20.000	20.000	373.00	7460.00	7460.00	7460.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	113.097	113.097	113.097	440.00	49762.68	49762.68	49762.68	PM15001
			Pneumatic breaker	hour	226.195	226.195	226.195	206.00	46596.17	46596.17	46596.17	PM4001
			Consumables in sinking @5 percent of (b)						4817.94	4817.94	4817.94	
			Add for dewatering @ of 15 percent of (a+b), if required						15911.02	15911.02	15911.02	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		25842.28	25842.28	25842.28	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		15505.37	15505.37	15505.37	
			Rate per metre = (a+b+c+d)						170559.05	170559.05	170559.05	
								Say	**170559.00**	**170559.00**	**170559.00**	
12.18		**D**	**Extra over item no. 12.18 (A) or (B) irrespective of depth for sinking in Hard Rock (12m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	22.619	22.619	22.619	128.00	2895.23	2895.23	2895.23	M-215
			Electric detonators	no	122.000	122.000	122.000	6.56	800.32	800.32	800.32	M-217
			Detonating fuse coil	m	379.000	379.000	379.000	15.00	5685.00	5685.00	5685.00	M-218
			b) Labour									
			Mate	day	0.980	0.980	0.980	397.00	389.06	389.06	389.06	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	18.000	18.000	18.000	373.00	6714.00	6714.00	6714.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	82.361	82.361	82.361	440.00	36238.84	36238.84	36238.84	PM15001
			Pneumatic breaker	hour	90.478	90.478	90.478	206.00	18638.47	18638.47	18638.47	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	58.245	58.245	58.245	206.00	11998.47	11998.47	11998.47	PM4001
			Consumables in protected blasting @ 10 percent of (c)						6687.58	6687.58	6687.58	
			Add for dewatering @ of 15 percent of (a+b+c), if required						12923.95	12923.95	12923.95	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		21636.03	21636.03	21636.03	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		12981.62	12981.62	12981.62	
			Rate per metre = (a+b+c+d+e)						142797.82	142797.82	142797.82	
								Say	**142797.80**	**142797.80**	**142797.80**	
12.18		**E**	**Extra over item no. 12.18 (A) & (B) irrespective of depth for sinking in Rock bouldery strata (12m dia well)**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.890	0.890	0.890	397.00	353.33	353.33	353.33	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	18.000	18.000	18.000	373.00	6714.00	6714.00	6714.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	188.496	188.496	188.496	440.00	82938.24	82938.24	82938.24	PM15001
			Pneumatic breaker	hour	376.991	376.991	376.991	206.00	77660.15	77660.15	77660.15	PM4001
			Consumables in sinking @5 percent of (b)						8029.92	8029.92	8029.92	
			Add for dewatering @ of 15 percent of (a+b), if required						25430.28	25430.28	25430.28	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		41080.88	41080.88	41080.88	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		24648.53	24648.53	24648.53	
			Rate per metre = (a+b+c+d)						271133.83	271133.83	271133.83	
								Say	**271133.80**	**271133.80**	**271133.80**	
12.19	**1200**		**Sinking of Twin D Type well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**									
			Unit=Running Meter.									
			Taking output=1m									
			Dimensions of well-12m.									
			Overall length=12m									
			Overall width=6m									
		A	**Sandy Soil**									
		(i)	**Depth from bed level upto 3.0 M**									
			Rate of sinking @ 0.18 m/ hour.									
			a) Labour									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Sinker (skilled)	day	1.250	1.250	1.250	472.00	590.00	590.00	590.00	L-15
			Sinking helper (semi-skilled)	day	3.750	3.750	3.750	388.00	1455.00	1455.00	1455.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.500	5.500	5.500	803.00	4416.50	4416.50	4416.50	PM67001
			Consumables in sinking @10 percent of (b)						441.65	441.65	441.65	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1396.51	1396.51	1396.51	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		837.91	837.91	837.91	
			Rate per metre = (a+b+c+d)						9216.97	9216.97	9216.97	
								Say	**9217.00**	**9217.00**	**9217.00**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.19 A		(ii)	**Beyond 3m upto 10m depth**									
			Rate of sinking @ 0.17 m/hour									
			a) Labour									
			Mate	day	0.220	0.220	0.220	397.00	87.34	87.34	87.34	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	5.880	5.880	5.880	803.00	4721.64	4721.64	4721.64	PM67001
			Consumables in sinking @10 percent of (b)						472.16	472.16	472.16	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1508.23	1508.23	1508.23	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		904.94	904.94	904.94	
			Rate per metre = (a+b+c+d)						9954.31	9954.31	9954.31	
								Say	**9954.30**	**9954.30**	**9954.30**	
12.19 A		(iii)	**Beyond 10m upto 20m**									
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5.00%	10452.02	10452.02	10452.02	
			12m					5.00%	10974.62	10974.62	10974.62	
			13m					5.00%	11523.35	11523.35	11523.35	
			14m					5.00%	12099.51	12099.51	12099.51	
			15m					5.00%	12704.49	12704.49	12704.49	
			16m					5.00%	13339.71	13339.71	13339.71	
			17m					5.00%	14006.70	14006.70	14006.70	
			18m					5.00%	14707.03	14707.03	14707.03	
			19m					5.00%	15442.39	15442.39	15442.39	
			20m					5.00%	16214.51	16214.51	16214.51	
12.19 A		(iv)	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.50%	17430.59	17430.59	17430.59	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			22m					7.50%	18737.89	18737.89	18737.89	
			23m					7.50%	20143.23	20143.23	20143.23	
			24m					7.50%	21653.97	21653.97	21653.97	
			25m					7.50%	23278.02	23278.02	23278.02	
			26m					7.50%	25023.87	25023.87	25023.87	
			27m					7.50%	26900.66	26900.66	26900.66	
			28m					7.50%	28918.21	28918.21	28918.21	
			29m					7.50%	31087.08	31087.08	31087.08	
			30m					7.50%	33418.61	33418.61	33418.61	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.19 A		**(v)**	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	36760.47	36760.47	36760.47	
			32m					10%	40436.52	40436.52	40436.52	
			33m					10%	44480.17	44480.17	44480.17	
			34m					10%	48928.18	48928.18	48928.18	
			35m					10%	53821.00	53821.00	53821.00	
			36m					10%	59203.10	59203.10	59203.10	
			37m					10%	65123.41	65123.41	65123.41	
			38m					10%	71635.75	71635.75	71635.75	
			39m					10%	78799.33	78799.33	78799.33	
			40m					10%	86679.26	86679.26	86679.26	
		b	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour etc.									
12.19		**B**	**Clayey Soil (Twin D Type Well)**									
			Unit = Running Meter.									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 1 meter									
		(i)	**Depth below bed level upto 3.0 M**									
			Rate of sinking 0.16m/ hour.									
			a) Labour									
			Mate	day	0.260	0.260	0.260	397.00	103.22	103.22	103.22	L-12
			Sinker (skilled)	day	2.500	2.500	2.500	472.00	1180.00	1180.00	1180.00	L-15
			Sinking helper (semi-skilled)	day	4.000	4.000	4.000	388.00	1552.00	1552.00	1552.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.250	6.250	6.250	803.00	5018.75	5018.75	5018.75	PM67001
			Consumables in sinking @10 percent of (b)						501.88	501.88	501.88	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1671.17	1671.17	1671.17	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1002.70	1002.70	1002.70	
			Rate per metre = (a+b+c+d)						11029.72	11029.72	11029.72	
								Say	**11029.70**	**11029.70**	**11029.70**	
12.19 B		(ii)	**Beyond 3m upto 10m depth** Rate of sinking @ 0.15 m/ hour.									
			a) Labour									
			Mate	day	0.370	0.370	0.370	397.00	146.89	146.89	146.89	L-12
			Sinker	day	3.250	3.250	3.250	472.00	1534.00	1534.00	1534.00	L-15
			Sinking helper (semi-skilled)	day	6.000	6.000	6.000	388.00	2328.00	2328.00	2328.00	L-14
			b) Machinery									
			Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories.	hour	6.670	6.670	6.670	803.00	5356.01	5356.01	5356.01	PM67001
			Air compressor with pneumatic chisel attachment for cutting hard clay.	hour	4.500	4.500	4.500	440.00	1980.00	1980.00	1980.00	PM15001
			Consumables in sinking @ 10 percent of (b)						733.60	733.60	733.60	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2415.70	2415.70	2415.70	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1449.42	1449.42	1449.42	
			Rate per metre = (a+b+c+d)						15943.62	15943.62	15943.62	
								Say	**15943.60**	**15943.60**	**15943.60**	
12.19 B		(iii)	**Beyond 10m upto 20m**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		a	Add 5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			11m					5%	16740.78	16740.78	16740.78	
			12m					5%	17577.82	17577.82	17577.82	
			13m					5%	18456.71	18456.71	18456.71	
			14m					5%	19379.55	19379.55	19379.55	
			15m					5%	20348.52	20348.52	20348.52	
			16m					5%	21365.95	21365.95	21365.95	
			17m					5%	22434.25	22434.25	22434.25	
			18m					5%	23555.96	23555.96	23555.96	
			19m					5%	24733.76	24733.76	24733.76	
			20m					5%	25970.44	25970.44	25970.44	
		b	Add for dewatering @ 5 percent of cost (on a), if required.									
12.19 B		**(iv)**	**Beyond 20m upto 30m**									
		a	Add 7.5 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			21m					7.5%	27918.23	27918.23	27918.23	
			22m					7.5%	30012.09	30012.09	30012.09	
			23m					7.5%	32263.00	32263.00	32263.00	
			24m					7.5%	34682.73	34682.73	34682.73	
			25m					7.5%	37283.93	37283.93	37283.93	
			26m					7.5%	40080.23	40080.23	40080.23	
			27m					7.5%	43086.24	43086.24	43086.24	
			28m					7.5%	46317.71	46317.71	46317.71	
			29m					7.5%	49791.54	49791.54	49791.54	
			30m					7.5%	53525.91	53525.91	53525.91	
		b	Add 5 percent of cost (on a) for dewatering of the cost, if required									
		c	Add 25 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour).									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.19 B		(v)	**Beyond 30m upto 40m**									
		a	Add 10 percent for every additional meter depth of sinking over the rate of sinking for the previous meter									
			31m					10%	58878.50	58878.50	58878.50	
			32m					10%	64766.35	64766.35	64766.35	
			33m					10%	71242.98	71242.98	71242.98	
			34m					10%	78367.28	78367.28	78367.28	
			35m					10%	86204.01	86204.01	86204.01	
			36m					10%	94824.41	94824.41	94824.41	
			37m					10%	104306.85	104306.85	104306.85	
			38m					10%	114737.53	114737.53	114737.53	
			39m					10%	126211.29	126211.29	126211.29	
			40m					10%	138832.41	138832.41	138832.41	
		b	Add 5 percent of cost (on a) for dewatering, if required									
		c	Add 20 percent of cost (on a) for Kentledge including supports, loading arrangement and Labour.									
12.19		C	**Extra over item no. 12.19 (A) or (B) irrespective of depth for sinking in soft Rock**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.730	0.730	0.730	397.00	289.81	289.81	289.81	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	14.000	14.000	14.000	373.00	5222.00	5222.00	5222.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	64.274	64.274	64.274	440.00	28280.56	28280.56	28280.56	PM15001
			Pneumatic breaker	hour	128.549	128.549	128.549	206.00	26481.09	26481.09	26481.09	PM4001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Consumables in sinking @5 percent of (b)						2738.08	2738.08	2738.08	
			Add for dewatering @ of 15 percent of (a+b), if required						9321.44	9321.44	9321.44	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		15322.30	15322.30	15322.30	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		9193.38	9193.38	9193.38	
			Rate per metre = (a+b+c+d)						101127.17	101127.17	101127.17	
								Say	**101127.20**	**101127.20**	**101127.20**	
12.19		**D**	**Extra over item no. 12.19 (A) or (B) irrespective of depth for sinking in Hard Rock**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Material									
			Small dia Explosive at 0.20 kg/cum	kg	12.855	12.855	12.855	128.00	1645.44	1645.44	1645.44	M-215
			Electric detonators	no	72.000	72.000	72.000	6.56	472.32	472.32	472.32	M-217
			Detonating fuse coil	m	224.000	224.000	224.000	15.00	3360.00	3360.00	3360.00	M-218
			b) Labour									
			Mate	day	0.740	0.740	0.740	397.00	293.78	293.78	293.78	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			c) Machinery									
			Air Compressor 250 cfm	hour	50.260	50.260	50.260	440.00	22114.40	22114.40	22114.40	PM15001
			Pneumatic breaker	hour	51.419	51.419	51.419	206.00	10592.31	10592.31	10592.31	PM4001
			Pneumatic breaker for drilling holes @ 4.5 m per hour)	hour	33.101	33.101	33.101	206.00	6818.81	6818.81	6818.81	PM4001
			Consumables in protected blasting @ 10 percent of (c)						3952.55	3952.55	3952.55	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add for dewatering @ of 15 percent of (a+b+c), if required						7886.00	7886.00	7886.00	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		13364.17	13364.17	13364.17	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8018.50	8018.50	8018.50	
			Rate per metre = (a+b+c+d+e)						88203.53	88203.53	88203.53	
								Say	**88203.50**	**88203.50**	**88203.50**	
12.19		**E**	**Extra over item no. 12.19 (A) & (B) irrespective of depth for sinking in Rock bouldery strata**									
			Unit=Running Meter.									
			Taking output=1m									
			a) Labour									
			Mate	day	0.650	0.650	0.650	397.00	258.05	258.05	258.05	L-12
			Sinker (skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Sinking helper (semi-skilled)	day	2.250	2.250	2.250	388.00	873.00	873.00	873.00	L-14
			Diver	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-07
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	107.124	107.124	107.124	440.00	47134.56	47134.56	47134.56	PM15001
			Pneumatic breaker	hour	214.248	214.248	214.248	206.00	44135.09	44135.09	44135.09	PM4001
			Consumables in sinking @5 percent of (b)						4563.48	4563.48	4563.48	
			Add for dewatering @ of 15 percent of (a+b), if required						14680.98	14680.98	14680.98	
			Additional Hire & running charges for shifting of crane (rock breaking time) with grab bucket of 0.75 cum capacity and accessories.	hour	3.000	3.000	3.000	803.00	2409.00	2409.00	2409.00	PM67001
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		23905.33	23905.33	23905.33	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		14343.20	14343.20	14343.20	
			Rate per metre = (a+b+c+d)						157775.19	157775.19	157775.19	
								Say	**157775.20**	**157775.20**	**157775.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
12.20	1200	**Pneumatic sinking of wells with equipment of approved design, drawing and specifications worked by competent and trained personnel and comprising of compression and decompression chambers, reducers, two air locks separately for men and plant & materials, arrangement for supply of fresh air to working chambers, check valves, exhaust valves, shafts made from steel plates of riveted construction not less than 6 mm thick to withstand an air pressure of 0.50 MPa, controlled blasting of hard rock where required, staircases and 1 m wide landing platforms with railing, arrangement for compression and decompression, electric lighting of 50 V maximum, proper rooms for rest and medical examinations and compliance with safety precautions as per IS:4138, all as per clause1208.8 of MoRTH Specifications.**									
		Unit= cum									
		Taking output= 5 cum									
		a) Material									
		M35 grade RCC corbel provided for supporting of equipment (Dimensions as per ground conditions). Rate for concrete may be adopted vide Item no. 12.08 (H) Case-I	cum	8.000	8.000	8.000	4479.86 L 4484.09 M 4502.04 S	35839.20	35872.80	36016.00	12.08 H
		HYSD bar reinforcement in corbel	tonne	0.480	0.480	0.480	58030.00	27854.40	27854.40	27854.40	M-083
		Blasting material									
		Explosives	kg	1.500	1.500	1.500	128.00	192.00	192.00	192.00	M-215
		Electric detonators	each	6.000	6.000	6.000	6.56	39.36	39.36	39.36	M-217
		b) Labour									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mate	day	1.880	1.880	1.880	397.00	746.36	746.36	746.36	L-12
		Driller	day	1.000	1.000	1.000	388.00	388.00	388.00	388.00	L-06
		Blaster	day	0.500	0.500	0.500	619.00	309.50	309.50	309.50	L-03
		Mazdoor (for cutting, blasting, cleaning, removal of Material etc.)	day	30.000	30.000	30.000	373.00	11190.00	11190.00	11190.00	L-13
		Mazdoor (Skilled) (for fixation and removal of adopier for air lock, carrying out mechanical and electrical operations and repairs and other skilled jobs.)	day	10.000	10.000	10.000	472.00	4720.00	4720.00	4720.00	L-15
		Diver	day	4.000	4.000	4.000	577.00	2308.00	2308.00	2308.00	L-07
		Medical Officer	day	0.500	0.500	0.500	577.00	288.50	288.50	288.50	L-16
		Para medical personnel	day	1.000	1.000	1.000	577.00	577.00	577.00	577.00	L-19
		c) Machinery									
		(i) Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking.	hour	6.000	6.000	6.000	9080.00	54480.00	54480.00	54480.00	PM69001
		Induction and deinduction	L.S					0.00	0.00	0.00	
		Erection at site and commissioning	L.S					0.00	0.00	0.00	
		Usage of plant and equipment for pneumatic method of well sinking	hour	6.000	6.000	6.000	5462.00	32772.00	32772.00	32772.00	PM39001
		Air compressor 250 cfm, 2 nos.	hour	12.000	12.000	12.000	440.00	5280.00	5280.00	5280.00	PM15001
		Hire and running charges of crane of 15 tonne capacity	hour	6.000	6.000	6.000	966.00	5796.00	5796.00	5796.00	PM63004
		Motorised barge of 20 tonne capacity	hour	6.000	6.000	6.000	764.00	4584.00	4584.00	4584.00	PM66001
		Boat to carry atleast 20 persons	hour	6.000	6.000	6.000	764.00	4584.00	4584.00	4584.00	PM66001
		Electric generating set 33 KVA	hour	6.000	6.000	6.000	519.00	3114.00	3114.00	3114.00	PM22008
		Tipper 10 tonne capacity	hour	6.000	6.000	6.000	1426.00	8556.00	8556.00	8556.00	PM6004
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		40723.66	40730.38	40759.02	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		24434.20	24438.23	24455.41	
		Cost for 5 cum = a+b+c+d+e (see notes below)						268776.18	268820.53	269009.56	
		Rate per cum = (a+b+c+d+e)/5						53755.24	53764.11	53801.91	
							Say	**53755.20**	**53764.10**	**53801.90**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	1.The cost of induction, deinduction and erection of equipment shall be divided by the total quantity of pneumatic sinking for all the wells of a particular bridge to arrive at the per cum rate on account of this item.									
			2.Cost of pneumatic sinking per cum of individual wells will be added to the cost indicated at (1) above to arrive at the final rate of pneumatic sinking per cum.									
			3.The cost of induction and deinduction will depend upon the distance involved for shifting of equipment which may be assessed in individual cases as per actual ground conditions at the time of making of cost estimates.									
			4.In case pneumatic sinking is involved on a dry bed, the provision of barge and boat may be omitted.									
			5.The necessity and dimensions of the corbel will be as per actual ground conditions.									
			6.Small equipments like welding sets, pumps, vibrators, pneumatic tools, portable lamps, fire extinguishers, hose pipes etc., have not been included as the same are covered as items of minor T&P under overhead charges.									
			7.Depth of sinking shall be restricted to 30 m.									
12.21	**1207**		**Sand Filling in Wells complete as per Drawing and Technical Specifications.**									
			Unit = 1 cum									
			Taking output=1 cum									
			a) Material									
			Sand (assuming 20 percent voids)	cum	1.200	1.200	1.200	577.80	693.36	693.36	693.36	M-004*

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		b) Labour									
		Mate	day	0.012	0.012	0.012	397.00	4.76	4.76	4.76	L-12
		Mazdoor	day	0.300	0.300	0.300	373.00	111.90	111.90	111.90	L-13
		c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		162.00	162.00	162.00	
		d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		97.20	97.20	97.20	
		Rate per cum (a+b+c+d)						1069.23	1069.23	1069.23	
							Say	**1069.20**	**1069.20**	**1069.20**	
12.22	**1200 & 1900**	**Providing Steel Liner 10 mm thick for Curbs and 6 mm thick for Steining of Wells including Fabricating and Setting out as per Detailed Drawing.**									
		Unit= MT									
		Taking output= 1 MT									
		a) Material									
		i) Structural steel including 5 percent wastage	tonne	1.050	1.050	1.050	60255.00	63267.75	63267.75	63267.75	M-181
		b) Labour									
		Mate	day	0.800	0.800	0.800	397.00	317.60	317.60	317.60	L-12
		Fitter	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-08
		Blacksmith	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-25
		Welder	day	4.000	4.000	4.000	503.00	2012.00	2012.00	2012.00	L-02
		Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
		Electrodes, cutting gas and other consumables @ 5 percent on cost of (a) above.						3163.39	3163.39	3163.39	
		c) Machinery									
		Hydra Crane of capacity 10T for lifting shifting	hour	8.000	8.000	8.000	931.00	7448.00	7448.00	7448.00	PM63003
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		16556.95	16556.95	16556.95	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		9934.17	9934.17	9934.17	
		Rate for per MT (a+b+c+d+e)						109275.85	109275.85	109275.85	
							Say	**109275.90**	**109275.90**	**109275.90**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.23	1100 & 1700		**Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.**									
			Pile diameter-750 mm									
			Unit = meter									
			Taking output = 25 m									
			a) Materials									
			RCC Grade M35 (including additional concreting of 1m for pile head) Rate for concrete may be adopted vide item no. 12.11 F (iv) . Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv).Concrete to be cast with a tremie pipe 200mm dia.	cum	11.490	11.490	11.490	4479.86 L 4484.09 M 4502.04 S	51473.64	51522.28	51728.47	12.11 F (iv) Case I
			Bentonite	Kg	574.500	574.322	574.322	4.51	2591.00	2590.19	2590.19	M-071
			b) Machinery(for boring and construction)									
			Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.	hour	6.000	6.000	6.000	17283.00	103698.00	103698.00	103698.00	PM38001
			Hire and running charges of light crane for lowering reinforcement cage, tremie pipe, holding tremie pipe for concreting, removal of temporary casing etc.	hour	3.138	3.138	3.138	794.00	2491.57	2491.57	2491.57	PM63001
			Hire and running charges of Bentonite pump	hour	6.000	6.000	6.000	0.00	0.00	0.00	0.00	Rate included inPM38001
			Transit truck agitator									
			For transportation	tonne-km	29.07×L1	29.07×L1	29.07×L1	10.75	312.50	312.50	312.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	0.638	0.638	0.638	1935.00	1234.53	1234.53	1234.53	PM34001
			Front end loader for removing muck									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 3.1 Cum Capacity	hour	0.342			3506.00	1199.05			PM5001
			(ii) 2.1 Cum Capacity	hour		0.504		2095.00		1055.88		PM5002
			(iii) 1 Cum Capacity	hour			1.064	1419.00			1509.82	PM5003
			Tipper For Loading time									
			(i) 18 cum Capacity	hour	0.342			2310.00	790.02			PM6001
			(ii) 14 cum Capacity	hour		0.504		2065.00		1040.76		PM6002
			(iii) 10 cum Capacity	hour			1.064	1847.00			1965.21	PM6003
			For disposal of muck from pile bore hole up to a lead of 1 Km									
			(i) 18 cum capacity	t.km	18.384			4.95	91.00			PM72001
			(ii) 14 cum capacity	t.km		18.378		5.67		104.20		PM73001
			(iii) 10 cum capacity	t.km			18.378	7.04			129.38	PM74001
			c) Labour									
			Mate/Supervisor	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		33048.48	33082.20	33404.15	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		19829.09	19849.32	20042.49	
			Cost for 25 m = a+b+c+d+d+e						218119.96	218342.53	220467.40	
			Rate per metre (a+b+c+d+e)/25						8724.80	8733.70	8818.70	
								Say	**8724.80**	**8733.70**	**8818.70**	
12.24	**1100, 1600 & 1700**		**Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.**									
			Pile diameter-1000 mm									
			Unit* = *meter									
			Taking output* = *25m									
			a) Materials									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			RCC Grade M35 (including additional concreting of 1m for pile head) Rate for concrete may be adopted vide item no. 12.11 F (iv) . Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv).Concrete to be cast with a tremie pipe 200mm dia.	cum	20.420	20.420	20.420	4479.86 L 4484.09 M 4502.04 S	91478.83	91565.28	91931.72	12.11 F (iv) Case I
			Bentonite	Kg	1021.018	1021.018	1021.018	4.51	4604.79	4604.79	4604.79	M-071
			b) Machinery(for boring and construction)									
			Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.	hour	6.000	6.000	6.000	17283.00	103698.00	103698.00	103698.00	PM38001
			Hire and running charges of light crane for lowering reinforcement cage, tremie pipe, holding tremie pipe for concreting, removal of temporary casing etc.	hour	3.634	3.634	3.634	794.00	2885.40	2885.40	2885.40	PM63001
			Hire and running charges of Bentonite pump	hour	6.000	6.000	6.000	0.00	0.00	0.00	0.00	Rate included inPM38001
			Transit truck agitator									
			For transportation	tonne-km	51.05×L1	51.05×L1	51.05×L1	10.75	548.79	548.79	548.79	PM76001
			(6 cum Capacity)									
			For unloading	hour	1.134	1.134	1.134	1935.00	2194.29	2194.29	2194.29	PM34001
			Front end loader for removing muck									
			(i) 3.1 Cum Capacity	hour	0.608			3506.00	2131.65			PM5001
			(ii) 2.1 Cum Capacity	hour		0.896		2095.00		1877.12		PM5002
			(iii) 1 Cum Capacity	hour			1.891	1419.00			2683.33	PM5003
			Tipper For Loading time									
			(i) 18 cum Capacity	hour	0.608			2310.00	1404.48			PM6001
			(ii) 14 cum Capacity	hour		0.896		2065.00		1850.24		PM6002
			(iii) 10 cum Capacity	hour			1.891	1847.00			3492.68	PM6003
			For disposal of muck from pile bore hole up to a lead of 1 Km									
			(i) 18 cum capacity	t.km	32.673			4.95	161.73			PM72001

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 cum capacity	t.km		32.673		5.67		185.26		PM73001
			(iii) 10 cum capacity	t.km			32.673	7.04			230.02	PM74001
			c) Labour									
			Mate/Supervisor	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		42093.81	42154.05	42726.02	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		25256.28	25292.43	25635.61	
			Cost for 25 m = a+b+c+d+d+e						277819.12	278216.72	281991.71	
			Rate per metre (a+b+c+d+e)/25						11112.76	11128.67	11279.67	
								Say	**11112.80**	**11128.70**	**11279.70**	
12.25	**1100 & 1700**		**Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.**									
		A	**Pile diameter-1200 mm**									
			Unit = meter									
			Taking output = 25m									
			a) Materials									
			RCC Grade M35 (including additional concreting of 1m for pile head) Rate for concrete may be adopted vide item no. 12.11 F (iv) . Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv).Concrete to be cast with a tremie pipe 200mm dia.	cum	29.405	29.405	29.405	4479.86 L 4484.09 M 4502.04 S	131730.41	131854.90	132382.57	12.11 F (iv) Case-I
			Bentonite	Kg	1470.265	1470.265	1470.265	4.51	6630.90	6630.90	6630.90	M-071
			b) Machinery(for boring and construction)									
			Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.	hour	7.000	7.000	7.000	17283.00	120981.00	120981.00	120981.00	PM38001

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire and running charges of light crane for lowering reinforcement cage, tremie pipe, holding tremie pipe for concreting, removal of temporary casing etc.	hour	4.134	4.134	4.134	794.00	3282.40	3282.40	3282.40	PM63001
			Hire and running charges of Bentonite pump	hour	7.000	7.000	7.000	0.00	0.00	0.00	0.00	Rate included inPM38001
			Transit truck agitator									
			For transportation	tonne-km	73.53×L1	73.53×L1	73.53×L1	10.75	790.45	790.45	790.45	PM76001
			(6 cum Capacity)									
			For unloading	hour	1.634	1.634	1.634	1935.00	3161.79	3161.79	3161.79	PM34001
			Front end loader for removing muck									
			(i) 3.1 Cum Capacity	hour	0.875			3506.00	3067.75			PM5001
			(ii) 2.1 Cum Capacity	hour		1.290		2095.00		2702.55		PM5002
			(iii) 1 Cum Capacity	hour			2.723	1419.00			3863.94	PM5003
			Tipper For Loading time									
			(i) 18 cum Capacity	hour	0.875			2310.00	2021.25			PM6001
			(ii) 14 cum Capacity	hour		1.290		2065.00		2663.85		PM6002
			(iii) 10 cum Capacity	hour			2.723	1847.00			5029.38	PM6003
			For disposal of muck from pile bore hole up to a lead of 1 Km									
			(i) 18 cum capacity	t.km	47.048			4.95	232.89			PM72001
			(ii) 14 cum capacity	t.km		47.048		5.67		266.76		PM73001
			(iii) 10 cum capacity	t.km			47.048	7.04			331.22	PM74001
			c) Labour									
			Mate/Supervisor	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		54651.98	54739.13	55562.94	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		32791.19	32843.48	33337.77	
			Cost for 25 m = a+b+c+d+d+e						360703.08	361278.28	366715.43	
			Rate per metre (a+b+c+d+e)/25						14428.12	14451.13	14668.62	
								Say	**14428.10**	**14451.10**	**14668.60**	
12.26	**1100 &1700**		**Pile diameter-1500 mm**									
			Unit = meter									
			Taking output = 25m									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		a) Materials									
		RCC Grade M35 (including additional concreting of 1m for pile head) Rate for concrete may be adopted vide item no. 12.11 F (iv) . Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv).Concrete to be cast with a tremie pipe 200mm dia.	cum	45.946	45.946	45.946	4479.86 L 4484.09 M 4502.04 S	205831.85	206026.36	206850.87	12.11 F (iv) Case-I
		Bentonite	Kg	2297.290	2297.290	2297.290	4.51	10360.78	10360.78	10360.78	M-071
		b) Machinery(for boring and construction)									
		Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another.	hour	8.000	8.000	8.000	17283.00	138264.00	138264.00	138264.00	PM38001
		Hire and running charges of light crane for lowering reinforcement cage, tremie pipe, holding tremie pipe for concreting, removal of temporary casing etc.	hour	5.053	5.053	5.053	794.00	4012.08	4012.08	4012.08	PM63001
		Hire and running charges of Bentonite pump	hour	8.000	8.000	8.000	0.00	0.00	0.00	0.00	Rate included inPM38001
		Transit truck agitator									
		For transportation	tonne-km	114.86×L1	114.86×L1	114.86×L1	10.75	1234.75	1234.75	1234.75	PM76001
		(6 cum Capacity)									
		For unloading	hour	2.553	2.553	2.553	1935.00	4940.06	4940.06	4940.06	PM34001
		Front end loader for removing muck									
		(i) 3.1 Cum Capacity	hour	1.367			3506.00	4792.70			PM5001
		(ii) 2.1 Cum Capacity	hour		2.015		2095.00		4221.43		PM5002
		(iii) 1 Cum Capacity	hour			4.254	1419.00			6036.43	PM5003
		Tipper For Loading time									
		(i) 18 cum Capacity	hour	1.367			2310.00	3157.77			PM6001
		(ii) 14 cum Capacity	hour		2.015		2065.00		4160.98		PM6002
		(iii) 10 cum Capacity	hour			4.254	1847.00			7857.14	PM6003
		For disposal of muck from pile bore hole up to a lead of 1 Km									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 18 cum capacity	t.km	73.513			4.95	363.89			PM72001
			(ii) 14 cum capacity	t.km		73.513		5.67		416.82		PM73001
			(iii) 10 cum capacity	t.km			73.513	7.04			517.53	PM74001
			c) Labour									
			Mate/Supervisor	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			d) Overhead charges@ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		74863.79	74999.66	76286.94	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		44918.27	44999.80	45772.16	
			Cost for 25 m = a+b+c+d+d+e						494101.01	494997.78	503493.81	
			Rate per metre (a+b+c+d+e)/25						19764.04	19799.91	20139.75	
								Say	**19764.00**	**19799.90**	**20139.80**	
12.27	**1100 &1700**		**Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-750mm									
			Unit* = *Running meter									
			Taking output* = *40 meter									
			a) Materials									
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	17.660	17.660	17.660	4479.86 L 4484.09 M 4502.04 S	79114.40	79189.17	79506.08	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes for the pile	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of casing head during driving	Kg	50.000	50.000	50.000	48.26	2413.00	2413.00	2413.00	M-174
			c) Machinery									
			Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	17283.00	103698.00	103698.00	103698.00	PM38001

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hire and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing.	hour	0.500	0.500	0.500	831.00	415.50	415.50	415.50	PM63002
			d) Labour									
			Mate/Supervisor	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		39515.35	39530.30	39593.68	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		23709.21	23718.18	23756.21	
			Cost for 40 m = a+b+c+d+d+e+f						260801.30	260899.99	261318.31	
			Rate per metre (a+b+c+d+e+f)/40						6520.03	6522.50	6532.96	
								Say	**6520.00**	**6522.50**	**6533.00**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
			2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.									
12.28	**1100 & 1700**		**Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-1000mm									
			Unit* = *Running meter									
			***Taking output* = 30 meter**									
			a) Materials									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	23.550	23.550	23.550	4479.86 L 4484.09 M 4502.04 S	105500.81	105600.51	106023.11	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes for the pile	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of casing head during driving	Kg	50.000	50.000	50.000	48.26	2413.00	2413.00	2413.00	M-174
			c) Machinery									
			Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	17283.00	103698.00	103698.00	103698.00	PM38001
			Hire and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing.	hour	0.500	0.500	0.500	831.00	415.50	415.50	415.50	PM63002
			Hire and running charges for light crane for lowering reinforcement cage.	hour	0.500	0.500	0.500	794.00	397.00	397.00	397.00	PM63001
			d) Labour									
			Mate/Supervisor	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Mazdoor	day	4.000	4.000	4.000	373.00	1492.00	1492.00	1492.00	L-13
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		44949.81	44969.75	45054.27	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		26969.88	26981.85	27032.56	
			Cost for 30 m = a+b+c+d+d+e+f						296668.71	296800.32	297358.16	
			Rate per metre (a+b+c+d+e+f)/30						9888.96	9893.34	9911.94	
								Say	**9889.00**	**9893.30**	**9911.90**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.									
12.29	1100 & 1700		**Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-1200mm									
			Unit = Running meter									
			Taking output = 20 meter									
			a) Materials									
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	22.610	22.610	22.610	4479.86 L 4484.09 M 4502.04 S	101289.73	101385.45	101791.19	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes for the pile	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet on top of casing head during driving	Kg	50.000	50.000	50.000	48.26	2413.00	2413.00	2413.00	M-174
			c) Machinery									
			Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	17283.00	103698.00	103698.00	103698.00	PM38001
			Hire and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing.	hour	0.500	0.500	0.500	794.00	397.00	397.00	397.00	PM63001
			d) Labour									
			Mate/Supervisor	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	4.500	4.500	4.500	373.00	1678.50	1678.50	1678.50	L-13
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		44063.38	44082.52	44163.67	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		26438.03	26449.51	26498.20	
			Cost for 20 m = a+b+c+d+d+e+f						290818.30	290944.65	291480.22	
			Rate per metre (a+b+c+d+e+f)/20						14540.91	14547.23	14574.01	
								Say	**14540.90**	**14547.20**	**14574.00**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
			2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.									
12.30	**1100 & 1700**		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-500mm									
			Unit* = *Running meter									
			***Taking output* = 60m**									
			a) Materials									
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	11.780	11.780	11.780	4479.86 L 4484.09 M 4502.04 S	52772.80	52822.67	53034.07	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes	Kg	240.000	240.000	240.000	52.45	12588.00	12588.00	12588.00	M-080
			(ii) M.S. shoes	Kg	105.000	105.000	105.000	33.96	3565.80	3565.80	3565.80	M-124

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) Steel helmet and cushion block on top of pile head during driving	Kg	30.000	30.000	30.000	48.26	1447.80	1447.80	1447.80	M-174
			c) Machinery									
			Crane 20 t capacity	hour	6.000	6.000	6.000	1187.00	7122.00	7122.00	7122.00	PM63005
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						1744.68	1745.18	1747.30	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		35475.95	35486.02	35528.72	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		21285.57	21291.61	21317.23	
			Cost for 60 m = a+b+c+d+d+e+f						234141.24	234207.73	234489.56	
			Rate per metre (a+b+c+d+e+f)/60						3902.35	3903.46	3908.16	
								Say	**3902.40**	**3903.50**	**3908.20**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
12.31	**1100 & 1700**		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-750mm									
			Unit = Running meter									
			Taking output = 50m									
			a) Materials									
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	22.080	22.080	22.080	4479.86 L 4484.09 M 4502.04 S	98915.40	99008.88	99405.11	12.11 F (iv) Case-I

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Materials Pile shoes									
			(i) C.I. shoes	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. shoes	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of pile head during driving	Kg	40.000	40.000	40.000	48.26	1930.40	1930.40	1930.40	M-174
			c) Machinery									
			Crane 35 t capacity	hour	6.000	6.000	6.000	1818.00	10908.00	10908.00	10908.00	PM63006
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Mazdoor	day	4.000	4.000	4.000	373.00	1492.00	1492.00	1492.00	L-13
			Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						2194.95	2195.88	2199.85	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		44649.09	44667.98	44748.02	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		26789.46	26800.79	26848.81	
			Cost for 50 m = a+b+c+d+d+e+f						294684.03	294808.65	295336.90	
			Rate per metre (a+b+c+d+e+f)/50						5893.68	5896.17	5906.74	
								Say	**5893.70**	**5896.20**	**5906.70**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
12.32	**1100 & 1700**		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Pile diameter-1000mm									
			Unit* = *Running meter									
			***Taking output* = 40m**									
			a) Materials									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv) Rate for concrete may be adopted same as for pile vide item no. 12.11 F (iv)	cum	31.400	31.400	31.400	4479.86 L 4484.09 M 4502.04 S	140667.74	140800.67	141364.15	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes for the pile	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. shoes @ 35 kg per pile of 15 m	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of pile head during driving	Kg	50.000	50.000	50.000	48.26	2413.00	2413.00	2413.00	M-174
			c) Machinery									
			Crane 50 t capacity	hour	6.000	6.000	6.000	1818.00	10908.00	10908.00	10908.00	PM63006
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						2617.30	2618.63	2624.26	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		53258.33	53285.18	53399.00	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		31955.00	31971.11	32039.40	
			Cost for 40 m = a+b+c+d+d+e+f						351504.96	351682.19	352433.42	
			Rate per metre (a+b+c+d+e+f)/40						8787.62	8792.05	8810.84	
								Say	**8787.60**	**8792.10**	**8810.80**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
12.33	**1100 & 1700**		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Size of pile-300mm×300mm									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Unit = Running meter									
		Taking output = 60m									
		a) Materials									
		RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv)	cum	5.400	5.400	5.400	4479.86 L 4484.09 M 4502.04 S	24191.27	24214.13	24311.03	12.11 F (iv) Case-I
		b) Materials Pile shoes									
		(i) C.I. shoes	Kg	240.000	240.000	240.000	52.45	12588.00	12588.00	12588.00	M-080
		(ii) M.S. shoes	Kg	105.000	105.000	105.000	33.96	3565.80	3565.80	3565.80	M-124
		(iii) Steel helmet and cushion block on top of pile head during driving	Kg	30.000	30.000	30.000	48.26	1447.80	1447.80	1447.80	M-174
		c) Machinery									
		Crane 10 t capacity	hour	6.000	6.000	6.000	931.00	5586.00	5586.00	5586.00	PM63003
		Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
		d) Labour									
		Mate/Supervisor	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						1443.51	1443.74	1444.71	
		e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29392.20	29396.82	29416.40	
		f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17635.32	17638.09	17649.84	
		Cost for 60 m = a+b+c+d+d+e+f						193988.54	194019.02	194148.21	
		Rate per metre (a+b+c+d+e+f)/60						3233.14	3233.65	3235.80	
							Say	**3233.10**	**3233.70**	**3235.80**	
	Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.34	1100 & 1700		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Size of pile-500mm×500mm									
			Unit* = *Running meter									
			Taking output* = *50m									
			a) Materials									
			RCC Grade M35. Rate for concrete may be adopted vide item no. 12.11 F (iv)	cum	12.500	12.500	12.500	4479.86 L 4484.09 M 4502.04 S	55998.30	56051.22	56275.54	12.11 F (iv) Case-I
			b) Materials Pile shoes									
			(i) C.I. shoes	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. shoes	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of pile head during driving	Kg	30.000	30.000	30.000	48.26	1447.80	1447.80	1447.80	M-174
			c) Machinery									
			Crane 20 t capacity	hour	6.000	6.000	6.000	1187.00	7122.00	7122.00	7122.00	PM63005
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Mazdoor	day	4.000	4.000	4.000	373.00	1492.00	1492.00	1492.00	L-13
			Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						1723.09	1723.62	1725.87	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		35117.58	35128.27	35173.58	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		21070.55	21076.96	21104.15	
			Cost for 50 m = a+b+c+d+d+e+f						231776.05	231846.60	232145.66	
			Rate per metre (a+b+c+d+e+f)/50						4635.52	4636.93	4642.91	
								Say	**4635.50**	**4636.90**	**4642.90**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
12.35	**1100 & 1700**		**Driven precast vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**									
			Size of pile-750mm×750mm									
			Unit* = *Running meter									
			Taking output* = *40m									
			a) Materials									
			RCC Grade M35 Rate for concrete may be adopted vide item no. 12.11 F (iv)	cum	22.500	22.500	22.500	4479.86 L 4484.09 M 4502.04 S	100796.95	100892.20	101295.97	12.11 F (iv) Case-I
			b) Material Pile shoes									
			(i) C.I. shoes	Kg	160.000	160.000	160.000	52.45	8392.00	8392.00	8392.00	M-080
			(ii) M.S. shoes	Kg	70.000	70.000	70.000	33.96	2377.20	2377.20	2377.20	M-124
			(iii) Steel helmet and cushion block on top of pile head during driving	Kg	30.000	30.000	30.000	48.26	1447.80	1447.80	1447.80	M-174
			c) Machinery									
			Crane 20 tonne capacity	hour	6.000	6.000	6.000	1187.00	7122.00	7122.00	7122.00	PM63005
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Mazdoor	day	4.500	4.500	4.500	373.00	1678.50	1678.50	1678.50	L-13
			Add 1 percent of (a+b+c) for carriage of piles from casting yard to work site and stacking, and other imponderables during installation.						2171.08	2172.03	2176.07	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		44205.80	44225.04	44306.60	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		26523.48	26535.02	26583.96	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 40 m = a+b+c+d+d+e+f						291758.26	291885.26	292423.56	
			Rate per metre (a+b+c+d+e+f)/40						7293.96	7297.13	7310.59	
								Say	**7294.00**	**7297.10**	**7310.60**	
		Note	1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.									
12.36	**1100 & 1900**		**Driven Vertical Steel Piles complete as per Drawing and & Technical Specification**									
			Section of the pile-H Section steel column 400×250 mm (ISHB Series)									
			Unit* = *Running meter									
			***Taking output* = 70m**									
			a) Materials									
			Structural steel including 5 percent wastage @ 82.20 kg/m	tonnes	6.040	6.040	6.040	60255.00	363940.20	363940.20	363940.20	M-181
			b) Machinery									
			Crane 10 T capacity	hour	6.000	6.000	6.000	931.00	5586.00	5586.00	5586.00	PM63003
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			c) Labour									
			Mate/Supervisor	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Add 0.5 percent of (a+b+c) for providing steel helmet on top of pile head during driving, stacking of piles at site, providing anti-corrosion treatment and other imponderables during installation.						2338.32	2338.32	2338.32	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		94000.63	94000.63	94000.63	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		56400.38	56400.38	56400.38	
			Cost for 70 m = a+b+c+d+d+e						620404.18	620404.18	620404.18	
			Rate per metre (a+b+c+d+e)/70						8862.92	8862.92	8862.92	
								Say	**8862.90**	**8862.90**	**8862.90**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.37	**1100 & 1900**		**Driven Vertical Steel Piles complete as per Drawing and & Technical Specification**									
			Section of the pile-H Section steel columm 450×250 mm (ISHB Series)									
			Unit = Running meter									
			Taking output = 60m									
			a) Materials									
			Structural steel including 5 percent wastage @ 92.50 kg/m	tonnes	5.830	5.830	5.830	60255.00	351286.65	351286.65	351286.65	M-181
			b) Machinery									
			Crane 10 T capacity	hour	6.000	6.000	6.000	931.00	5586.00	5586.00	5586.00	PM63003
			Vibrating Pile driving hammer complete with power unit and accessories.	hour	6.000	6.000	6.000	16162.00	96972.00	96972.00	96972.00	PM71001
			d) Labour									
			Mate/Supervisor	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			Add 0.5 percent of (a+b+c) for providing steel helmet and cushion block on top of pile head during driving, stacking of piles at site, providing anti-corrosion treatment and other imponderables during installation.						2276.03	2276.03	2276.03	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		91496.35	91496.35	91496.35	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		54897.81	54897.81	54897.81	
			Cost for 60 m = a+b+c+d+d+e						603875.92	603875.92	603875.92	
			Rate per metre (a+b+c+d+e)/60						10064.60	10064.60	10064.60	
								Say	**10064.60**	**10064.60**	**10064.60**	
12.38	**1100**		**Pile Load Test on single Vertical Pile in accordance with IS:2911 (Part-IV)**									
			Unit = 1 MT									
			Taking output =1 MT									
			a) Initial and routine load test	tonnes	1.000	1.000	1.000					
			b) Lateral load test	tonnes	1.000	1.000	1.000					
									#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	Although, this item is incidental to work and is not required to be included in BOQ of contract, the same is required to be added in the estimate to assess cost of work.									
12.39			**Dismantling of Reinforced Concrete Pile head complete as per Drawing and Technical Specification**									
			Unit = 1 cum									
			Taking output =1.250 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor with Pneumatic breaker	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Blacksmith	day	0.250	0.250	0.250	449.00	112.25	112.25	112.25	L-01
			Mazdoor for loading and unloading	day	0.250	0.250	0.250	373.00	93.25	93.25	93.25	L-13
			b) Machinery									
			Air Compressor 250 cfm	hour	0.625	0.625	0.625	440.00	275.00	275.00	275.00	PM15001
			Pneumatic breaker	hour	1.250	1.250	1.250	206.00	257.50	257.50	257.50	PM4001
			Tipper									
			For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t.km	1.875			4.95	9.28			PM72001
			(ii) 14 cum capacity	t.km		1.875		5.67		10.63		PM73001
			(iii) 10 cum capacity	t.km			1.875	7.04			13.20	PM74001
			Loading & unloading time									
			(i) 18 cum capacity	hour	0.208			2310.00	480.48			PM6001
			(ii) 14 cum capacity	hour		0.250		2065.00		516.25		PM6002
			(iii) 10 cum capacity	hour			0.292	1847.00			539.32	PM6003
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		286.03	293.45	298.58	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		171.62	176.07	179.15	
			Cost for 1.25 cum = a+b+c+d						1887.79	1936.78	1970.63	
			Rate per cum (a+b+c+d)/1.25						1510.23	1549.43	1576.51	
								Say	**1510.20**	**1549.40**	**1576.50**	
12.40	**1100, 1500 & 1700**		**Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification**									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		A	**RCC Grade M20**									
		Case I	**RCC Grade M20 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	60.000	60.000	60.000	3883.60	233016.00	233016.00	233016.00	21.06
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9741.56	9741.56	9741.56	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		50656.14	50656.14	50656.14	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30393.68	30393.68	30393.68	
			Cost for 60 cum = a+b+c+d+e+f						334330.49	334330.49	334330.49	
			Rate per cum = (a+b+c+d+e+f)/60						5572.17	5572.17	5572.17	
								Say	**5572.20**	**5572.20**	**5572.20**	
		Case II	**RCC Grade M20 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	60.000	60.000	60.000	3883.60	233016.00	233016.00	233016.00	21.06

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9786.15	9786.15	9786.15	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		50887.99	50887.99	50887.99	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30532.79	30532.79	30532.79	
			Cost for 60 cum = a+b+c+d+e+f						335860.70	335860.70	335860.70	
			Rate per cum = (a+b+c+d+e+f)/60						5597.68	5597.68	5597.68	
								Say	**5597.70**	**5597.70**	**5597.70**	
12.40		**B**	**RCC Grade M25**									
		Case I	**RCC Grade M25 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.07)	cum	60.000	60.000	60.000	3897.00	233820.00	233820.00	233820.00	21.07
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery									
			Transit truck agitator For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9773.72	9773.72	9773.72	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		50823.37	50823.37	50823.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30494.02	30494.02	30494.02	
			Cost for 60 cum = a+b+c+d+e+f						335434.22	335434.22	335434.22	
			Rate per cum = (a+b+c+d+e+f)/60						5590.57	5590.57	5590.57	
								Say	**5590.60**	**5590.60**	**5590.60**	
		Case II	**RCC Grade M25 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.07)	cum	60.000	60.000	60.000	3897.00	233820.00	233820.00	233820.00	21.07
			b) Labour For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9818.31	9818.31	9818.31	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		51055.22	51055.22	51055.22	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30633.13	30633.13	30633.13	
			Cost for 60 cum = a+b+c+d+e+f						336964.43	336964.43	336964.43	
			Rate per cum = (a+b+c+d+e+f)/60						5616.07	5616.07	5616.07	
								Say	**5616.10**	**5616.10**	**5616.10**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.40		C	**RCC Grade M30**									
		Case I	**RCC Grade M30 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.09)	cum	60.000	60.000	60.000	3931.20	235872.00	235872.00	235872.00	21.09
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9855.80	9855.80	9855.80	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		51250.18	51250.18	51250.18	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30750.11	30750.11	30750.11	
			Cost for 60 cum = a+b+c+d+e+f						338251.21	338251.21	338251.21	
			Rate per cum = (a+b+c+d+e+f)/60						5637.52	5637.52	5637.52	
								Say	**5637.50**	**5637.50**	**5637.50**	
		Case II	**RCC Grade M30 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.09)	cum	60.000	60.000	60.000	3931.20	235872.00	235872.00	235872.00	21.09

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						9900.39	9900.39	9900.39	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		51482.03	51482.03	51482.03	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		30889.22	30889.22	30889.22	
			Cost for 60 cum = a+b+c+d+e+f						339781.42	339781.42	339781.42	
			Rate per cum = (a+b+c+d+e+f)/60						5663.02	5663.02	5663.02	
								Say	**5663.00**	**5663.00**	**5663.00**	
12.40		**D**	**RCC Grade M35**									
		Case I	**RCC Grade M35 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.11)	cum	60.000	60.000	60.000	4042.20	242532.00	242532.00	242532.00	21.11
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10122.20	10122.20	10122.20	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		52635.46	52635.46	52635.46	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		31581.28	31581.28	31581.28	
			Cost for 60 cum = a+b+c+d+e+f						347394.06	347394.06	347394.06	
			Rate per cum = (a+b+c+d+e+f)/60						5789.90	5789.90	5789.90	
								Say	**5789.90**	**5789.90**	**5789.90**	
12.40		**Case II**	**RCC Grade M35 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.11)	cum	60.000	60.000	60.000	4042.20	242532.00	242532.00	242532.00	21.11
			b) Labour For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10166.79	10166.79	10166.79	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		52867.31	52867.31	52867.31	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		31720.39	31720.39	31720.39	
			Cost for 60 cum = a+b+c+d+e+f						348924.27	348924.27	348924.27	
			Rate per cum = (a+b+c+d+e+f)/60						5815.40	5815.40	5815.40	
								Say	**5815.40**	**5815.40**	**5815.40**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.40		E	**RCC Grade M40**									
		Case I	**RCC Grade M40 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.12)	cum	60.000	60.000	60.000	4143.80	248628.00	248628.00	248628.00	21.12
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10366.04	10366.04	10366.04	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		53903.43	53903.43	53903.43	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		32342.06	32342.06	32342.06	
			Cost for 60 cum = a+b+c+d+e+f						355762.65	355762.65	355762.65	
			Rate per cum = (a+b+c+d+e+f)/60						5929.38	5929.38	5929.38	
								Say	**5929.40**	**5929.40**	**5929.40**	
		Case II	**RCC Grade M40 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.12)	cum	60.000	60.000	60.000	4143.80	248628.00	248628.00	248628.00	21.12

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour For pouring and placing									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10410.63	10410.63	10410.63	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		54135.28	54135.28	54135.28	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		32481.17	32481.17	32481.17	
			Cost for 60 cum = a+b+c+d+e+f						357292.86	357292.86	357292.86	
			Rate per cum = (a+b+c+d+e+f)/60						5954.88	5954.88	5954.88	
								Say	**5954.90**	**5954.90**	**5954.90**	
12.40		**F**	**RCC Grade M45**									
		Case I	**RCC Grade M45 using batching plant & Concrete pump**									
			Unit =cum									
			Taking Output = 60 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.13)	cum	60.000	60.000	60.000	4168.80	250128.00	250128.00	250128.00	21.13
			b) Labour For pouring and placing									
			Mate	day	0.146	0.146	0.146	397.00	57.96	57.96	57.96	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	1.300	1.300	1.300	1935.00	2515.50	2515.50	2515.50	PM34001
			Hydraulic Boom placer pump	hour	1.300	1.300	1.300	3769.00	4899.70	4899.70	4899.70	PM36001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10426.04	10426.04	10426.04	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		54215.43	54215.43	54215.43	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		32529.26	32529.26	32529.26	
			Cost for 60 cum = a+b+c+d+e+f						357821.85	357821.85	357821.85	
			Rate per cum = (a+b+c+d+e+f)/60						5963.70	5963.70	5963.70	
								Say	**5963.70**	**5963.70**	**5963.70**	
12.40		**Case II**	**RCC Grade M45 using batching plant & manual placing**									
			Unit =cum									
			Taking Output = 60cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.13)	cum	60.000	60.000	60.000	4168.80	250128.00	250128.00	250128.00	21.13
			b) Labour **For pouring and placing**									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Mason	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	150×L1	150×L1	150×L1	10.75	1612.50	1612.50	1612.50	PM76001
			(6 cum Capacity)									
			For unloading	hour	3.333	3.333	3.333	1935.00	6449.36	6449.36	6449.36	PM34001
			d) Formwork @ 4 percent on cost of concrete i.e. cost of material, labour and machinery						10470.63	10470.63	10470.63	
			e) Overhead charges @ on (a+b+c+d)						54447.28	54447.28	54447.28	
			f) Contractor's profit @ on (a+b+c+d+e)						32668.37	32668.37	32668.37	
			Cost for 60 cum = a+b+c+d+e+f						359352.06	359352.06	359352.06	
			Rate per cum = (a+b+c+d+e+f)/60						5989.20	5989.20	5989.20	
									5989.20	**5989.20**	**5989.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
12.41	1100 & 1700		**Levelling Course for Pile cap**									
			Providing and laying of PCC M15 levelling course 100 mm thick below the pile cap.									
		Case I	***PCC Grade M15 using batching plant & Concrete pump***									
			Unit=cum									
			Taking output = 30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.03)	cum	30.000	30.000	30.000	3108.60	93258.00	93258.00	93258.00	21.03
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	75×L1	75×L1	75×L1	10.75	806.25	806.25	806.25	PM76001
			(6 cum Capacity)									
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pumb		0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.109×L1+ 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146×L1+ 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292×L1+ 1.75	752.00			1535.58	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		20166.00	20190.42	20293.95	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		12099.60	12114.25	12176.37	
			Cost for 30 cum = a+b+c+d+e						133095.57	133256.77	133940.06	
			Rate per cum = (a+b+c+d+e)/30						4436.52	4441.89	4464.67	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	**4436.50**	**4441.90**	**4464.70**	
		Case II	***PCC Grade M15 using batching plant & manual placing***									
			Unit=cum									
			Taking output = 15cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.03)	cum	15.000	15.000	15.000	3108.60	46629.00	46629.00	46629.00	21.03
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery Transit truck agitator									
			For transportation	tonne-Km	37.5×L1	37.5×L1	37.5×L1	10.75	403.13	403.13	403.13	PM76001
			(6 cum Capacity)									
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and unloading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.055×L1+ 0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073×L1+ 0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146×L1+ 0.875	752.00			767.79	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		10675.14	10687.33	10739.00	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		6405.08	6412.40	6443.40	
			Cost for 15 cum = a+b+c+d+e						70455.92	70536.40	70877.39	
			Rate per cum = (a+b+c+d+e)/15						4697.06	4702.43	4725.16	
								Say	**4697.10**	**4702.40**	**4725.20**	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
12.42	1600	**Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.**									
		Unit=MT									
		Taking output = 8 MT									
		a) Material									
		HYSD bars including 5 percent overlaps and wastage	tonne	8.400	8.400	8.400	58030.00	487452.00	487452.00	487452.00	M-083
		Binding wire	kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072
		b) Labour for straightening, cutting, bending, shifting to site, tying and placing in position									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-01
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Cutting Machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
		Bending Machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
		Electric generator 15 KVA	hour	5.333	5.333	5.333	292.00	1557.24	1557.24	1557.24	PM22009
		Tipper									
		Tipper for Transportation									
		(i) 18 cum capacity	t.km	8×L1			4.95	39.60			PM72001
		(ii) 14 cum capacity	t.km		8×L1		5.67		45.36		PM73001
		(iii) 10 cum capacity	t.km			8×L1	7.04			56.32	PM74001
		Loading & Unloading Time									
		(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
		(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
		(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
		Light weight Crane									
		At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		100438.56	100506.35	100636.69	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		60263.13	60303.81	60382.02	
		Cost for 8 MT = (a+b+c+d+e)						662894.47	663341.90	664202.18	
		Rate for per MT = (a+b+c+d+e)/8						82861.81	82917.74	83025.27	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
							Say	82861.80	82917.70	83025.30	
12.43	1600	**Supplying, Fitting and Placing un-coated Mild steel Reinforcement in Foundation complete as per Drawing and Technical Specifications.**									
		Unit=MT									
		Taking output = 8 MT									
		a) Material									
		MS bars including 5 percent overlaps and wastage	tonne	8.400	8.400	8.400	59067.00	496162.80	496162.80	496162.80	M-125
		Binding wire	kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072
		b) Labour for straightening, cutting, bending, shifting to site, tying and placing in position									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-01
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Cutting Machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
		Bending Machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
		Electric generator 15 KVA	hour	5.333	5.333	5.333	292.00	1557.24	1557.24	1557.24	PM22009
		Tipper									
		Tipper for Transportation									
		(i) 18 cum capacity	t.km	8×L1			4.95	39.60			PM72001
		(ii) 14 cum capacity	t.km		8×L1		5.67		45.36		PM73001
		(iii) 10 cum capacity	t.km			8×L1	7.04			56.32	PM74001
		Loading & Unloading Time									
		(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
		(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
		(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
		Light weight Crane									
		At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		102180.72	102248.51	102378.85	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		61308.43	61349.11	61427.31	
		Cost for 8 MT = (a+b+c+d+e)						674392.73	674840.16	675700.44	

Analysis of Rate

FOUNDATIONS

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Rate for per MT = (a+b+c+d+e)/8						84299.09	84355.02	84462.55	
							Say	**84299.10**	**84355.00**	**84462.60**	

CHAPTER - 13
BRIDGE SUBSTRUCTURE

CHAPTER-13
BRIDGE SUBSTRUCTURE

PREAMBLES :

1 Although, Substructures are generally constructed in cement concrete, the rate analysis for brick and stone masonry in CM 1:3 have also been included which can be adopted if permitted by design.

2 The cost of formwork will vary with the height of the substructure. Provision has accordingly been made.

3 As the higher grade of concrete is costlier, the provision made for formwork on percentage basis has been suitably adjusted to make it comparable with other grades.

4 Bridge bearing, being commercial items produced by specialized firms with imported technology and parts, the rates for the same are required to be ascertained from the market for the approved design and technical specifications. These rates are not included in the analysis as they can vary from design to design and base on their loading arrangement and span variations, hence if required they maybe analysed for a particular project depending upon the loadings and design.

5 Filter media and backfilling behind abutments are required to be provided as per guidelines given in IRC:78.

6 Weep holes shall be provided as per Clause 2706 of MoRT&H Specification.

7 In case of roller-cum-rocker bearings, only full circular rollers are to be provided.

8 All bearings shall be set truly level so as to have full and even seating.

9 For elastomeric bearing pads, the concrete surface shall be leveled such that the variation is not more than 1.5 mm from a straight edge placed in any direction across the area.

10 The bearing should be procured only from those manufacturers who have been pre-qualified by the Ministry of Road Transport and Highways.

11 The bottoms of girders resting on the bearing shall be plane and truly horizontal.

12 For spans in grade, the bearing shall be placed horizontal by using sole plates for suitable designed RCC pedestals.

CHAPTER -13
BRIDGE SUB-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
13.01	Brick masonry work in 1:3 in substructure complete excluding pointing and plastering, as per drawing and Technical Specifications	cum	6836.00	6841.20	6863.00
13.02	Pointing with cement mortar (1:3) on brick work in substructure as per technical specifications	sqm	730.50	730.50	730.50
13.03	Plastering with cement mortar (1:3) on brick work in substructure as per technical specifications	sqm	138.70	138.80	139.40
13.04	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and technical specifications				
A	Random Rubble Masonry (Coursed/uncoursed)	cum	4558.30	4568.60	4609.80
B	Coursed rubble masonry (first sort)	cum	4833.00	4843.30	4884.50
C	Ashlar masonry (first sort)	cum	6201.20	6211.50	6252.70
13.05	Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical specifications				
A	PCC Grade M15				
(p)	Height upto 5m				
	PCC Grade M15 using batching plant & concrete pump	cum	4880.20	4886.10	4911.10
B	PCC Grade M20				
(p)	Height upto 5m				
	PCC Grade M20 using batching plant, transit mixer & concrete pump	cum	5492.80	5498.70	5523.70
C	PCC Grade M25				
(p)	Height upto 5m				
	PCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6005.50	6011.40	6036.40
(q)	Height 5m to 10m				
	PCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6223.90	6230.00	6255.90
(r)	Height above 10m				
	PCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6496.80	6503.20	6530.30
D	PCC Grade M30				
(p)	Height upto 5 m				
	PCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6055.40	6061.30	6086.40
(q)	Height 5m to 10m				
	PCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6275.62	6281.70	6307.70
(r)	Height above 10m				

BRIDGE SUB-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
	PCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6550.90	6557.30	6584.40
E	**RCC Grade M20**				
(p)	**Height upto 5m**				
	RCC Grade M20 using batching plant, transit mixer & concrete pump	cum	5493.30	5499.20	5524.30
(q)	**Height 5m to 10m**				
	RCC Grade M20 using batching plant, transit mixer & concrete pump	cum	5693.10	5699.20	5725.10
(r)	**Height above 10m**				
	RCC Grade M20 using batching plant, transit mixer & concrete pump	cum	5942.70	5949.10	5976.20
F	**RCC Grade M25**				
(p)	**Height upto 5m**				
	RCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6043.75	6049.70	6074.70
(q)	**Height 5 to 10m**				
	RCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6241.50	6247.60	6273.50
(r)	**Height above 10m**				
	RCC Grade M25 using batching plant, transit mixer & concrete pump	cum	6538.20	6544.60	6571.70
G	**RCC Grade M30**				
(p)	**Height upto 5m**				
	RCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6093.40	6099.30	6124.40
(q)	**Height 5m to 10m**				
	RCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6265.10	6271.20	6297.00
(r)	**Height above 10m**				
	RCC Grade M30 using batching plant, transit mixer & concrete pump	cum	6508.90	6515.20	6541.90
H	**RCC Grade M35**				
(p)	**Height upto 5 m**				
	RCC Grade M35 using batching plant, transit mixer & concrete pump	cum	6254.60	6260.50	6285.50
(q)	**Height 5m to 10m**				
	RCC Grade M35 using batching plant, transit mixer & concrete pump	cum	6391.00	6397.10	6422.70
(r)	**Height above 10m**				
	RCC Grade M35 using batching plant, transit mixer & concrete pump	cum	6595.70	6602.00	6628.40
I	**RCC Grade M40**				
(p)	**Height upto 5m**				
	RCC Grade M40 using batching plant, transit mixer & concrete pump	cum	6402.10	6408.00	6433.10
(q)	**Height 5m to 10m**				
	RCC Grade M40 using batching plant, transit mixer & concrete pump	cum	6541.80	6547.80	6573.40
(r)	**Height above 10m**				

BRIDGE SUB-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
	RCC Grade M40 using batching plant, transit mixer & concrete pump	cum	6751.30	6757.50	6784.00
J	**RCC Grade M 45**				
(p)	**Height upto 5m**				
	RCC Grade M45 using batching plant, transit mixer & concrete pump	cum	6438.40	6444.30	6469.40
(q)	**Height 5m to 10m**				
	RCC Grade M45 using batching plant, transit mixer & concrete pump	cum	6578.90	6584.90	6610.50
(r)	**Height above 10m**				
	RCC Grade M45 using batching plant, transit mixer & concrete pump	cum	6789.60	6795.80	6822.20
K	**RCC Grade M50**				
(p)	**Height upto 5m**				
	RCC Grade M50 using batching plant, transit mixer & concrete pump	cum	7287.50	7293.40	7318.50
(q)	**Height 5m to 10m**				
	RCC Grade M50 using batching plant, transit mixer & concrete pump	cum	7446.50	7452.60	7478.20
(r)	**Height above 10m**				
	RCC Grade M50 using batching plant, transit mixer & concrete pump	cum	7685.00	7691.30	7717.70
13.06	**Supplying, fitting and placing HYSD bar reinforcement in sub structure complete as per drawing and technical specifications**	MT	83083.70	83139.60	83247.10
13.07	**Supplying, fitting and placing Mild steel reinforcement complete in sub structure as per drawing and technical specifications**	MT	84521.00	84576.90	84684.40
13.08	**Providing weep holes in Brick masonry/ Plain/Reinforced concrete abutment , wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20 H towards drawing face. Complete as per drawing and technical specifications.**	Nos.	153.40	153.40	153.40
13.09	**Back filling behind abutment, wing wall, return wall complete as per drawing and technical specifications**				
A	**Granular Material**	cum	759.50	759.50	759.50
B	**Sandy material**	cum	1411.20	1411.20	1411.20
13.10	**Providing and laying of filter media with granular materials/stones crushed aggregates satisfying the requirements laid down in clause 2504.2.2 of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment , wing wall and return wall to the full height compacted to a firm condition complete as per drwaing and technical specification.**	cum	1521.40	1521.40	1521.40

BRIDGE SUB-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
13.11	Supplying and laying of drainage composite for use behind walls , between two different fills, alongside drains of road, below concrete lining of canals etc.. Geo composite for planar drainage, realised by thermos bonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as seperation or protecting layers. The draining three dimensional core will have a "W" configuration as longitudinal parallel channels. Minimum thickness to be 7.2 mm with two filtering UV stabilised polypropylene nonwoven geotextile of minimum thickness of 0.75mm having pores of 150 micron and tensile strength of 8KN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L /(m.s) at hydraulic gradient of 1.0 and 20 kpa pressure and tensile strength of 18KN/m, with mass per unit area of 740 gsm , supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per direction of Engineer in charge	sqm	771.90	771.90	771.90
13.12	Supplying and laying of drainage composite for use behind walls between two different fills, along side drains of road, below concrete lining of canals etc having thermos bonding draining core- HDPE geonet comprises of two sets of parallel overlaid ribs integrally connected to have a rhomboidal shape with a polyehtylene film and a nonwoven geotextile having mass per unit area 130g/m2 and tensile strength of 8KN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 0.7 l/(m.s) at hydraulic gradient of 1.0 and 20 kpa pressure and tensile strength of 13.5 KN/m, with mass per unit area of 830 gsm, at easily accesible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc complete and as directed by Engineer in charge	sqm	917.10	917.10	917.10
13.13	Supplying fitting and fixing in positon true to line and level cast steel rocker bearing conforming to IRC: 83 (pt.-1) Section IX and clause 2003 of MoRT&H specifications complete including all accessories as per drawing and technical specification	tonne	528.20	528.20	528.20

BRIDGE SUB-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
13.14	Supplying fitting and fixing in positon true to line and level forged steel roller bearing conforming to IRC: 83 (pt.-1) Section IX and clause 2003 of Mort&h specifications complete including all accessories as per drawing and technical specification	tonne	269.50	269.50	269.50
13.15	Supplying fitting and fixing in positon true to line and level sliding plate bearing with PTFE surface sliding of stainless steel complete including all accessories as per drawing and technical specification and BS:5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of Mort&H specifications	tonne	231.80	231.80	231.80
13.16	Supplying , fitting and fixing in position true to line and level elastomeric bearing conforming to IRC:83 (Part-II) section IX and clause 2005 of Mort&H specification complete including all accessories as per drwaing and technical specifications	cubic cm	0.91	0.91	0.91
13.17	Supplying fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and technical specifications.	tonne	207.50	207.50	207.50
13.18	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel /fabricated structural steel, metal and elastomer elements to be as per IRC:83 Part I & ii respectively and other parts conforming to BS:5400 section 9.1 & 9.2 and clause 2006 of Mort&h specification complete as per dwrawing and approved technical specificatons	tonne	204.30	204.30	204.30
13.19	Protection to sub structure by using coal tar epoxy	sqm	78.50	78.50	78.50
13.20	Providing strucutral steel for sub-structure complete as per drawing and technical specifications	MT	135657.50	135657.50	135657.50

CHAPTER - 13

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.01	1300 & 2200		**Brick masonry work in 1:3 in substructure complete excluding pointing and plastering, as per drawing and Technical Specifications**									
			Unit=cum									
			Taking output=1cum									
			a) Material									
			Brick Ist class	each	500.000	500.000	500.000	6.364	3182.00	3182.00	3182.00	M-079
			Cement mortar 1:3 (Rate taken from subanalysis 21.01 A)	cum	0.240	0.240	0.240	4218.30	1012.39	1012.39	1012.39	21.01 A
			Water for curing	KL	0.483	0.483	0.483	60.30	29.12	29.12	29.12	M-191
			b) Labour									
			Mate	day	0.064	0.064	0.064	397.00	25.41	25.41	25.41	L-12
			Mason	day	0.800	0.800	0.800	449.00	359.20	359.20	359.20	L-10
			Mazdoor	day	0.800	0.800	0.800	373.00	298.40	298.40	298.40	L-13
			Add for scaffolding @5 percent of cost of material and labour						245.33	245.33	245.33	
			c) Machinery									
			Water tanker (speed @20 km/hr and return speed @30 km/hr and spreading @30 mins per trip)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.003 X L1 +0.02			1171.00	26.93			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.004 X L1 + 0.027		997.00		30.91		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.009 X L1 + 0.054	752.00			47.38	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		1035.76	1036.55	1039.85	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		621.45	621.93	623.91	
			Rate per cum (a+b+c+d+e)						6836.00	6841.24	6862.98	
								Say	**6836.00**	**6841.20**	**6863.00**	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.02	**1300 & 2200**		**Pointing with cement mortar (1:3) on brick work in substructre as per technical specifications**									
			Unit=sqm									
			Taking output =10 sqm									
			a) Material									
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01 A)	cum	0.030	0.030	0.030	4218.30	126.55	126.55	126.55	21.01 A
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		110.69	110.69	110.69	
			d)Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		66.41	66.41	66.41	
			Rate for 10 sqm (a+b+c+d)						730.53	730.53	730.53	
								Say	**730.50**	**730.50**	**730.50**	
		Note	Scaffolding is already included in item 13.01									
13.03	**1300 & 2200**		**Plastering with cement mortar (1:3) on brick work in substructure as per technical specifications**									
			Unit= 10sqm									
			Taking output=10sqm									
			a) Material									
			Cement mortar 1:3 (Rate taken from sub-analysis 21.01 A)	cum	0.144	0.144	0.144	4218.30	607.44	607.44	607.44	21.01 A
			Water for curing	KL	0.139	0.139	0.139	60.30	8.38	8.38	8.38	M-191
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			c) Machinery									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @20 km/hr and return speed @30 km/hr and spreading @30 mins per trip)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.001 X L1 + 0.006			1171.00	8.20			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.001 X L1 + .008		997.00		8.97		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.003 X L1 + 0.015	752.00			13.54	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		210.18	210.33	211.25	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		126.11	126.20	126.75	
			Cost for 10 sqm= (a+b+c+d+e)						1387.18	1388.20	1394.23	
			Rate per sqm=(a+b+c+d+e)/10						138.72	138.82	139.42	
		Note	1. Scaffolding is already included in item no. 13.01					**Say**	**138.70**	**138.80**	**139.40**	
			2. The number of mason and mazdoors already catered in the cement mortar have been taken into acount while providing these categories in brick masonry, pointing and plastering									
13.04	**1400 2200**		**Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and technical specifications**									
		A	**Random Rubble Masonry (Coursed/uncoursed)**									
			unit=cum									
			Taking output=1cum									
			a) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-001
			Through and bond stone (7no. X 0.24m X 0.24m X 0.39m=0.16cum)	No.	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			Cement mortar 1:3 (Rate taken from sub analysis 21.01 A)	cum	0.330	0.330	0.330	4218.30	1392.04	1392.04	1392.04	21.01 A
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.096	0.096	0.096	397.00	38.11	38.11	38.11	L-12
			Mason	day	1.200	1.200	1.200	449.00	538.80	538.80	538.80	L-10
			Mazdoor	day	1.200	1.200	1.200	373.00	447.60	447.60	447.60	L-13
			Add for scaffolding @5 percent of cost of a) Material and b) Labour)						161.82	161.82	161.82	
			c) Machinery									
			Water tanker (speed @20km/hr and return speed @30 km/hr and spreading @ 30mins per trip)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.007 X L1 + 0.04			1171.00	55.04			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.009 X L1 + 0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.018 X L1 + 0.107	752.00			94.00	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		690.66	692.21	698.45	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		414.39	415.33	419.07	
			Rate per cum (a+b+c+d+e)						4558.34	4568.60	4609.77	
								Say	**4558.30**	**4568.60**	**4609.80**	
13.04		**B**	**Coursed rubble masonry (first sort)**									
			unit=cum									
			Taking output=1cum									
			a) Material									
			Stone	cum	1.100	1.100	1.100	686.03	754.63	754.63	754.63	M-001
			Through and bond stone (7no. X 0.24m X 0.24m X 0.39m=0.16cum)	No.	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			Cement mortar 1:3 (Rate taken from sub analysis 21.01 A)	cum	0.300	0.300	0.300	4218.30	1265.49	1265.49	1265.49	21.01 A
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			Add for scaffolding @5 percent of cost of a) Material and b) Labour)						171.73	171.73	171.73	
			c) Machinery									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @ km/hr and return speed @km/hr and spreading @ 30mins per trip)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.007 X L1 + 0.04			1171.00	55.04			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.009 X L1 + 0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.018 X L1 + 0.107	752.00			94.00	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		732.28	733.83	740.07	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		439.37	440.30	444.04	
			Rate per cum (a+b+c+d+e)						4833.02	4843.28	4884.45	
								Say	**4833.00**	**4843.30**	**4884.50**	
13.04		**C**	**Ashlar masonry (first sort)**									
			Plain ashlar									
			Unit=cum									
			Taking output=1cum									
			a) Material									
			Stone	cum	1.110	1.110	1.110	686.03	761.49	761.49	761.49	M-001
			Through and bond stone (7no. X 0.24m X 0.24m X 0.39m=0.16cum)	No.	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			Cement mortar 1:3 (Rate taken from sub analysis 21.01 A)	cum	0.330	0.330	0.330	4218.30	1392.04	1392.04	1392.04	21.01 A
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour for masonry work									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mason	day	2.500	2.500	2.500	449.00	1122.50	1122.50	1122.50	L-10
			Mazdoor	day	2.500	2.500	2.500	373.00	932.50	932.50	932.50	L-13
			Add for scaffolding @5 percent of cost of a) Material and b) Labour)						221.09	221.09	221.09	
			c) Machinery									
			Water tanker (speed @ km/hr and return speed @km/hr and spreading @ 30mins per trip)									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity & (L1=1Km)	hour	0.007 X L1 + 0.04			1171.00	55.04			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.009 X L1 + 0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.018 X L1 + 0.107	752.00			94.00	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		939.58	941.14	947.37	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		563.75	564.68	568.42	
			Rate per cum (a+b+c+d+e)						6201.24	6211.50	6252.67	
								Say	**6201.20**	**6211.50**	**6252.70**	
		Note	The labour already considered in the cement mortar have been taken into account while providing these categories in the stone masonry works.									
13.05	**1500,1700 & 2200**		**Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical specifications**									
		A	**PCC Grade M15**									
			(p) Height upto 5m									
			PCC Grade M15 using batching plant & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.03)	cum	30.000	30.000	30.000	3108.60	93258.00	93258.00	93258.00	21.03
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Transit truck agitator									
			For transportation (6cum capacity & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @10 percent on cost of concrete i.e. cost of material , labour and machinery						10083.00	10095.21	10146.97	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		22182.59	22209.46	22323.34	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		13309.56	13325.68	13394.01	
			Rate per cum (a+b+c+d+e+f)/30						4880.17	4886.08	4911.14	
								Say	**4880.20**	**4886.10**	**4911.10**	
13.05		**B**	**PCC Grade M20**									
			(p) Height upto 5m									
			PCC Grade M20 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.04)	cum	30.000	30.000	30.000	3530.50	105914.94	105914.94	105914.94	21.04
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @10 percent on cost of concrete i.e. cost of material , labour and machinery						11348.69	11360.90	11412.67	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		24967.12	24993.99	25107.87	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		14980.27	14996.39	15064.72	
			Cost for 30 cum= a+b+c+d+e+f						164783.00	164960.32	165711.95	
			Rate per cum (a+b+c+d+e+f)/30						5492.77	5498.68	5523.73	
								Say	**5492.80**	**5498.70**	**5523.70**	
13.05		**C**	**PCC Grade M25**									
			(p) Height upto 5m									
			PCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @10 percent on cost of concrete i.e. cost of material , labour and machinery						12408.00	12420.21	12471.97	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27297.59	27324.46	27438.34	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16378.56	16394.68	16463.01	
			Cost for 30 cum=a+b+c+d+e+f						180164.13	180341.45	181093.07	
			Rate per cum (a+b+c+d+e+f)/30						6005.47	6011.38	6036.44	
								Say	**6005.50**	**6011.40**	**6036.40**	
13.05		**C**	**(q) Height 5m to 10m**									
			PCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (spread @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @12 percent on cost of concrete i.e. cost of material , labour and machinery						14889.60	14904.25	14966.37	
			Add 2 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2481.60	2484.04	2494.39	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28290.23	28318.08	28436.10	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16974.14	16990.85	17061.66	
			Cost for 30 cum=a+b+c+d+e+f						186715.55	186899.32	187678.27	
			Rate per cum (a+b+c+d+e+f)/30						6223.85	6229.98	6255.94	
								Say	**6223.90**	**6230.00**	**6255.90**	
13.05		**C**	**(r) Height above 10m**									
			PCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum Basic cost (Rate taken from sub-analysis-21.06)	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @15 percent on cost of concrete i.e. cost of material , labour and machinery						18612.00	18630.31	18707.96	
			Add 4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						4963.20	4968.08	4988.79	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29531.03	29560.10	29683.30	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17718.62	17736.06	17809.98	
			Cost for 30 cum=a+b+c+d+e+f						194904.83	195096.66	195909.78	
			Rate per cum (a+b+c+d+e+f)/30						6496.83	6503.22	6530.33	
								Say	**6496.80**	**6503.20**	**6530.30**	
13.05		**D**	**PCC Grade M30**									
			(p) Height upto 5 m									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		PCC Grade M30 using batching plant, transit mixer & concrete pump									
		Unit=cum									
		Taking output=30cum									
		a) Material									
		Per cum Basic cost (Rate taken from sub-analysis-21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
		Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
		b) labour									
		For pouring and placing									
		Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
		c) Machinery									
		Transit truck agitator									
		For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
		(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
		(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
		(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
		d) Formwork @10 percent on cost of concrete i.e. cost of material , labour and machinery						12511.20	12523.41	12575.17	
		e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27524.63	27551.50	27665.38	
		f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16514.78	16530.90	16599.23	
		Cost for 30 cum=a+b+c+d+e+f						181662.59	181839.91	182591.53	
		Rate per cum (a+b+c+d+e+f)/30						6055.42	6061.33	6086.38	
							Say	**6055.40**	**6061.30**	**6086.40**	

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.05		D	**(q) Height 5m to 10m**									
			PCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @12 percent on cost of concrete i.e. cost of material , labour and machinery						15013.44	15028.09	15090.21	
			Add 2 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2502.24	2504.68	2515.03	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28525.53	28553.37	28671.40	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17115.32	17132.02	17202.84	
			Cost for 30 cum=a+b+c+d+e+f						188268.50	188452.27	189231.23	
			Rate per cum (a+b+c+d+e+f)/30						6275.62	6281.74	6307.71	
								Say	**6275.62**	**6281.70**	**6307.70**	
13.05		**D**	**(r) Height above 10m**									
			PCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.08)	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 min for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @15 percent on cost of concrete i.e. cost of material , labour and machinery						18766.80	18785.11	18862.76	

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						5004.48	5009.36	5030.07	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29776.65	29805.72	29928.92	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17865.99	17883.43	17957.35	
			Cost for 30 cum= a+b+c+d+e+f						196525.89	196717.72	197530.84	
			Rate per cum (a+b+c+d+e+f)/30						6550.86	6557.26	6584.36	
								Say	**6550.90**	**6557.30**	**6584.40**	
13.05		**E**	**RCC Grade M20**									
			(p) Height upto 5m									
			RCC Grade M20 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.05)	cum	30.000	30.000	30.000	3517.90	105537.00	105537.00	105537.00	21.05
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @10 percent on cost of concrete i.e. cost of material , labour and machinery						11349.79	11362.00	11413.76	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		24969.53	24996.40	25110.28	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		14981.72	14997.84	15066.17	
			Cost for 30 cum= a+b+c+d+e+f						164798.89	164976.21	165727.83	
			Rate per cum (a+b+c+d+e+f)/30						5493.30	5499.21	5524.26	
								Say	**5493.30**	**5499.20**	**5524.30**	
13.05		**E**	**(q) Height 5m to 10m**									
			RCC Grade M20 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.05)	cum	30.000	30.000	30.000	3517.90	105537.00	105537.00	105537.00	21.05
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @12 percent on cost of concrete i.e. cost of material , labour and machinery						13619.74	13634.40	13696.52	
			Add 2 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2269.96	2272.40	2282.75	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		25877.51	25905.35	26023.38	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		15526.51	15543.21	15614.03	
			Cost for 30 cum= a+b+c+d+e+f						170791.57	170975.34	171754.30	
			Rate per cum (a+b+c+d+e+f)/30						5693.05	5699.18	5725.14	
								Say	**5693.10**	**5699.20**	**5725.10**	
13.05		**E**	**(r) Height above 10m**									
			RCC Grade M20 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.05)	cum	30.000	30.000	30.000	3517.90	105537.00	105537.00	105537.00	21.05
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork @15 percent on cost of concrete i.e. cost of material , labour and machinery						17024.68	17043.00	17120.64	
			Add 4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						4539.91	4544.80	4565.51	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27012.49	27041.55	27164.75	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16207.49	16224.93	16298.85	
			Cost for 30 cum= a+b+c+d+e+f						178282.43	178474.26	179287.38	
			Rate per cum (a+b+c+d+e+f)/30						5942.75	5949.14	5976.25	
								Say	**5942.70**	**5949.10**	**5976.20**	
13.05		**F**	**RCC Grade M25**									
			(p) Height upto 5m									
			RCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @ 10 percent on cost of concrete i.e cost of material , labour and machinery (a+b+c) for formwork						12487.09	12499.30	12551.06	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27471.59	27498.46	27612.34	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16482.95	16499.07	16567.40	
			Cost for 30 cum= a+b+c+d+e+f						181312.48	181489.80	182241.43	
			Rate per cum (a+b+c+d+e+f)/30						6043.75	6049.66	6074.71	
								Say	**6043.75**	**6049.70**	**6074.70**	
13.05		**F**	**(q) Height 5 to 10m**									
			RCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11.8 percent on cost of concrete i.e. cost of maerial , labour and machinery (a+b+c) for formwork						14734.76	14749.17	14810.25	
			Add 1.8 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2247.68	2249.87	2259.19	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28370.66	28398.40	28516.01	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17022.40	17039.04	17109.61	
			Cost for 30 cum= a+b+c+d+e+f						187246.35	187429.47	188205.69	
			Rate per cum (a+b+c+d+e+f)/30						6241.54	6247.65	6273.52	
								Say	**6241.50**	**6247.60**	**6273.50**	
13.05		**F**	**(r) Height above 10m**									
			RCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit=cum									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Taking output=30cum									
		a) Material									
		Per cum Basic cost (Rate taken from sub-analysis-21.07)	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
		Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
		b) labour									
		For pouring and placing									
		Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
		c) Machinery									
		Transit truck agitator									
		For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
		(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
		(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
		(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
		d) Formwork									
		Add @15 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						18730.63	18748.95	18826.59	
		Add 4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						4994.83	4999.72	5020.43	
		e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29719.26	29748.33	29871.53	
		f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17831.56	17849.00	17922.92	
		Cost for 30 cum= a+b+c+d+e+f						196147.14	196338.97	197152.09	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum (a+b+c+d+e+f)/30						6538.24	6544.63	6571.74	
								Say	**6538.20**	**6544.60**	**6571.70**	
13.05		**G**	**RCC Grade M30**									
			(p) Height upto 5m									
			RCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add @10 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						12589.69	12601.90	12653.66	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		27697.31	27724.18	27838.06	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		16618.38	16634.51	16702.83	
			Cost for 30 cum= a+b+c+d+e+f						182802.23	182979.56	183731.18	
			Rate per cum (a+b+c+d+e+f)/30						6093.41	6099.32	6124.37	
								Say	**6093.40**	**6099.30**	**6124.40**	
13.05		**G**	**(q) Height 5m to 10m**									
			RCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11.5 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						14478.14	14492.18	14551.71	
			Add 1.6 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2014.35	2016.30	2024.59	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28477.87	28505.49	28622.58	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17086.72	17103.30	17173.55	
			Cost for 30 cum= a+b+c+d+e+f						187953.93	188136.25	188909.06	
			Rate per cum (a+b+c+d+e+f)/30						6265.13	6271.21	6296.97	
								Say	**6265.10**	**6271.20**	**6297.00**	
13.05		**G**	**(r) Height above 10m**									
			RCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.09)	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @14 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						17625.56	17642.66	17715.13	
			Add 3.5percent of cost of material, labour and machinery excluding formwork to cater for extra lift						4406.39	4410.66	4428.78	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29585.76	29614.46	29736.11	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17751.46	17768.68	17841.66	
			Cost for 30 cum= a+b+c+d+e+f						195266.02	195455.43	196258.31	
			Rate per cum (a+b+c+d+e+f)/30						6508.87	6515.18	6541.94	
								Say	**6508.90**	**6515.20**	**6541.90**	
13.05		**H**	**RCC Grade M35**									
			(p) Height upto 5 m									
			RCC Grade M35 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @10 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						12922.69	12934.90	12986.66	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		28429.91	28456.78	28570.66	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17057.94	17074.07	17142.39	
			Cost for 30 cum= a+b+c+d+e+f						187637.39	187814.72	188566.34	
			Rate per cum (a+b+c+d+e+f)/30						6254.58	6260.49	6285.54	
								Say	**6254.60**	**6260.50**	**6285.50**	
13.05		**H**	**(q) Height 5m to 10m**									
			RCC Grade M35 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						14214.95	14228.39	14285.33	
			Add 1.4percent of cost of material, labour and machinery excluding formwork to cater for extra lift						1809.18	1810.89	1818.13	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29050.20	29077.65	29194.02	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17430.12	17446.59	17516.41	
			Cost for 30 cum= a+b+c+d+e+f						191731.30	191912.49	192680.51	
			Rate per cum (a+b+c+d+e+f)/30						6391.04	6397.08	6422.68	
								Say	**6391.00**	**6397.10**	**6422.70**	
		Note	The basic components of this analysis are the same as those of items 13.05 (A to H). The only changes are as under									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(a) Ramps/Stairs: Extra expenditure on structures which are more than 5m high @ 2 percent of cost for height upto 10m and 4 percent for heights above 10m will be involved for approaching the work spot by providing higher ramp/stairs case for use by the working parties.									
			(b) The above mentioned percentages have been suitably modified for different categories as cost for various categories varies whereas effort for access for same height will be similar. As the cost of richer concrete is comparitively more , the percentage to be added has been reduced to maintaine the same cost for extra efforts.									
13.05		**H**	**(r) Height above 10m**									
			RCC Grade M35 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.11)	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @13 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						16799.49	16815.37	16882.66	
			Add 3 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						3876.81	3880.47	3896.00	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29980.63	30008.96	30129.06	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17988.38	18005.38	18077.43	
			Cost for 30 cum= a+b+c+d+e+f						197872.16	198059.16	198851.78	
			Rate per cum (a+b+c+d+e+f)/30						6595.74	6601.97	6628.39	
								Say	**6595.70**	**6602.00**	**6628.40**	
13.05		**I**	**RCC Grade M40**									
			(p) Height upto 5m									
			RCC Grade M40 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @10 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						13227.49	13239.70	13291.46	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29100.47	29127.34	29241.22	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17460.28	17476.40	17544.73	
			Cost for 30 cum= a+b+c+d+e+f						192063.09	192240.41	192992.04	
			Rate per cum (a+b+c+d+e+f)/30						6402.10	6408.01	6433.07	
								Say	**6402.10**	**6408.00**	**6433.10**	
13.05		**I**	**(q) Height 5m to 10m**									
			RCC Grade M40 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						14550.23	14563.67	14620.61	
			Add 1.4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						1851.85	1853.56	1860.80	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29735.39	29762.84	29879.21	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17841.23	17857.70	17927.52	
			Cost for 30 cum= a+b+c+d+e+f						196253.56	196434.75	197202.77	
			Rate per cum (a+b+c+d+e+f)/30						6541.79	6547.82	6573.43	
								Say	**6541.80**	**6547.80**	**6573.40**	
13.05		**I**	**(r) Height above 10m**									
			RCC Grade M40 using batching plant, transit mixer & concrete pump									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Unit=cum									
		Taking output=30cum									
		a) Material									
		Per cum Basic cost (Rate taken from sub-analysis-21.12)	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
		Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
		b) labour									
		For pouring and placing									
		Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
		c) Machinery									
		Transit truck agitator									
		For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
		(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
		(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
		(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
		d) Formwork									
		Add @13 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						17195.73	17211.61	17278.90	
		Add 3 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						3968.25	3971.91	3987.44	
		e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		30687.77	30716.10	30836.19	
		f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		18412.66	18429.66	18501.72	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 30 cum= a+b+c+d+e+f						202539.26	202726.25	203518.87	
			Rate per cum (a+b+c+d+e+f)/30						6751.31	6757.54	6783.96	
								Say	**6751.30**	**6757.50**	**6784.00**	
13.05		**J**	**RCC Grade M 45**									
			(p) Height upto 5m									
			RCC Grade M45 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.13)	cum	30.000	30.000	30.000	4168.80	125064.00	125064.00	125064.00	21.13
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add @10 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						13302.49	13314.70	13366.46	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29265.47	29292.34	29406.22	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17559.28	17575.40	17643.73	
			Cost for 30 cum= a+b+c+d+e+f						193152.09	193329.41	194081.04	
			Rate per cum (a+b+c+d+e+f)/30						6438.40	6444.31	6469.37	
								Say	**6438.40**	**6444.30**	**6469.40**	
13.05		**J**	**(q) Height 5m to 10m**									
			RCC Grade M45 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.13)	cum	30.000	30.000	30.000	4168.80	125064.00	125064.00	125064.00	21.13
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						14632.73	14646.17	14703.11	
			Add 1.4 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						1862.35	1864.06	1871.30	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		29903.99	29931.44	30047.81	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		17942.39	17958.86	18028.68	
			Cost for 30 cum= a+b+c+d+e+f						197366.32	197547.51	198315.53	
			Rate per cum (a+b+c+d+e+f)/30						6578.88	6584.92	6610.52	
								Say	**6578.90**	**6584.90**	**6610.50**	
13.05		**J**	**(r) Height above 10m**									
			RCC Grade M45 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.13)	cum	30.000	30.000	30.000	4168.80	125064.00	125064.00	125064.00	21.13
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @13 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						17293.23	17309.11	17376.40	
			Add 3 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						3990.75	3994.41	4009.94	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		30861.77	30890.10	31010.19	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		18517.06	18534.06	18606.12	
			Cost for 30 cum= a+b+c+d+e+f						203687.66	203874.65	204667.27	
			Rate per cum (a+b+c+d+e+f)/30						6789.59	6795.82	6822.24	
								Say	**6789.60**	**6795.80**	**6822.20**	
13.05		**K**	**RCC Grade M50**									
			(p) Height upto 5m									
			RCC Grade M50 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.14)	cum	30.000	30.000	30.000	4753.60	142608.00	142608.00	142608.00	21.14
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @10 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						15056.89	15069.10	15120.86	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		33125.15	33152.02	33265.90	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		19875.09	19891.21	19959.54	
			Cost for 30 cum= a+b+c+d+e+f						218625.98	218803.30	219554.92	
			Rate per cum (a+b+c+d+e+f)/30						7287.53	7293.44	7318.50	
								Say	**7287.50**	**7293.40**	**7318.50**	
13.05		**K**	**(q) Height 5m to 10m**									
			RCC Grade M50 using batching plant, transit mixer & concrete pump									
			Unit=cum									
			Taking output=30cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub-analysis-21.14)	cum	30.000	30.000	30.000	4753.60	142608.00	142608.00	142608.00	21.14
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
			(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
			d) Formwork									
			Add @11 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						16562.57	16576.01	16632.95	
			Add 1.4percent of cost of material, labour and machinery excluding formwork to cater for extra lift						2107.96	2109.67	2116.92	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		33847.88	33875.33	33991.70	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		20308.73	20325.20	20395.02	
			Cost for 30 cum= a+b+c+d+e+f						223396.00	223577.19	224345.21	
			Rate per cum (a+b+c+d+e+f)/30						7446.53	7452.57	7478.17	
								Say	**7446.50**	**7452.60**	**7478.20**	
13.05		**K**	**(r) Height above 10m**									
			RCC Grade M50 using batching plant, transit mixer & concrete pump									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Unit=cum									
		Taking output=30cum									
		a) Material									
		Per cum Basic cost (Rate taken from sub-analysis-21.14)	cum	30.000	30.000	30.000	4753.60	142608.00	142608.00	142608.00	21.14
		Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
		b) labour									
		For pouring and placing									
		Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
		c) Machinery									
		Transit truck agitator									
		For transportation (6cum capacity) & (L1=1Km)	tonne-km	75 X L1	75 X L1	75 X L1	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Water tanker (speed @km/hr and return speed @ km/hr and 30 mins for unloading)									
		(i) 16 KL capacity & (L1=1Km)	hour	0.109 X L1 + 0.656			1171.00	895.82			PM11001
		(ii) 12 KL capacity & (L1=1Km)	hour		0.146 X L1 + 0.875		997.00		1017.94		PM11002
		(iii) 6 KL capacity & (L1=1Km)	hour			0.292 X L1 +1.75	752.00			1535.58	PM11003
		d) Formwork									
		Add @13 percent on cost of concrete i.e. cost of material , labour and machinery (a+b+c) for formwork						19573.95	19589.83	19657.12	
		Add 3 percent of cost of material, labour and machinery excluding formwork to cater for extra lift						4517.07	4520.73	4536.26	
		e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		34931.97	34960.31	35080.40	
		f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		20959.18	20976.18	21048.24	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 30 cum= a+b+c+d+e+f						230551.03	230738.03	231530.65	
			Rate per cum (a+b+c+d+e+f)/30						7685.03	7691.27	7717.69	
								Say	**7685.00**	**7691.30**	**7717.70**	
		Note	The basic components of this analysis are the same as those of items 13.05 (A to K). The only changes are as under									
			(a) Ramps/Stairs: Extra expenditure on structures which are more than 5m high @ 2 percent of cost for height upto 10m and 4 percent for heights above 10m will be involved for approaching the work spot by providing higher ramp/stairs case for use by the working parties.									
			(b) The above mentioned percentage have been suitably modified for different categories as cost for various categories varies whereas effort for access for same height will be similar. As the cost of richer concrete is comparitively more , the percentage to be added has been reduced to maintain the same cost for extra efforts.									
13.06	**Section 1600 & 2200**		**Supplying, fitting and placing HYSD bar reinforcement in sub structure complete as per drawing and technical specifications**									
			Unit=MT									
			Taking output=8MT									
			a) Material									
			HYSD bars including 5% overlaps and wastage	tonne	8.400	8.400	8.400	58030.00	487452.00	487452.00	487452.00	M-083
			Binding Wire	kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072
			b) Labour for straightening, cutting, bending , shifting to site tying and placing in position.									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-25
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Cutting Machine	hour	6.667	6.667	6.667	358.00	2386.79	2386.79	2386.79	PM43001
		Bending machine	hour	6.667	6.667	6.667	358.00	2386.79	2386.79	2386.79	PM43001
		Electric generator 15 KVA	hour	6.667	6.667	6.667	292.00	1946.76	1946.76	1946.76	PM22009
		Tipper									
		Tipper for transportation									
		(i) 18 cum capacity & (L1=1Km)	t.km	8 X L1			4.95	39.60			PM72001
		(ii) 14 cum capacity & (L1=1Km)	t.km		8 X L1		5.67		45.36		PM73001
		(iii) 10 cum capacity & (L1=1Km)	t.km			8 X L1	7.04			56.32	PM74001
		Loading & unloading time									
		(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
		(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
		(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
		Light weight crane									
		At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		100707.49	100775.28	100905.63	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		60424.49	60465.17	60543.38	
		Cost for 8MT (a+b+c+d+e)						664669.44	665116.87	665977.15	
		Rate per MT= (a+b+c+d+e)/8						83083.68	83139.61	83247.14	
							Say	**83083.70**	**83139.60**	**83247.10**	
13.07	**Section 1600 & 2200**	**Supplying, fitting and placing Mild steel reinforcement complete in sub structure as per drawing and technical specifications**									
		Unit=MT									
		Taking output=8MT									
		a) Material									
		MS bars including 5% overlaps and wastage	tonne	8.400	8.400	8.400	59067.00	496162.80	496162.80	496162.80	M-125
		Binding Wire	kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour for straightening, cutting, bending , shifting to site tying and placing in position.									
			Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-25
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			c) Machinery									
			Cutting Machine	hour	6.667	6.667	6.667	358.00	2386.79	2386.79	2386.79	PM43001
			Bending machine	hour	6.667	6.667	6.667	358.00	2386.79	2386.79	2386.79	PM43001
			Electric generator 15 KVA	hour	6.667	6.667	6.667	292.00	1946.76	1946.76	1946.76	PM22009
			Tipper									
			Tipper for transportation									
			(i) 18 cum capacity & (L1=1Km)	t.km	8 X L1			4.95	39.60			PM72001
			(ii) 14 cum capacity & (L1=1Km)	t.km		8 X L1		5.67		45.36		PM73001
			(iii) 10 cum capacity & (L1=1Km)	t.km			8 X L1	7.04			56.32	PM74001
			Loading & unloading time									
			(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
			(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
			(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
			Light weight crane									
			At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
			At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		102449.65	102517.44	102647.79	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		61469.79	61510.47	61588.67	
			Cost for 8MT (a+b+c+d+e)						676167.70	676615.13	677475.40	
			Rate per MT= (a+b+c+d+e)/8						84520.96	84576.89	84684.43	
								Say	**84521.00**	**84576.90**	**84684.40**	
13.08	**2706 & 2200**		**Providing weep holes in Brick masonry/ Plain/Reinforced concrete abutment , wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20 H towards drawing face. Complete as per drawing and technical specifications.**									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit=Nos.									
			Taking output=30 nos.									
			a) Material									
			AC pipe 100 mm dia (including wastage @ 5%)	metre	31.500	31.500	31.500	45.34	1428.21	1428.21	1428.21	M-056
			Average length of weep hole is taken as 1m for the purpose of estimating									
			MS Clamp	each	30.000	30.000	30.000	49.08	1472.40	1472.40	1472.40	M-122
			Collar for AC pipe (average)	each	10.000	10.000	10.000	4.53	45.34	45.34	45.34	M056 X 0.1
			taking 10 % of above pipe rate									
			Per cum basic cost (rate taken from sub analysis-21.01 A)	cum	0.050	0.050	0.050	4218.30	210.92	210.92	210.92	21.01 A
			b) Labour									
			Mate	day	0.030	0.030	0.030	397.00	11.91	11.91	11.91	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.250	0.250	0.250	373.00	93.25	93.25	93.25	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		697.31	697.31	697.31	
			d) Contractors profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		418.38	418.38	418.38	
			Cost for 30 Nos.= (a+b+c+d)						4602.21	4602.21	4602.21	
			Rate per No.=(a+b+c+d)/30						153.41	153.41	153.41	
								Say	**153.40**	**153.40**	**153.40**	
			1. In case of stone masonry, the size of the weep holes shall be 150mm X 80 mm or circular with 150mm diameter.									
			2. For structure in stone masonry, the weep holes shall be deemed to be included in the item of stone masonry work and shall not be paid separately									
13.09	**710.1.4. of IRC:78 & 2200**		**Back filling behind abutment, wing wall, return wall complete as per drawing and technical specifications**									
			Unit=cum									
			Taking output=10 cum									
		A	**Granular Material**									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Mazdoor	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			b) Material									
			Granular material	cum	12.000	12.000	12.000	167.03	2004.36	2004.36	2004.36	M-009
			c) Machinery									
			Plate compactor/power rammer	hour	2.500	2.500	2.500	396.00	990.00	990.00	990.00	PM46001
			Water tanker 6KL capacity	hour	0.050	0.050	0.050	752.00	37.60	37.60	37.60	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		1150.82	1150.82	1150.82	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		690.49	690.49	690.49	
			Cost for 10 cum of granular backfill=a+b+c+d+e						7595.44	7595.44	7595.44	
			Rate per cum= (a+b+c+d+e)/10						759.54	759.54	759.54	
								Say	**759.50**	**759.50**	**759.50**	
13.09		**B**	**Sandy material**									
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Mazdoor for filling, watering,ramming, etc	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			b) Material									
			Sand	cum	12.000	12.000	12.000	577.80	6933.60	6933.60	6933.60	M-004*
			c) Machinery									
			Plate compactor/ power rammer	hour	2.500	2.500	2.500	396.00	990.00	990.00	990.00	PM46001
			Water tanker 6KL capacity	hour	0.060	0.060	0.060	752.00	45.12	45.12	45.12	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		2138.18	2138.18	2138.18	
			e)Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1282.91	1282.91	1282.91	
			Cost for 10 cum of sandy backfill= a+b+c+d+e						14111.96	14111.96	14111.96	
			Rate per cum= (a+b+c+d+e)/10						1411.20	1411.20	1411.20	
								Say	**1411.20**	**1411.20**	**1411.20**	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.10	710.1.4 of IRC :78 & 2504.2		**Providing and laying of filter media with granular materials/stones crushed aggregates satisfying the requirements laid down in clause 2504.2.2 of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment , wing wall and return wall to the full height compacted to a firm condition complete as per drawing and technical specification.**									
			Unit=cum									
			Taking output=10 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor for filling, watering , ramming, etc	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			Mazdoor (skilled)	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
			b) Material									
			Filter media of stone aggregate conforming ito clause 2504.2.2 of MoRT&H specification	cum	12.000	12.000	12.000	689.23	8270.76	8270.76	8270.76	M-011
			c)Machinery									
			Water tanker of 6KL capacity	hour	0.060	0.060	0.060	752.00	45.12	45.12	45.12	PM11003
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		2305.18	2305.18	2305.18	
			e)Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1383.11	1383.11	1383.11	
			Cost for 10 cum of filter media = a+b+c+d+e						15214.21	15214.21	15214.21	
			Rate per cum= (a+b+c+d+e)/10						1521.42	1521.42	1521.42	
								Say	**1521.40**	**1521.40**	**1521.40**	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.11	704		**Supplying and laying of drainage composite for use behind walls , between two different fills, alongside drains of road, below concrete lining of canals etc.. Geo composite for planar drainage, realised by thermos bonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as seperation or protecting layers. The draining three dimensional core will have a "W" configuration as longitudinal parallel channels.Minimum thickness to be 7.2 mm with two filtering UV stabilised polypropylene nonwoven geotextile of minimum thickness of 0.75mm having pores of 150 micron and tensile strength of 8KN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L /(m.s) at hydraulic gradient of 1.0 and 20 kpa pressure and tensile strength of 18KN/m, with mass per unit area of 740 gsm , supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per direction of Engineer in charge.**									
			Unit=sqm									
			Taking output=300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			b) Material									
			Geosynthetic drainge composite	sqm	300.000	300.000	300.000	525.12	157536.00	157536.00	157536.00	M-290

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 10 percent of the cost of synthetic composites for wastage and accessories for joining sheets with the fascia panels, overlap, other protective elements for synthetic composites and other miscellaneous activities required to complete the item in all respect including transportation and takes.						15753.60	15753.60	15753.60	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		35086.40	35086.40	35086.40	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		21051.84	21051.84	21051.84	
			Cost for 300 sqm = a+b+c+d						231570.24	231570.24	231570.24	
			Rate per sqm=(a+b+c+d)/300						771.90	771.90	771.90	
								Say	**771.90**	**771.90**	**771.90**	
13.12	**704**		**Supplying and laying of drainage composite for use behind walls between two different fills, along side drains of road, below concrete lining of canals etc having thermos bonding draining core- HDPE geonet comprises of two sets of parallel overlaid ribs integrally connected to have a rhomboidal shape with a polyehtylene film and a nonwoven geotextile having mass per unit area 130g/m2 and tensile strength of 8KN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 0.7 l/(m.s) at hydraulic gradient of 1.0 and 20 kpa pressure and tensile strength of 13.5 KN/m, with mass per unit area of 830 gsm, at easily accesible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc complete and as directed by Engineer in charge**									
			Unit= sqm									
			Taking output= 300sqm									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		a) Labour									
		Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		Mazdoor (skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
		b) Material									
		Geosynthetic drainage composite	sqm	300.000	300.000	300.000	625.15	187545.00	187545.00	187545.00	M-291
		Add 10 percent of the cost of synthetic composites for wastage and accessories for joining sheets with the fascia panels, overlaps, other protective elements for synthetic composites and other miscellaneous activities required to complete the item in all respect including transportation and takes.						18754.50	18754.50	18754.50	
		c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		41688.38	41688.38	41688.38	
		d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		25013.03	25013.03	25013.03	
		Cost for 300 sqm = a+b+c+d						275143.31	275143.31	275143.31	
		Rate per sqm= (a+b+c+d)/300						917.14	917.14	917.14	
							Say	**917.10**	**917.10**	**917.10**	
13.13	**2000,1000 &2200**	**Supplying fitting and fixing in positon true to line and level cast steel rocker bearing conforming to IRC: 83 (pt.-1) Section IX and clause 2003 of MoRT&H specifications complete including all accessories as per drawing and technical specification**									
		Unit=one Tonne capacity									
		Considering a 250 tonne capacity bearing for the analysis									
		a) Labour									
		Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
		Mazdoor(skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
		Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
		b) Material									

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cast steel rocker bearing assembly of 250 tonne design load capacity duly painted complete with all its components as per drawing and specification	each	1.000	1.000	1.000	98417.03	98417.03	98417.03	98417.03	M-065
			Add 1 percent of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables						984.17	984.17	984.17	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		20006.80	20006.80	20006.80	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		12004.08	12004.08	12004.08	
			Cost for 250 tonnes capacity bearing =a+b+c+d						132044.91	132044.91	132044.91	
			Rate per tonne capacity = (a+b+c+d) /250						528.18	528.18	528.18	
								Say	**528.20**	**528.20**	**528.20**	
13.14	**2000,1000 & 2200**		**Supplying fitting and fixing in positon true to line and level forged steel roller bearing conforming to IRC: 83 (pt.-1) Section IX and clause 2003 of Mort&h specifications complete including all accessories as per drawing and technical specification**									
			Unit= one tonne capacity									
			Considering a 250 tonne capacity bearing for the analysis									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			forged steel roller bearing of 250 tonne design load capacity duly painted complete with all its component as per drawing and specification	each	1.000	1.000	1.000	49901.85	49901.85	49901.85	49901.85	M-067
			Add 1 percent of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables						499.02	499.02	499.02	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		10206.74	10206.74	10206.74	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		6124.04	6124.04	6124.04	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 250 tonnes capacity bearing =a+b+c+d						67364.47	67364.47	67364.47	
			Rate per tonne capacity =(a+b+c+d)/ 250						269.46	269.46	269.46	
								Say	**269.50**	**269.50**	**269.50**	
13.15	2000 & 2200		**Supplying fitting and fixing in positon true to line and level sliding plate bearing with PTFE surface sliding of stainless steel complete including all accessories as per drawing and technical specification and BS:5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of Mort&H specifications**									
			Unit= one tonne capacity									
			Considering a 80 tonne capacity bearing for the analysis									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			PTFE sliding plate bearing assembly of 80 tonnes design load capacity duly painted complete with all its component as per drawing and specification	each	1.000	1.000	1.000	13282.08	13282.08	13282.08	13282.08	M-069
			Add 1 percent for foundation anchorage bolts, and consumables						132.82	132.82	132.82	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2809.54	2809.54	2809.54	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1685.73	1685.73	1685.73	
			Cost for 80 tonnes capacity bearing =a+b+c+d						18542.99	18542.99	18542.99	
			Rate per tonne capacity =(a+b+c+d)/ 80						231.79	231.79	231.79	
								Say	**231.80**	**231.80**	**231.80**	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.16	2000 & 2200		**Supplying , fitting and fixing in position true to line and level elastomeric bearing conforming to IRC:83 (Part-II) section IX and clause 2005 of Mort&H specification complete including all accessories as per drawing and technical specifications**									
			Unit= one cubic centimetre									
			Considering an elastomeric bearing of size 500 X 400 X 96 mm for this analysis.									
			Overall volume 19200 cu.cm									
			Volume of 6 nos.488 X 388 X4 mm size reinforcing steel plates= 4545 cu.cm									
			Hence volume of elastomneric = 14655 cu.cm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			Elastomeric bearing assembly consisting of 7 layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation, complete with all component as per drawing and technical specifications	each	1.000	1.000	1.000	12480.00	12480.00	12480.00	12480.00	M066
			Add 1 percent of cost of bearing assembly for foundation anchorage bolts and consumables.						124.80	124.80	124.80	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2647.52	2647.52	2647.52	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1588.51	1588.51	1588.51	
			Cost for 19200 cc of elastomeric bearing =a+b+c+d						17473.66	17473.66	17473.66	
			Rate per cc of elastomeric bearing = (a+b+c+d)/19200					**Say**	**0.91**	**0.91**	**0.91**	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
13.17	2000 & 2200	**Supplying fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and technical specifications.**									
		Unit= one tonne capacity									
		Considering the sliding bearing of 80 tonnes design capacity for this analysis									
		a) Labour									
		Mate	day	0.044	0.044	0.044	397.00	17.47	17.47	17.47	L-12
		Mazdoor	day	0.750	0.750	0.750	373.00	279.75	279.75	279.75	L-13
		Mazdoor (skilled)	day	0.350	0.350	0.350	472.00	165.20	165.20	165.20	L-15
		b) Material									
		Supplying of sliding plate bearing of 80 tonnes design capacity complete as per drawing and specification	each	1.000	1.000	1.000	11996.29	11996.29	11996.29	11996.29	M-070
		Add 1 percent of cost of bearing assembly for foundation anchorage bolts, and consumables						119.96	119.96	119.96	
		c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		2515.73	2515.73	2515.73	
		d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1509.44	1509.44	1509.44	
		Cost for 80 tonnes of capacity bearing =a+b+c+d						16603.85	16603.85	16603.85	
		Rate per tonne capacity =(a+b+c+d)/80						207.55	207.55	207.55	
							Say	**207.50**	**207.50**	**207.50**	

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
13.18	2000 & 2200		**Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel /fabricated structural steel, metal and elastomer elements to be as per IRC:83 Part I & ii respectively and other parts conforming to BS:5400 section 9.1 & 9.2 and clause 2006 of Mort&h specification complete as per dwrawing and approved technical specificatons**									
			Unit=one tonne capacity									
			Considering a pot bearing assembly of 250 tonnes capacity for this analysis									
			a) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and technical specifications	each	1.000	1.000	1.000	37487.50	37487.50	37487.50	37487.50	M-068
			Add 1 percent of cost of bearing assembly for foundation anchorage bolts and consumables						374.88	374.88	374.88	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		7737.93	7737.93	7737.93	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4642.76	4642.76	4642.76	

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 250 tonnes capacity bearing =a+b+c+d						51070.32	51070.32	51070.32	
			Rate per tonne capacity =(a+b+c+d)/ 250						204.28	204.28	204.28	
								Say	**204.30**	**204.30**	**204.30**	
13.19	**suggestive**		**Protection to sub structure by using coal tar epoxy**									
			Providing and applying two coats of two components, high build, 100% solid content, low VOC, polycyclin aromatic hydrocarbon based, Pot life= 2hrs @ 72 deg. F, Tack free- 4-6 hrs, DFT per coat 80-120 microns (dry) coal tar epoxy coating with coal tar									
			Unit=sqm									
			Taking output=100sqm									
			a) Labour									
			Mate	day	0.360	0.360	0.360	397.00	142.92	142.92	142.92	L-12
			Painter	day	6.000	6.000	6.000	476.00	2856.00	2856.00	2856.00	L-18
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Material									
			Coal tar epoxy coating @ 0.5kg/sqm coverage including 5% wastage	kg	52.500	52.500	52.500	34.50	1811.250	1811.250	1811.250	M-234
			Add 1 percent of cost of abs towards miscellaneous (water, painting brush, etc)						18.113	18.113	18.113	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1189.457	1189.457	1189.457	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		713.674	713.674	713.674	
			Cost for 100 sqm=a+b+c+d						7850.413	7850.413	7850.413	
			Rate per sqm=(a+b+c+d)/100						**78.50**	**78.50**	**78.50**	
13.20			**Providing structural steel for sub-structure complete as per drawing and technical specifications**									
			Unit=MT									
			Taking output=10MT									
			a) Material									

Analysis of Rate

BRIDGE SUBSTRUCTURE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Structural steel in plates, angles etc including 5 % wastage	tonne	10.500	10.500	10.500	60255.00	632677.50	632677.50	632677.50	M-181
		Nuts and bolts	kg	105.00	105.00	105.00	80.28	8429.40	8429.40	8429.40	M-129
		b) Labour									
		(for cutting, bending, making holes,joining welding and erecting in position)									
		Mate	day	12.312	12.312	12.312	397.00	4887.86	4887.86	4887.86	L-12
		Fitter	day	45.000	45.000	45.000	449.00	20205.00	20205.00	20205.00	L-08
		Blacksmith	day	45.000	45.000	45.000	449.00	20205.00	20205.00	20205.00	L-25
		Welder	day	45.000	45.000	45.000	503.00	22635.00	22635.00	22635.00	L-02
		Painter I class	day	18.900	18.900	18.900	476.00	8996.40	8996.40	8996.40	L-18
		Mazdoor	day	153.900	153.900	153.900	373.00	57404.70	57404.70	57404.70	L-13
		Electodes, cutting gas and other consumables @ 10 percent of cost of (a) above						64110.69	64110.69	64110.69	
		c) Machinery									
		Mobile hydraulic crane 10 tonne capacity (for fabrication)	hrs	40.000	40.000	40.000	931.00	37240.00	37240.00	37240.00	PM63003
		Crane 35 tonne capacity (for loading & unloading@ 1 hr for each operation)	hrs	2.000	2.000	2.000	1818.00	3636.00	3636.00	3636.00	PM63006
		Crane 35 tonne capacity (for lifting and placing in position @ 2 hr)	hrs	2.000	2.000	2.000	1818.00	3636.00	3636.00	3636.00	PM63006
		Trailer 30 tonne capacity for transporting to site	hrs	2+ L/15	2+ L/15	2+ L/15	2310.00	4774.00	4774.00	4774.00	PM6001
		Applying two coats primer before painting of truss and girder (42 sqm/tonne) (88.39/1.35 =65.47lits)	lits	525.000	525.000	525.000	65.47	34371.75	34371.75	34371.75	M-145
		Painting of Truss and girder	lits	525.000	525.000	525.000	142.03	74565.75	74565.75	74565.75	M-058
		Sundries @ 3% of the above (a,b& c)						29933.25	29933.25	29933.25	
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		205541.66	205541.66	205541.66	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		123325.00	123325.00	123325.00	
		Cost for 10 MT=a+b+c+d+e						1356574.96	1356574.96	1356574.96	
		Rate per MT=(a+b+c+d+e)/10						135657.50	135657.50	135657.50	
							Say	**135657.50**	**135657.50**	**135657.50**	

CHAPTER - 14
SUPER-STRUCTURE

CHAPTER-14
BRIDGE SUPER-STRUCTURE

PREAMBLE :

1 The rate for the wearing coat has been analyzed as under :

a) Cement concrete wearing coat

b) Asphaltic concrete wearing coat

c) Bitumen mastic wearing coat

The item may be selected as per approved design. In case the thickness of wearing coat is different from that analyzed, the rate for the desired thickness may be worked out on pro-rata basis.

2 The rate analysis has been done both for RCC railing and M.S. railing, which can be adopted as per approved design.

3 The length of drainage spout has been provided in such a way that it is connected to the drainage system on the ground in case of flyover and there is no splashing of water on the structure in case of bridges.

4 The rate for anti-corrosive treatment is required to be ascertained from firms specialized in this work.

5 Expansion joints involving moments exceeding 40 mm are specialised readymade items commercially produced by reputed firms with imported technology and parts. The rates for such joints are required to be ascertained from the firms pre-qualified by the Ministry.

6 The rate analysis for pre-stressed cement concrete of M60 grade has also been included which can be adopted for bridges with innovative design/construction.

7 Supply of new type of expansion joint may be obtained on the basis of competitive bidding from amongst the suppliers pre-qualified by the Ministry of Road Transport and Highways. Further, a warranty of 10 years of trouble free performance may be insisted from the suppliers

8 For bridges having wide deck/span length of more than 120 M or/and involving complex movements/rotations in different directions/planes, provision of a special type of modular expansion joint such as swivel joists joints are required for which firms specialise in this field may be consulted. Such cases will require prior approval of ministry.

CHAPTER- 14
SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
14.01	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification				
A	RCC Grade M20				
	Using Batching Plant ,Transit Mixer and Concrete Pump				
(i)	For solid slab super-structure, 20-30 per cent of (a+b+c)				
(p)	Height upto 5m	cum	5934.30	5940.70	5968.00
(q)	Height 5m to 10m	cum	6181.60	6188.20	6216.70
(r)	Height above 10m	cum	6428.80	6435.80	6465.40
(ii)	For T-beam & slab, 25-35 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6181.60	6188.20	6216.70
(q)	Height 5m to 10m	cum	6428.80	6435.80	6465.40
(r)	Height above 10m	cum	6676.10	6683.30	6714.00
B	RCC Grade M25 Using Batching Plant, Transit Mixer and Concrete Pump				
(i)	For solid slab super-structure, 20-30 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6534.80	6541.20	6568.50
(q)	Height 5m to 10m	cum	6807.10	6813.80	6842.20
(r)	Height above 10m	cum	7079.40	7086.30	7115.90
(ii)	For T-beam & slab, 25-35 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6807.10	6813.80	6842.20
(q)	Height 5m to 10m	cum	7079.40	7086.30	7115.90
(r)	Height above 10m	cum	7351.70	7358.90	7389.60
C	RCC Grade M30 Using Batching Plant,Transit Mixer and Concrete Pump.				
(i)	For solid slab super-structure, 20-30 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6589.00	6595.40	6622.70
(q)	Height 5m to 10m	cum	6863.50	6870.20	6898.70
(r)	Height above 10m	cum	7138.10	7145.00	7174.60
(ii)	For T-beam & slab, 25-35 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6863.50	6870.20	6898.70
(q)	Height 5m to 10m	cum	7138.10	7145.00	7174.60
(r)	Height above 10m	cum	7412.60	7419.80	7450.50
D	RCC/PSC Grade M35				
	Using Batching Plant, Transit Mixer and Concrete Pump				
(i)	For solid slab super-structure, 18-28 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6652.10	6658.30	6685.20
(q)	Height 5m to 10m	cum	6933.90	6940.50	6968.50
(r)	Height above 10m	cum	7215.80	7222.60	7251.80
(ii)	For T-beam & slab, 23-33 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6933.90	6940.50	6968.50
(q)	Height 5m to 10m	cum	7215.80	7222.60	7251.80
(r)	Height above 10m	cum	7497.70	7504.70	7535.00

SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
(iii)	For box girder and balanced cantilever ,38-58 percent of cost concrete.				
(p)	Height upto 5m	cum	7779.50	7786.90	7818.30
(q)	Height 5m to 10m	cum	8343.30	8351.10	8384.90
(r)	Height above 10m	cum	8907.00	8915.40	8951.40
E	RCC/PSC Grade M-40				
	Using Batching Plant, Transit Mixer and Concrete Pump				
(i)	For solid slab/voided slab super-structure, 18-28 per cent of (a+b+c)				
(p)	Height upto 5m	cum	6810.30	6816.60	6843.50
(q)	Height 5m to 10m	cum	7098.90	7105.40	7133.50
(r)	Height above 10m	cum	7387.50	7394.30	7423.40
(ii)	For T-beam & slab, 23-33 per cent of (a+b+c)				
(p)	Height upto 5m	cum	7098.90	7105.40	7133.50
(q)	Height 5m to 10m	cum	7387.50	7394.30	7423.40
(r)	Height above 10m	cum	7676.00	7683.10	7713.40
(iii)	For cast-in situ box girder,segmental construction and balanced cantilever ,38-58 percent of cost of concrete.				
(p)	Height upto 5m	cum	7964.60	7972.00	8003.40
(q)	Height 5m to 10m	cum	8541.80	8549.60	8583.30
(r)	Height above 10m	cum	9118.90	9127.30	9163.30
F	RCC/PSC Grade M-45				
(i)	For solid slab / voided slab super-structure, 16-26 per cent of cost of concrete (a+b+c)				
(p)	Height upto 5m	cum	6733.20	6739.30	6765.80
(q)	Height 5m to 10m	cum	7023.40	7029.80	7057.40
(r)	Height above 10m	cum	7313.60	7320.30	7349.00
(ii)	For T-beam & slab including launching of precast girders by launching truss up to 40 m span, 21-31 per cent cost of concrete .				
(p)	Height upto 5m	cum	7023.40	7029.80	7057.40
(q)	Height 5m to 10m	cum	7313.60	7320.30	7349.00
(r)	Height above 10m	cum	7603.80	7610.80	7640.70
(iii)	For cast-in situ box girder,segmental construction and balanced cantilever ,36-56 percent of cost of concrete.				
(p)	Height upto 5m	cum	7894.10	7901.30	7932.30
(q)	Height 5m to 10m	cum	8474.50	8482.30	8515.50
(r)	Height above 10m	cum	9054.90	9063.30	9098.80
G	PSC Grade M-50				
(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete				
(p)	Height upto 5m	cum	8878.10	8885.30	8916.10
(q)	Height 5m to 10m	cum	9535.80	9543.50	9576.50
(r)	Height above 10m	cum	10193.40	10201.70	10237.00
H	PSC Grade M- 55				
(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete				

SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
(p)	**Height upto 5m**	cum	9020.70	9027.90	9058.60
(q)	**Height 5m to 10m**	cum	9688.90	9696.60	9729.60
(r)	**Height above 10m**	cum	10357.10	10365.30	10400.60
I	**PSC Grade M- 60**				
(i)	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**				
(p)	**Height upto 5m**	cum	9316.90	9324.00	9354.80
(q)	**Height 5m to 10m**	cum	10007.00	10014.70	10047.70
(r)	**Height above 10m**	cum	10697.10	10705.40	10740.70
J	**PSC Grade M- 65**				
(i)	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**				
(p)	**Height upto 5m**	cum	9390.60	9397.80	9428.60
(q)	**Height 5m to 10m**	cum	10086.20	10094.00	10127.00
(r)	**Height above 10m**	cum	10781.80	10790.10	10825.40
14.02	**Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications**	MT	83305.40	83361.30	83468.80
14.03	**High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications**	MT	160782.20	160782.20	160782.20
14.04	**Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications**	cum	11812.60	11822.10	11852.90
14.05	**Mastic Asphalt**				
	Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in **Table 500-39,** prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516.	sqm	478.80	478.80	478.80
14.06	**Construction of precast RCC railing of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.**	metre	2092.40	2093.90	2098.10

SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
14.07	**Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.**	metre	2025.50	2027.00	2031.10
14.08	**Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification**	metre	4087.20	4087.20	4087.20
14.09	**Drainage Spouts complete as per drawing and Technical specification**	no.	6166.20	6166.20	6166.20
14.10	**PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification**				
Case I	**PCC Grade M15 using batching plant & Concrete pump**	cum	4436.52	4441.89	4464.67
Case II	**PCC Grade M15 using batching plant & manual placing**	cum	4697.06	4702.43	4725.16
14.11	**Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification**	cum	9815.50	9823.80	9852.40
14.12	**Providing anti-corrosive treatment to HYSD reinforcement with Fusion Bonded Epoxy Coating (FBEC)**				
	To be taken as per the prevailing market rates.	MT			
14.13	**Precast - pretensioned Girders**				
	Providing, precasting, transportation and placing in position precast pretensioned concrete girders as per drawing and technical specifications	cum	32574.10	43504.70	54454.40
14.14	**Providing and fixing Helical pipes in voided concrete slabs**	m	#VALUE!	#VALUE!	#VALUE!
14.15	**Crash Barriers for Bridge**				
	Provision of an Reinforced cement concrete crash barrier at the bridge decks& approaches to bridge structures constructed with Rein forced Cement Concrete With HYSD reinforcement confirming MoRT&H Specification and as per details given IRC-5 including dowel bars ,expansion joints filled with pre-moulded asphalt filler board etc.. and approved drawing and at locations directed by the Engineer ,all as specified .				
A	**Crash Barriers for Bridge (Height 950 mm) as per detais given IRC-5 (fig.-1) (Area -0.254 sqm. For 1 meter length)**	metre	3719.80	3722.70	3732.00
B	**Crash Barriers for Bridge (Height 1100 mm) as per detais given IRC-5 (fig.-2) (Area -0.298 sqm. For 1 meter length)**	metre	4349.60	4353.00	4363.90

SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
C	**Crash Barriers for Bridge (Height 1550 mm) as per details given IRC-5 (fig.-3) (Surface Area 0.514 sqm. For 1 meter length)**	metre	7497.60	7503.40	7522.20
14.16	**Painting on concrete surface**				
	Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.	sqm	126.70	126.70	126.70
14.17	**Filler joint**				
(i)	**Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.**	metre	3236.60	3236.60	3236.60
(ii)	**Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.**	metre	546.90	546.90	546.90
(iii)	**Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.**	metre	172.30	172.30	172.30
(iv)	**Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight**	metre	34.10	34.10	34.10
14.18	**Asphaltic Plug joint**				
	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.	metre	1530.50	1530.50	1530.50
14.19	**Elastomeric Slab Steel Expansion Joint**				
	Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation and clause 2605 of MoRT&H specifications for road & bridge works.	metre	33402.90	33402.90	33402.90
14.20	**Compression Seal Joint**				

SUPER-STRUCTURE

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
	Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm.	metre	5394.90	5394.90	5394.90
14.21	**Strip Seal Expansion Joint**				
	Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	14165.60	14165.60	14165.60
14.22	**Modular Strip / Box Seal Joint**				
	Providing and laying of a modular strip Box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	47797.40	47797.40	47797.40
14.23	**Modular Strip / Box Seal Joint**				
	Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.	metre	47813.50	47813.50	47813.50
14.24	**Painting with synthetic enamel paint bridge No. and span arrangements**				
	Painting two coat after filling the surface with synthetic enamel paint bridge No. and span arrangements as per direction by Engineer .	no.	212.80	212.80	212.80
14.25	**Bipolar corrosion inhibiting admixture in concrete for protection of reinforced steel from corrosion**				
	Admix polydentate ,bipolar ,migratory, intergal non nitrate base concrete penetrating corrosion inhibiting admixture at dosage of 3Kg per cu.m. of concrete as per manufactures specification. Inhibitor should conforms to following-	cum	114.80	114.80	114.80
14.26	**Providing structural steel for super- structure complete as per drawing and technical specifications**	MT	140228.30	140228.30	140228.30

CHAPTER - 14
BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01	1500 & 1600 1700		**Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification**									
14.01A		A	**RCC Grade M20**									
		Case I	**Using Batching Plant ,Transit Mixer and Concrete Pump**									
			Unit = cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.05)	cum	120.000	120.000	120.000	3517.90	422148.00	422148.00	422148.00	21.05
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+ 3.500		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+ 7.000	752.00			6141.58	PM11003
			For formwork and staging add the following									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01A		**(i)**	**For solid slab super-structure, 20-30 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 20 percent of (a+b+c)						89913.94	90010.74	90424.90	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		107896.73	108012.88	108509.88	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		64738.04	64807.73	65105.93	
			Cost for 120 cum = a+b+c+d+e+f						712118.40	712885.02	716165.22	
			Rate per cum = (a+b+c+d+e+f)/120						5934.32	5940.71	5968.04	
								Say	**5934.30**	**5940.70**	**5968.00**	
14.01A		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 25 percent of (a+b+c)						112392.42	112513.42	113031.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		112392.42	112513.42	113031.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		67435.45	67508.05	67818.68	
			Cost for 120 cum = a+b+c+d+e+f						741790.00	742588.56	746005.44	
			Rate per cum = (a+b+c+d+e+f)/120						6181.58	6188.24	6216.71	
								Say	**6181.60**	**6188.20**	**6216.70**	
14.01A		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 30 percent of (a+b+c)						134870.91	135016.10	135637.35	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		116888.12	117013.96	117552.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		70132.87	70208.37	70531.42	
			Cost for 120 cum = a+b+c+d+e+f						771461.60	772292.11	775845.66	
			Rate per cum = (a+b+c+d+e+f)/120						6428.85	6435.77	6465.38	
								Say	**6428.80**	**6435.80**	**6465.40**	
14.01A		**(ii)**	**For T-beam & slab, 25-35 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 25 percent of (a+b+c)						112392.42	112513.42	113031.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		112392.42	112513.42	113031.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		67435.45	67508.05	67818.68	
			Cost for 120 cum = a+b+c+d+e+f						741790.00	742588.56	746005.44	
			Rate per cum = (a+b+c+d+e+f)/120						6181.58	6188.24	6216.71	
								Say	**6181.60**	**6188.20**	**6216.70**	
14.01A		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 30 percent of (a+b+c)						134870.91	135016.10	135637.35	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		116888.12	117013.96	117552.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		70132.87	70208.37	70531.42	
			Cost for 120 cum = a+b+c+d+e+f						771461.60	772292.11	775845.66	
			Rate per cum = (a+b+c+d+e+f)/120						6428.85	6435.77	6465.38	
								Say	**6428.80**	**6435.80**	**6465.40**	
14.01A (ii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						449569.70	450053.68	452124.51	
			d) Formwork and staging 35 percent of (a+b+c)						157349.39	157518.79	158243.58	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		121383.82	121514.49	122073.62	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		72830.29	72908.70	73244.17	
			Cost for 120 cum = a+b+c+d+e+f						801133.20	801995.65	805685.87	
			Rate per cum = (a+b+c+d+e+f)/120						6676.11	6683.30	6714.05	
								Say	**6676.10**	**6683.30**	**6714.00**	
14.01	**B**	**Case II**	**RCC Grade M25 Using Batching Plant, Transit Mixer and Concrete Pump**									
			Unit = cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.07)	cum	120.000	120.000	120.000	3897.00	467640.00	467640.00	467640.00	21.07
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following									
14.01B		**(i)**	**For solid slab super-structure, 20-30 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	
			d) Formwork and staging 20 percent of (a+b+c)						99012.34	99109.14	99523.30	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		118814.81	118930.96	119427.96	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		71288.88	71358.58	71656.78	
			Cost for 120 cum = a+b+c+d+e+f						784177.73	784944.35	788224.55	
			Rate per cum = (a+b+c+d+e+f)/120						6534.81	6541.20	6568.54	
								Say	**6534.80**	**6541.20**	**6568.50**	
14.01B(i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork and staging 25 percent of (a+b+c)						123765.42	123886.42	124404.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		123765.42	123886.42	124404.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		74259.25	74331.85	74642.48	
			Cost for 120 cum = a+b+c+d+e+f						816851.80	817650.36	821067.24	
			Rate per cum = (a+b+c+d+e+f)/120						6807.10	6813.75	6842.23	
								Say	**6807.10**	**6813.80**	**6842.20**	
14.01B (i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	
			d)Formwork and staging 30 percent of (a+b+c)						148518.51	148663.70	149284.95	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		128716.04	128841.88	129380.29	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77229.62	77305.13	77628.18	
			Cost for 120 cum = a+b+c+d+e+f						849525.87	850356.38	853909.93	
			Rate per cum = (a+b+c+d+e+f)/120						7079.38	7086.30	7115.92	
								Say	**7079.40**	**7086.30**	**7115.90**	
14.01B		**(ii)**	**For T-beam & slab, 25-35 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	
			d) Formwork and staging 25 percent of (a+b+c)						123765.42	123886.42	124404.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		123765.42	123886.42	124404.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		74259.25	74331.85	74642.48	
			Cost for 120 cum = a+b+c+d+e+f						816851.80	817650.36	821067.24	
			Rate per cum = (a+b+c+d+e+f)/120						6807.10	6813.75	6842.23	
								Say	**6807.10**	**6813.80**	**6842.20**	
14.01B(ii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	
			d) Formwork and staging 30 percent of (a+b+c)						148518.51	148663.70	149284.95	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		128716.04	128841.88	129380.29	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77229.62	77305.13	77628.18	
			Cost for 120 cum = a+b+c+d+e+f						849525.87	850356.38	853909.93	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d+e+f)/120						7079.38	7086.30	7115.92	
								Say	**7079.40**	**7086.30**	**7115.90**	
14.01B (ii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						495061.70	495545.68	497616.51	
			d)Formwork and staging 35 percent of (a+b+c)						173271.59	173440.99	174165.78	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		133666.66	133797.33	134356.46	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		80199.99	80278.40	80613.87	
			Cost for 120 cum = a+b+c+d+e+f						882199.94	883062.39	886752.62	
			Rate per cum = (a+b+c+d+e+f)/120						7351.67	7358.85	7389.61	
								Say	**7351.70**	**7358.90**	**7389.60**	
14.01 14.01C		**C**	**RCC Grade M30 Using Batching Plant,Transit Mixer and Concrete Pump.**									
			Unit = cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.09)	cum	120.000	120.000	120.000	3931.20	471744.00	471744.00	471744.00	21.09
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truk and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii)12 KL capacity	hour		0.583xL1+ 3.5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following									
14.01C		**(i)**	**For solid slab super-structure, 20-30 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d) Formwork and staging 20 percent of (a+b+c)						99833.14	99929.94	100344.10	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		119799.77	119915.92	120412.92	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		71879.86	71949.55	72247.75	
			Cost for 120 cum = a+b+c+d+e+f						790678.46	791445.09	794725.28	
			Rate per cum = (a+b+c+d+e+f)/120						6588.99	6595.38	6622.71	
								Say	**6589.00**	**6595.40**	**6622.70**	
14.01C(i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d) Formwork and staging 25 percent of (a+b+c)						124791.42	124912.42	125430.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		124791.42	124912.42	125430.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		74874.85	74947.45	75258.08	
			Cost for 120 cum = a+b+c+d+e+f						823623.40	824421.96	827838.84	
			Rate per cum = (a+b+c+d+e+f)/120						6863.53	6870.18	6898.66	
								Say	**6863.50**	**6870.20**	**6898.70**	
14.01C(i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d) Formwork and staging 30 percent of (a+b+c)						149749.71	149894.90	150516.15	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		129783.08	129908.92	130447.33	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77869.85	77945.35	78268.40	
			Cost for 120 cum = a+b+c+d+e+f						856568.34	857398.84	860952.39	
			Rate per cum = (a+b+c+d+e+f)/120						7138.07	7144.99	7174.60	
								Say	**7138.10**	**7145.00**	**7174.60**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01C		(ii)	For T-beam & slab, 25-35 per cent of (a+b+c)									
		(p)	Height upto 5m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d) Formwork and staging 25 percent of (a+b+c)						124791.42	124912.42	125430.13	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		124791.42	124912.42	125430.13	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		74874.85	74947.45	75258.08	
			Cost for 120 cum = a+b+c+d+e+f						823623.40	824421.96	827838.84	
			Rate per cum = (a+b+c+d+e+f)/120						6863.53	6870.18	6898.66	
								Say	**6863.50**	**6870.20**	**6898.70**	
14.01C(ii)		(q)	Height 5m to 10m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d)Formwork and staging 30 percent of (a+b+c)						149749.71	149894.90	150516.15	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		129783.08	129908.92	130447.33	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77869.85	77945.35	78268.40	
			Cost for 120 cum = a+b+c+d+e+f						856568.34	857398.84	860952.39	
			Rate per cum = (a+b+c+d+e+f)/120						7138.07	7144.99	7174.60	
								Say	**7138.10**	**7145.00**	**7174.60**	
14.01C(ii)		(r)	Height above 10m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						499165.70	499649.68	501720.51	
			d) Formwork and staging 35 percent of (a+b+c)						174707.99	174877.39	175602.18	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		134774.74	134905.41	135464.54	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		80864.84	80943.25	81278.72	
			Cost for 120 cum = a+b+c+d+e+f						889513.27	890375.72	894065.95	
			Rate per cum = (a+b+c+d+e+f)/120						7412.61	7419.80	7450.55	
								Say	**7412.60**	**7419.80**	**7450.50**	
14.01		D	RCC/PSC Grade M35									
		casell	Using Batching Plant, Transit Mixer and Concrete Pump									
			Unit = cum									
			Taking output = 120 cum									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.11)	cum	120.000	120.000	120.000	4042.20	485064.00	485064.00	485064.00	21.11
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following									
14.01 D		**(i)**	**For solid slab super-structure, 18-28 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 18 percent of (a+b+c)						92247.43	92334.54	92707.29	
			e) Overheadcharges @ on(a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		120946.62	121060.84	121549.56	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		72567.97	72636.51	72929.74	
			Cost for 120 cum = a+b+c+d+e+f						798247.72	799001.57	802227.10	
			Rate per cum = (a+b+c+d+e+f)/120						6652.06	6658.35	6685.23	
								Say	**6652.10**	**6658.30**	**6685.20**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01 D(i)		(q)	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 23 percent of (a+b+c)						117871.71	117983.03	118459.32	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		126071.48	126190.54	126699.96	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		75642.89	75714.32	76019.98	
			Cost for 120 cum = a+b+c+d+e+f						832071.78	832857.56	836219.77	
			Rate per cum = (a+b+c+d+e+f)/120						6933.93	6940.48	6968.50	
								Say	**6933.90**	**6940.50**	**6968.50**	
14.01 D(i)		(r)	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 28 percent of (a+b+c)						143496.00	143631.51	144211.34	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		131196.34	131320.24	131850.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		78717.80	78792.14	79110.22	
			Cost for 120 cum = a+b+c+d+e+f						865895.83	866713.56	870212.44	
			Rate per cum = (a+b+c+d+e+f)/120						7215.80	7222.61	7251.77	
								Say	**7215.80**	**7222.60**	**7251.80**	
14.01 D		(ii)	**For T-beam & slab, 23-33 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 23 percent of (a+b+c)						117871.71	117983.03	118459.32	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		126071.48	126190.54	126699.96	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		75642.89	75714.32	76019.98	
			Cost for 120 cum = a+b+c+d+e+f						832071.78	832857.56	836219.77	
			Rate per cum = (a+b+c+d+e+f)/120						6933.93	6940.48	6968.50	
								Say	**6933.90**	**6940.50**	**6968.50**	
14.01 D(ii)		(q)	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 28 percent of (a+b+c)						143496.00	143631.51	144211.34	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		131196.34	131320.24	131850.37	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		78717.80	78792.14	79110.22	
			Cost for 120 cum = a+b+c+d+e+f						865895.83	866713.56	870212.44	
			Rate per cum = (a+b+c+d+e+f)/120						7215.80	7222.61	7251.77	
								Say	**7215.80**	**7222.60**	**7251.80**	
14.01 D(ii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d)Formwork and staging 33 percent of (a+b+c)						169120.28	169279.99	169963.37	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		136321.20	136449.93	137000.78	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		81792.72	81869.96	82200.47	
			Cost for 120 cum = a+b+c+d+e+f						899719.89	900569.56	904205.12	
			Rate per cum = (a+b+c+d+e+f)/120						7497.67	7504.75	7535.04	
								Say	**7497.70**	**7504.70**	**7535.00**	
14.01 D		**(iii)**	**For box girder and balanced cantilever ,38-58 percent of cost concrete.**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d)Formwork and staging 38 percent of (a+b+c)						194744.56	194928.48	195715.39	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		141446.05	141579.63	142151.18	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		84867.63	84947.78	85290.71	
			Cost for 120 cum = a+b+c+d+e+f						933543.95	934425.56	938197.79	
			Rate per cum = (a+b+c+d+e+f)/120						7779.53	7786.88	7818.31	
								Say	**7779.50**	**7786.90**	**7818.30**	
14.01 D(iii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d)Formwork and staging 48 percent of (a+b+c)						245993.13	246225.44	247219.44	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		151695.77	151839.02	152451.99	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		91017.46	91103.41	91471.19	
			Cost for 120 cum = a+b+c+d+e+f						1001192.06	1002137.56	1006183.14	
			Rate per cum = (a+b+c+d+e+f)/120						8343.27	8351.15	8384.86	
								Say	**8343.30**	**8351.10**	**8384.90**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01 D(iii)		(r)	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						512485.70	512969.68	515040.51	
			d) Formwork and staging 58 percent of (a+b+c)						297241.70	297522.41	298723.49	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		161945.48	162098.42	162752.80	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		97167.29	97259.05	97651.68	
			Cost for 120 cum = a+b+c+d+e+f						1068840.17	1069849.55	1074168.48	
			Rate per cum = (a+b+c+d+e+f)/120						8907.00	8915.41	8951.40	
								Say	**8907.00**	**8915.40**	**8951.40**	
14.01		E	**RCC/PSC Grade M-40**									
14.01E			**Using Batching Plant, Transit Mixer and Concrete Pump**									
			Unit = cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.12)	cum	120.000	120.000	120.000	4143.80	497256.00	497256.00	497256.00	21.12
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following									
14.01E		**(i)**	**For solid slab/voided slab super-structure, 18-28 per cent of (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d)Formwork and staging 18 percent of (a+b+c)						94441.99	94529.10	94901.85	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		123823.94	123938.16	124426.87	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		74294.36	74362.89	74656.12	
			Cost for 120 cum = a+b+c+d+e+f						817237.98	817991.82	821217.35	
			Rate per cum = (a+b+c+d+e+f)/120						6810.32	6816.60	6843.48	
								Say	**6810.30**	**6816.60**	**6843.50**	
14.01E(i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d) Formwork and staging 23 percent of (a+b+c)						120675.87	120787.19	121263.48	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		129070.71	129189.77	129699.20	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77442.43	77513.86	77819.52	
			Cost for 120 cum = a+b+c+d+e+f						851866.71	852652.50	856014.70	
			Rate per cum = (a+b+c+d+e+f)/120						7098.89	7105.44	7133.46	
								Say	**7098.90**	**7105.40**	**7133.50**	
14.01E(i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d) Formwork and staging 28 percent of (a+b+c)						146909.76	147045.27	147625.10	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		134317.49	134441.39	134971.52	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		80590.49	80664.83	80982.91	
			Cost for 120 cum = a+b+c+d+e+f						886495.44	887313.17	890812.05	
			Rate per cum = (a+b+c+d+e+f)/120						7387.46	7394.28	7423.43	
								Say	**7387.50**	**7394.30**	**7423.40**	
14.01E		**(ii)**	**For T-beam & slab, 23-33 per cent of (a+b+c)**									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d)Formwork and staging 23 percent of (a+b+c)						120675.87	120787.19	121263.48	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		129070.71	129189.77	129699.20	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		77442.43	77513.86	77819.52	
			Cost for 120 cum = a+b+c+d+e+f						851866.71	852652.50	856014.70	
			Rate per cum = (a+b+c+d+e+f)/120						7098.89	7105.44	7133.46	
								Say	**7098.90**	**7105.40**	**7133.50**	
14.01E(ii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d) Formwork and staging 28 percent of (a+b+c)						146909.76	147045.27	147625.10	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		134317.49	134441.39	134971.52	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		80590.49	80664.83	80982.91	
			Cost for 120 cum = a+b+c+d+e+f						886495.44	887313.17	890812.05	
			Rate per cum = (a+b+c+d+e+f)/120						7387.46	7394.28	7423.43	
								Say	**7387.50**	**7394.30**	**7423.40**	
14.01E(ii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d) Formwork and staging 33 percent of (a+b+c)						173143.64	173303.35	173986.73	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		139564.27	139693.01	140243.85	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		83738.56	83815.80	84146.31	
			Cost for 120 cum = a+b+c+d+e+f						921124.16	921973.84	925609.39	
			Rate per cum = (a+b+c+d+e+f)/120						7676.03	7683.12	7713.41	
								Say	**7676.00**	**7683.10**	**7713.40**	
14.01E		**(iii)**	**For cast-in situ box girder,segmental construction and balanced cantilever ,38-58 percent of cost of concrete.**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork and staging 38 percent of (a+b+c)						199377.52	199561.44	200348.35	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		144811.04	144944.62	145516.17	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		86886.63	86966.77	87309.70	
			Cost for 120 cum = a+b+c+d+e+f						955752.89	956634.51	960406.74	
			Rate per cum = (a+b+c+d+e+f)/120						7964.61	7971.95	8003.39	
								Say	**7964.60**	**7972.00**	**8003.40**	
14.01E(iii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d) Formwork and staging 48 percent of (a+b+c)						251845.29	252077.60	253071.60	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		155304.60	155447.86	156060.82	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		93182.76	93268.71	93636.49	
			Cost for 120 cum = a+b+c+d+e+f						1025010.35	1025955.85	1030001.43	
			Rate per cum = (a+b+c+d+e+f)/120						8541.75	8549.63	8583.35	
								Say	**8541.80**	**8549.60**	**8583.30**	
14.01E(iii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						524677.70	525161.68	527232.51	
			d)Formwork and staging 58 percent of (a+b+c)						304313.06	304593.77	305794.85	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		165798.15	165951.09	166605.47	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		99478.89	99570.65	99963.28	
			Cost for 120 cum = a+b+c+d+e+f						1094267.80	1095277.19	1099596.12	
			Rate per cum = (a+b+c+d+e+f)/120						9118.90	9127.31	9163.30	
								Say	**9118.90**	**9127.30**	**9163.30**	
14.01		**F**	**RCC/PSC Grade M-45**									
			Unit = 1cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.13)	cum	120.000	120.000	120.000	4168.80	500256.00	500256.00	500256.00	21.13
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity), L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following									
14.01F		**(i)**	**For solid slab / voided slab super-structure, 16-26 per cent of cost of concrete (a+b+c)**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d) Formwork and staging 16 percent of (a+b+c)						84428.43	84505.87	84837.20	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		122421.23	122533.51	123013.94	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		73452.74	73520.11	73808.37	
			Cost for 120 cum = a+b+c+d+e+f						807980.09	808721.16	811892.02	
			Rate per cum = (a+b+c+d+e+f)/120						6733.17	6739.34	6765.77	
								Say	**6733.20**	**6739.30**	**6765.80**	
14.01F(i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d)Formwork and staging 21 percent of (a+b+c)						110812.32	110913.95	111348.83	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		127698.00	127815.13	128316.27	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		76618.80	76689.08	76989.76	
			Cost for 120 cum = a+b+c+d+e+f						842806.82	843579.83	846887.36	
			Rate per cum = (a+b+c+d+e+f)/120						7023.39	7029.83	7057.39	
								Say	**7023.40**	**7029.80**	**7057.40**	
14.01F(i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d) Formwork and staging 26 percent of (a+b+c)						137196.20	137322.04	137860.45	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		132974.78	133096.74	133618.59	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		79784.87	79858.05	80171.16	
			Cost for 120 cum = a+b+c+d+e+f						877633.55	878438.50	881882.71	
			Rate per cum = (a+b+c+d+e+f)/120						7313.61	7320.32	7349.02	
								Say	**7313.60**	**7320.30**	**7349.00**	
14.01F		**(ii)**	**For T-beam & slab including launching of precast girders by launching truss up to 40 m span, 21-31 per cent cost of concrete .**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d) Formwork and staging 21 percent of (a+b+c)						110812.32	110913.95	111348.83	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		127698.00	127815.13	128316.27	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		76618.80	76689.08	76989.76	
			Cost for 120 cum = a+b+c+d+e+f						842806.82	843579.83	846887.36	
			Rate per cum = (a+b+c+d+e+f)/120						7023.39	7029.83	7057.39	
								Say	**7023.40**	**7029.80**	**7057.40**	
14.01F(ii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d) Formwork and staging 26 percent of (a+b+c)						137196.20	137322.04	137860.45	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		132974.78	133096.74	133618.59	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		79784.87	79858.05	80171.16	
			Cost for 120 cum = a+b+c+d+e+f						877633.55	878438.50	881882.71	
			Rate per cum = (a+b+c+d+e+f)/120						7313.61	7320.32	7349.02	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	**7313.60**	**7320.30**	**7349.00**	
14.01F(ii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d) Formwork and staging 31 percent of (a+b+c)						163580.09	163730.12	164372.08	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		138251.56	138378.36	138920.92	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		82950.93	83027.02	83352.55	
			Cost for 120 cum = a+b+c+d+e+f						912460.27	913297.17	916878.05	
			Rate per cum = (a+b+c+d+e+f)/120						7603.84	7610.81	7640.65	
								Say	**7603.80**	**7610.80**	**7640.70**	
14.01F		**(iii)**	**For cast-in situ box girder,segmental construction and balanced cantilever ,36-56 percent of cost of concrete.**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d)Formwork and staging 36 percent of (a+b+c)						189963.97	190138.20	190883.70	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		143528.33	143659.98	144223.24	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		86117.00	86195.99	86533.95	
			Cost for 120 cum = a+b+c+d+e+f						947287.00	948155.84	951873.40	
			Rate per cum = (a+b+c+d+e+f)/120						7894.06	7901.30	7932.28	
								Say	**7894.10**	**7901.30**	**7932.30**	
14.01F(iii)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	
			d)Formwork and staging 46 percent of (a+b+c)						242731.74	242954.37	243906.95	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		154081.89	154223.21	154827.89	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		92449.13	92533.93	92896.74	
			Cost for 120 cum = a+b+c+d+e+f						1016940.46	1017873.18	1021864.09	
			Rate per cum = (a+b+c+d+e+f)/120						8474.50	8482.28	8515.53	
								Say	**8474.50**	**8482.30**	**8515.50**	
14.01F(iii)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						527677.70	528161.68	530232.51	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork and staging 56 percent of (a+b+c)						295499.51	295770.54	296930.20	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		164635.44	164786.44	165432.54	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		98781.26	98871.87	99259.53	
			Cost for 120 cum = a+b+c+d+e+f						1086593.91	1087590.52	1091854.78	
			Rate per cum = (a+b+c+d+e+f)/120						9054.95	9063.25	9098.79	
								Say	**9054.90**	**9063.30**	**9098.80**	
14.01		**G**	**PSC Grade M-50**									
			Unit = cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic cost (Rate taken from sub - analysis -21.14)	cum	120.000	120.000	120.000	4753.60	570432.00	570432.00	570432.00	21.14
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following:									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01G		(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete									
		(p)	Height upto 5m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						597853.70	598337.68	600408.51	
			d) Formwork and staging 35 per cent of (a+b+c)						209248.79	209418.19	210142.98	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		161420.50	161551.17	162110.30	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		96852.30	96930.70	97266.18	
			Cost for 120 cum = a+b+c+d+e+f						1065375.29	1066237.74	1069927.96	
			Rate per cum = (a+b+c+d+e+f)/120						8878.13	8885.31	8916.07	
								Say	**8878.10**	**8885.30**	**8916.10**	
14.01G (i)		(q)	Height 5m to 10m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						597853.70	598337.68	600408.51	
			d) Formwork and staging 45 per cent of (a+b+c)						269034.16	269251.95	270183.83	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		173377.57	173517.93	174118.47	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		104026.54	104110.76	104471.08	
			Cost for 120 cum = a+b+c+d+e+f						1144291.98	1145218.31	1149181.88	
			Rate per cum = (a+b+c+d+e+f)/120						9535.77	9543.49	9576.52	
								Say	**9535.80**	**9543.50**	**9576.50**	
14.01G (i)		(r)	Height above 10m									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						597853.70	598337.68	600408.51	
			d) Formwork and staging 55 per cent of (a+b+c)						328819.53	329085.72	330224.68	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		185334.65	185484.68	186126.64	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		111200.79	111290.81	111675.98	
			Cost for 120 cum = a+b+c+d+e+f						1223208.66	1224198.88	1228435.81	
			Rate per cum = (a+b+c+d+e+f)/120						10193.41	10201.66	10236.97	
								Say	**10193.40**	**10201.70**	**10237.00**	
14.01		H	PSC Grade M- 55									
			Unit = 1 cum									
			Taking output = 120 cum									
			a) Material									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum Basic Cost (Rate taken from sub - analysis -21.15)	cum	120.000	120.000	120.000	4833.60	580032.00	580032.00	580032.00	21.15
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1 +2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+ 3.5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following:									
14.01H		**(i)**	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						607453.70	607937.68	610008.51	
			d) Formwork and staging 35 percent of (a+b+c)						212608.79	212778.19	213502.98	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		164012.50	164143.17	164702.30	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		98407.50	98485.90	98821.38	
			Cost for 120 cum = a+b+c+d+e+f						1082482.49	1083344.94	1087035.16	
			Rate per cum = (a+b+c+d+e+f)/120						9020.69	9027.87	9058.63	
								Say	**9020.70**	**9027.90**	**9058.60**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01H (i)		(q)	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						607453.70	607937.68	610008.51	
			d) Formwork and staging 45 percent of (a+b+c)						273354.16	273571.95	274503.83	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		176161.57	176301.93	176902.47	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		105696.94	105781.16	106141.48	
			Cost for 120 cum = a+b+c+d+e+f						1162666.38	1163592.71	1167556.28	
			Rate per cum = (a+b+c+d+e+f)/120						9688.89	9696.61	9729.64	
								Say	**9688.90**	**9696.60**	**9729.60**	
14.01H (i)		(r)	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						607453.70	607937.68	610008.51	
			d) Formwork and staging 55 percent of (a+b+c)						334099.53	334365.72	335504.68	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		188310.65	188460.68	189102.64	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		112986.39	113076.41	113461.58	
			Cost for 120 cum = a+b+c+d+e+f						1242850.26	1243840.48	1248077.41	
			Rate per cum = (a+b+c+d+e+f)/120						10357.09	10365.34	10400.65	
								Say	**10357.10**	**10365.30**	**10400.60**	
		Note	1. Cement provided for various components of the super structure is for estimating purpose .									
			2. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design.									
			3. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added separately in the rate analysis.									
14.01		I	**PSC Grade M- 60**									
			Unit = 1 cum									
			Taking output = 120 cum									
			a) Material									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Per cum Basic Cost (Rate taken from sub - analysis -21.16)	cum	120.000	120.000	120.000	4999.80	599976.00	599976.00	599976.00	21.16
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3.5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following:									
14.01 I		**(i)**	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						627397.70	627881.68	629952.51	
			d) Formwork and staging 35 percent of (a+b+c)						219589.19	219758.59	220483.38	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		169397.38	169528.05	170087.18	
			f) Contractor's profit @on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		101638.43	101716.83	102052.31	
			Cost for 120 cum = a+b+c+d+e+f						1118022.70	1118885.14	1122575.37	
			Rate per cum = (a+b+c+d+e+f)/120						9316.86	9324.04	9354.79	
								Say	**9316.90**	**9324.00**	**9354.80**	

Analysis of Rate

BRIDGE SUPER-STRUCUTRE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.01l (i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						627397.70	627881.68	629952.51	
			d) Formwork and staging 45 percent of (a+b+c)						282328.96	282546.75	283478.63	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		181945.33	182085.69	182686.23	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		109167.20	109251.41	109611.74	
			Cost for 120 cum = a+b+c+d+e+f						1200839.19	1201765.53	1205729.10	
			Rate per cum = (a+b+c+d+e+f)/120						10006.99	10014.71	10047.74	
								Say	**10007.00**	**10014.70**	**10047.70**	
14.01 l (i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						627397.70	627881.68	629952.51	
			d) Formwork and staging 55 percent of (a+b+c)						345068.73	345334.92	346473.88	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		194493.29	194643.32	195285.28	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		116695.97	116785.99	117171.17	
			Cost for 120 cum = a+b+c+d+e+f						1283655.69	1284645.91	1288882.83	
			Rate per cum = (a+b+c+d+e+f)/120						10697.13	10705.38	10740.69	
								Say	**10697.10**	**10705.40**	**10740.70**	
14.01		**J**	**PSC Grade M- 65**									
			Unit = 1 cum									
			Taking output = 120 cum									
			a) Material									
			Per cum Basic Cost (Rate taken from sub - analysis -21.17)	cum	120.000	120.000	120.000	5041.20	604944.00	604944.00	604944.00	21.17
			Water for curing	kl	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.192	0.192	0.192	397.00	76.22	76.22	76.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	3.300	3.300	3.300	373.00	1230.90	1230.90	1230.90	L-13
			c) Machinery									
			Transit truck and agitator									
			For transportation (6 cum Capacity),L1-lead in kilometer	tonne-km	300xL1	300xL1	300xL1	10.75	3225.00	3225.00	3225.00	PM76001
			For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001

BRIDGE SUPER-STRUCUTRE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
			Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
			(i)16 KL capacity	hour	0.438xL1+ 2.625			1171.00	3586.77			PM11001
			(ii)12 KL capacity	hour		0.583xL1+3. 5		997.00		4070.75		PM11002
			(iii)6 KL capacity	hour			1.167xL1+7	752.00			6141.58	PM11003
			For formwork and staging add the following:									
14.01		**(i)**	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**									
		(p)	**Height upto 5m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						632365.70	632849.68	634920.51	
			d) Formwork and staging 35 percent of (a+b+c)						221327.99	221497.39	222222.18	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		170738.74	170869.41	171428.54	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		102443.24	102521.65	102857.12	
			Cost for 120 cum = a+b+c+d+e+f						1126875.67	1127738.12	1131428.35	
			Rate per cum = (a+b+c+d+e+f)/120						9390.63	9397.82	9428.57	
								Say	**9390.60**	**9397.80**	**9428.60**	
14.01 J (i)		**(q)**	**Height 5m to 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						632365.70	632849.68	634920.51	
			d) Formwork and staging 45 percent of (a+b+c)						284564.56	284782.35	285714.23	
			e) Overheadcharges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		183386.05	183526.41	184126.95	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		110031.63	110115.84	110476.17	
			Cost for 120 cum = a+b+c+d+e+f						1210347.94	1211274.28	1215237.85	
			Rate per cum = (a+b+c+d+e+f)/120						10086.23	10093.95	10126.98	
								Say	**10086.20**	**10094.00**	**10127.00**	
14.01 J (i)		**(r)**	**Height above 10m**									
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum						632365.70	632849.68	634920.51	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork and staging 55 percent of (a+b+c)						347801.13	348067.32	349206.28	
			e) Overhead charges @ on (a+b+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		196033.37	196183.40	196825.36	
			f) Contractor's profit @ on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		117620.02	117710.04	118095.21	
			Cost for 120 cum = a+b+c+d+e+f						1293820.22	1294810.44	1299047.36	
			Rate per cum = (a+b+c+d+e+f)/120						10781.84	10790.09	10825.39	
								Say	**10781.80**	**10790.10**	**10825.40**	
		Note	1. Cement provided for various components of the super structure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design.									
			2. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added separately in the rate analysis.									
14.02	**1600**		**Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications**									
			Unit = MT									
			Taking output = 8 MT									
			a) Material									
			HYSD bars including 5 per cent overlaps and wastage	tonne	8.400	8.400	8.400	58030.00	487452.00	487452.00	487452.00	M-083
			Binding wire	Kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072
			b) Labour for straightening, cutting, bending, shifting to site , tying and placing in position									
			Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-01
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			C) Machinery									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Cutting Machine	hour	8.000	8.000	8.000	358.00	2864.00	2864.00	2864.00	PM43001
		Bending Machine	hour	8.000	8.000	8.000	358.00	2864.00	2864.00	2864.00	PM43001
		Electric generator 15 KVA	hour	8.000	8.000	8.000	292.00	2336.00	2336.00	2336.00	PM22009
		Tipper									
		Tipper for Transportation									
		(i) 18 cum capacity	t-km	8xL1			4.95	39.60			PM72001
		(ii) 14 cum capacity	t-km		8xL1		5.67		45.36		PM73001
		(iii) 10 cum capacity	t-km			8xL1	7.04			56.32	PM74001
		Loading & Unloading Time	hour								
		(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
		(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
		(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
		Light weight Crane									
		At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		100976.22	101044.02	101174.36	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		60585.73	60626.41	60704.62	
		Cost for 8 MT (a+b+c+d+e)						666443.08	666890.51	667750.78	
		Rate for per MT(a+b+c+d+e) /8						83305.38	83361.31	83468.85	
							Say	**83305.40**	**83361.30**	**83468.80**	
14.03	**1800**	**High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications**									
		Unit = MT									
		Taking output = 0.377 MT									
		Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT)									
		a) Material									
		H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.385	0.385	0.385	88946.15	34244.27	34244.27	34244.27	M-118
		Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m.	metre	42.000	42.000	42.000	104.99	4409.58	4409.58	4409.58	M-166
		Tube anchorage set complete with bearing plate, permanent wedges etc	each	2.000	2.000	2.000	57.26	114.52	114.52	114.52	M-189

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 40 = 123.60 kg (say, = 125 kg)	tonne	0.125	0.125	0.125	6328.00	791.00	791.00	791.00	M-081
			Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items						197.80	197.80	197.80	
			b) Labour									
			i) For making and fixing cables, anchorages									
			Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-01
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			ii) For prestressing									
			Mate/Supervisor	day	0.050	0.050	0.050	397.00	19.85	19.85	19.85	L-12
			Prestressing operator / Fitter	day	0.250	0.250	0.250	449.00	112.25	112.25	112.25	L-08
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			iii) For grouting									
			Mate/Supervisor	day	0.050	0.050	0.050	397.00	19.85	19.85	19.85	L-12
			Mason	day	0.250	0.250	0.250	449.00	112.25	112.25	112.25	L-10
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			c) Machinery									
			Stressing jack with pump	hour	2.500	2.500	2.500	448.00	1120.00	1120.00	1120.00	PM65001
			Grouting pump with agitator	hour	1.000	1.000	1.000	585.00	585.00	585.00	585.00	PM60001
			Generator 33 KVA.	hour	3.500	3.500	3.500	519.00	1816.50	1816.50	1816.50	PM22008
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		9184.08	9184.08	9184.08	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		5510.45	5510.45	5510.45	
			Cost for 0.377 MT (a+b+c+d +e)						60614.91	60614.91	60614.91	
			Rate per MT = (a+b+c+d+e)/0.377						160782.25	160782.25	160782.25	
								Say	**160782.20**	**160782.20**	**160782.20**	
14.04	**2702**		**Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Material									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cement concrete M30 Grade Refer relevant item of concrete in Item 14.01 excluding formwork	cum	1.000	1.000	1.000	4159.71 L 4163.75 M 4181.00 S	4159.71	4163.75	4181.00	14.01 C
			HYSD bar reinforcement Rate as per item No 14.02(Excluding OH & CP)	tonne	0.075	0.075	0.075	63110.14 L 63152.51 M 63233.98 S	4733.26	4736.44	4742.55	14.02 excluding OH & CP
			b) Labour									
			Mazdoor for cleaning deck slab concrete surface.	day	0.150	0.150	0.150	373.00	55.95	55.95	55.95	L-13
			c) Overheadcharges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		1789.78	1791.23	1795.90	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1073.87	1074.74	1077.54	
			Rate per cum (a+b+c+d)						11812.58	11822.10	11852.94	
								Say	**11812.60**	**11822.10**	**11852.90**	
14.05	**516 & 2702**		**Mastic Asphalt**									
			Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in **Table 500-39,** prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516.									
			Unit = sqm									
			Taking output = 72.46 sqm (2 tonnes)(0.869 cum) assuming a density of 2.3 tonnes/cum.									
			a) Labour									
			Mate	day	0.490	0.490	0.490	397.00	194.53	194.53	194.53	L-12
			Mazdoor	day	11.000	11.000	11.000	373.00	4103.00	4103.00	4103.00	L-13

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor (Skilled)	day	1.250	1.250	1.250	472.00	590.00	590.00	590.00	L-15
		b) Machinery									
		Mechanical broom @ 1250 sqm per hour	hour	0.060	0.060	0.060	794.00	47.64	47.64	47.64	PM23001
		Air compressor 250 cfm	hour	0.060	0.060	0.060	440.00	26.40	26.40	26.40	PM15001
		Mastic cooker 1 tonne capacity	hour	6.000	6.000	6.000	499.00	2994.00	2994.00	2994.00	PM27001
		Bitumen boiler 1500 litres capacity	hour	6.000	6.000	6.000	552.00	3312.00	3312.00	3312.00	PM26001
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
		c) Material									
		Base mastic (without coarse aggregates) = 60 per cent									
		Coarse aggregate(3.35mm to 9.5 mm size) = 40 per cent .									
		Proportion of material required for mastic asphalt with coarse aggregates (based on mix design done by CRRI for a specific case)									
		i) Bitumen 80/100 or60 /70 or 30/40 @ 10.2 per cent by weight of mix. 2 x 10.2/100 = 0.204	tonne	0.204	0.204	0.204	62440.00	12737.76	12737.76	12737.76	M-327
		ii) Crusher stone dust @ 31.9 per cent by weight of mix = 2 x 31.9/100 = 0.638 tonnes = 0.638/1.625 = 0.39	cum	0.390	0.390	0.390	264.78	103.26	103.26	103.26	M-020
		iii) Lime stone dust filler with calcium carbonate content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = 2 x 17.92/100 = 0.36	tonne	0.360	0.360	0.360	3000.00	1080.00	1080.00	1080.00	M-190
		iv) Coarse aggregates 9.5 mm to 3.35 mm size @ 40 per cent by weight of mix = 2 x 40/100 = 0.8 MT = 0.8/1.456 = 0.55	cum	0.550	0.550	0.550	595.16	327.34	327.34	327.34	M-050
		v) Pre-coated stone chips of 9.5 mm nominal size for skid resistance = 72.46x0.005/10 = 0.036	cum	0.036	0.036	0.036	655.09	23.58	23.58	23.58	M-141
		vi) Bitumen for coating of chips @ 2 per cent by weight = 0.036 x 1.456 x 2/100 = 0.001048MT = 1.05kg	kg	1.050	1.050	1.050	62.44	65.56	65.56	65.56	M-327
		d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		5256.22	5256.22	5256.22	
		e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		3153.73	3153.73	3153.73	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 72.46 sqm = a+b+c+d+e						34691.02	34691.02	34691.02	
			Rate per sqm = (a+b+c+d+e)/72.46						478.76	478.76	478.76	
								Say	**478.80**	**478.80**	**478.80**	
		Note	**1.**The rates for 6 mm or any other thickness may be worked out on pro-data basis.									
			2. Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.									
			3.The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design.									
			4.This rate analysis is based on design made by CRRI for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case.									
			5.The quantity of bitumen works out 17 per cent of the mastic asphalt blocks without aggregates and falls within the standards laid down by MoRT&H Specifications.									
14.06	**2703, 1500, 1600 & 1700**		**Construction of precast RCC railing of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.**									
			Unit = 1 RM									
			Taking output = 2 x 24 m									
			span= 48 m.									
			a) Material									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cement concrete M30 Grade refer relevent item of concrete in Item 14.01 (C) by using batching plant, excluding form work i.e. per cum basic cost (a+b+c) No. of vertical posts =(12+2)2=28 Nos., External area of vertical posts=0.25x0.275 =0.069sqm, Concrete in Vertical posts =0.069x28 =1.932 cum, Hand rail in 3 tiers =3x24= 72 m, External area =0.170x0.175 =0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum.	cum	4.092	4.092	4.092	4159.71 L 4163.75 M 4181.00 S	17021.55	17038.05	17108.67	14.01 C excluding formwork
			Add 5 percent of above cost for form work for casting in casting yard						851.08	851.90	855.43	
			HYSD bar reinforcement Rate as per item No 14.02	tonne	0.865	0.865	0.865	63110.14 L 63152.51 M 63233.98 S	54590.27	54626.92	54697.39	14.02 (excluding OH & CP)
			Add 5 per cent of (a) for handling and fixing of precast panels in position						3623.14	3625.84	3633.07	
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		15217.21	15228.54	15258.91	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		9130.33	9137.13	9155.35	
			Rate for 48 m (a+b+c)						100433.58	100508.39	100708.83	
			Rate per metre (a+b+c) / 48						2092.37	2093.92	2098.10	
								Say	**2092.40**	**2093.90**	**2098.10**	
		Note	1. Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202.									
			2. 48 m length is the total linear length adding both sides of 24 m span.									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.07	2703, 1500, 1600 & 1700		**Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.**									
			Unit = 1 RM									
			Taking output = 2 x 24 m									
			span= 48 m.									
			a) Material									
			Cement concrete M30 Grade refer relevent item of concrete in Item 14.01 (C) by using batching plant, excluding form work i.e. per cum basic cost (a+b+c) No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.069sqm, Concrete in verticle posts = 0.069 x 28 = 1.932 cum, Hand rail in 3 tiers = 3 x 24 = 72 m, External area = 0.170 x 0.175 = 0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum.	cum	4.092	4.092	4.092	4159.71 L 4163.75 M 4181.00 S	17021.55	17038.05	17108.67	Same as 14.01 (C) excluding formwork
			Add 12 per cent of above cost for form work.						2042.59	2044.57	2053.04	
			HYSD bar reinforcement Rate as per item No 14.02 (Excluding OH & CP)	tonne	0.865	0.865	0.865	63110.14 L 63152.51 M 63233.98 S	54590.27	54626.92	54697.39	Same as 14.02 excluding OH & CP
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		14730.88	14741.91	14771.82	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		8838.53	8845.14	8863.09	
			Rate for 48 m (a+b+c)						97223.82	97296.59	97494.01	
			Rate per metre (a+b+c) / 48						2025.50	2027.01	2031.13	
								Say	**2025.50**	**2027.00**	**2031.10**	
		Note	**1.** Quantities of material have been calculated as per above assumption .									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			2. 48 m length is the total linear length adding both sides of 24 m span.									
14.08	**2703.2 & 1900**		**Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification**									
			Unit = RM									
			Taking output = 2 x 50 m span = 100 m									
			a) Material:									
			1) ISMC 100 = 2.806 x 1.05 = 2.946 MT	tonne	2.946	2.946	2.946	60255.00	177511.23	177511.23	177511.23	M-181
			2) MS Flat = 0.964 x 1.05 = 1.012 MT	tonne	1.012	1.012	1.012	60255.00	60978.06	60978.06	60978.06	M-181
			3) MS bars = 0.17 x 1.05 = 0.180 MT	tonne	0.180	0.180	0.180	59067.00	10632.06	10632.06	10632.06	M-125
			4) MS bolts, nuts and washers	tonne	0.150	0.150	0.150	80280.00	12042.00	12042.00	12042.00	M-129
			Add @ 5 per cent of cost of material for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables to safeguard against weathering and corrosion.						13058.17	13058.17	13058.17	
			Add for cost of concrete for fixing vertical posts in the performed recess @ 1 per cent of cost of material.						2611.63	2611.63	2611.63	
			Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of cost of material.						2611.63	2611.63	2611.63	
			b) Labour									
			Mate	day	2.800	2.800	2.800	397.00	1111.60	1111.60	1111.60	L-12
			Mazdoor (Skilled)	day	30.000	30.000	30.000	472.00	14160.00	14160.00	14160.00	L-15
			Mazdoor	day	40.000	40.000	40.000	373.00	14920.00	14920.00	14920.00	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		61927.28	61927.28	61927.28	
			d) Contractor's profit @ on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		37156.37	37156.37	37156.37	
			Cost for 100 m steel railing = (a+b+c+d)						408720.03	408720.03	408720.03	
			Rate per metre (a+b+c+d) /100						4087.20	4087.20	4087.20	
								Say	**4087.20**	**4087.20**	**4087.20**	
14.09	**2705**		**Drainage Spouts complete as per drawing and Technical specification**									
			Unit = 1 No.									
			Taking output = 1 No.									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Corrosion resistant Structural steel including 5 per cent wastage	Kg	4.000	4.000	4.000	75.30	301.20	301.20	301.20	M-088
			GI pipe 100mm dia	metre	6.000	6.000	6.000	647.76	3886.56	3886.56	3886.56	M-239
			GI bolt 10 mm Dia	each	6.000	6.000	6.000	20.76	124.56	124.56	124.56	M-109
			Galvanised MS flat clamp	each	2.000	2.000	2.000	18.01	36.02	36.02	36.02	M-101
			b) Labour									
			For fabrication									
			Mate	day	0.002	0.002	0.002	397.00	0.79	0.79	0.79	L-12
			Skilled (Blacksmith, welder etc.)	day	0.020	0.020	0.020	503.00	10.06	10.06	10.06	L-02
			Mazdoor	day	0.020	0.020	0.020	373.00	7.46	7.46	7.46	L-13
			For fixing in position									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mason	day	0.010	0.010	0.010	449.00	4.49	4.49	4.49	L-10
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.						222.45	222.45	222.45	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		934.27	934.27	934.27	
			d) Contractor's profit @ on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		560.56	560.56	560.56	
			Rate per No. = (a+b+c+d)						6166.20	6166.20	6166.20	
								Say	**6166.20**	**6166.20**	**6166.20**	
		Note	**1.** 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.									
			2. 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.									
14.10	**2700**		**PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification**									
			Unit = 1 cum									
			Taking output = 1 cum									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Material									
		Case I	**PCC Grade M15 using batching plant & Concrete pump**									
			a) Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum	1.000			3361.00	3361.00			12.08 (A) Case I (Large)
			Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum		1.000		3365.07		3365.07		12.08 (A) Case I (Medium)
			Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum			1.000	3382.32			3382.32	12.08 (A) Case I (small)
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		672.20	673.01	676.46	
			c) Contractor profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		403.32	403.81	405.88	
			Rate per cum= (a+b+c)						**4436.52**	**4441.89**	**4464.67**	
		Case II	**PCC Grade M15 using batching plant & manual placing**									
			a) Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum	1.000			3558.38	3558.38			12.08 (A) Case II (large)
			Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum		1.000		3562.44		3562.44		12.08 (A) Case II (Medium)
			Concrete, Rate as per item No. 12.08 (A) excluding formworks	cum			1.000	3579.67			3579.67	12.08 (A) Case II (small)
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		711.68	712.49	715.93	
			c) Contractor profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		427.01	427.49	429.56	
			Rate per cum= (a+b+c)						**4697.06**	**4702.43**	**4725.16**	
14.11	**1500,1600, 1700 & 2704**		**Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Material									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cement concrete M30 Grade Refer relevant item of concrete in item 12.08(G)by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.000	1.000	1.000	4196.56 L 4200.63 M 4217.89 S	4196.56	4200.63	4217.89	12.08 G Case I
			(Refer relevant item of concrete in item No. 12.8 (G) except that form work may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete.						83.93	84.01	84.36	
			HYSD bar reinforcement Rate as per item No 14.02(Excluding OH & CP)	tonne	0.050	0.050	0.050	63110.14 L 63152.51 M 63233.98 S	3155.51	3157.63	3161.70	14.02 excluding OH &CP
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		1487.20	1488.45	1492.79	
			c) Contractor's profit @ on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		892.32	893.07	895.67	
			Rate per cum (a+b+c)						9815.52	9823.80	9852.41	
								Say	**9815.50**	**9823.80**	**9852.40**	
		Note	The grade of reinforced cement concrete may be adopted as M30 for severe conditions and M25 for moderate conditions.									
14.12	**1600**		**Providing anti-corrosive treatment to HYSD reinforcement with Fusion Bonded Epoxy Coating (FBEC)**									
			Unit = 1 MT									
			Taking output = 1 MT									
			To be taken as per the prevailing market rates.									
		Note	Contractors generally do not have expertise for this item . The job is therefore, got done from specialised firms who have the expertise in the field of construction chemicals. The prevailing rate in the market is required to be ascertained from the market and added in the cost estimate. HYSD reinforcement with Fusion Bonded Epoxy Coating(FBEC) as per MoRT&H circular / specification.									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.13	1800 & 2300		**Precast - pretensioned Girders**									
			Providing, precasting, transportation and placing in position precast pretensioned concrete girders as per drawing and technical specifications									
			Unit = 1 cum									
			Taking output = 1 cum									
			Grade of concrete - M40									
			a) Material									
			Per Cum Basic Cost (Rate as in sub -analysis)	cum	1.000	1.000	1.000	4143.80	4143.80	4143.80	4143.80	21.12
			Water for curing	KL	0.525	0.525	0.525	60.30	31.66	31.66	31.66	M-191
			HYSD steel	tonne	0.100	0.100	0.100	58030.00	5803.00	5803.00	5803.00	M-083
			HT strand with 5 per cent as wastage and extra length for anchoring	tonne	0.060	0.060	0.060	88946.15	5336.77	5336.77	5336.77	M-118
			LDO for steam curing	Litre	37.000	37.000	37.000	80.56	2980.72	2980.72	2980.72	M-121
			Add consumables such as binding wire, foam, packing tape, shuttering oil, HDPE pipe for unbonding of strand, bolt & nuts etc @ 1 per cent of material cost						182.96	182.96	182.96	
			b) Labour									
			(i) Cutting, bending, making reinforcement cage, placing in position, binding etc. complete									
			Taking quantity of steel 100 Kg/cum of concrete including laps and wastage									
			Mate	day	0.070	0.070	0.070	397.00	27.79	27.79	27.79	L-12
			Mazdoor (Skilled)	day	0.350	0.350	0.350	472.00	165.20	165.20	165.20	L-15
			Mazdoor	day	1.400	1.400	1.400	373.00	522.20	522.20	522.20	L-13
			(ii) Cable cutting and threading in position including binding by insulation tape with HDPE pipes etc., prestessing and cutting of extra length of HT strand after de-stressing.									
			Taking quantity of HT strand 60 Kg/cum									
			Mate	day	0.026	0.026	0.026	397.00	10.32	10.32	10.32	L-12
			Mazdoor (Skilled)	day	0.140	0.140	0.140	472.00	66.08	66.08	66.08	L-15

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
		(iii) Erection and dismantling of shuttering									
		Taking shuttering area 10 sqm/cum of concrete									
		Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
		Mazdoor (Skilled)	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
		(iv) Concreting by Batching plant and stationary concrete pump									
		Mate	day	0.026	0.026	0.026	397.00	10.32	10.32	10.32	L-12
		Mazdoor (Skilled)	day	0.050	0.050	0.050	472.00	23.60	23.60	23.60	L-15
		Mazdoor	day	0.600	0.600	0.600	373.00	223.80	223.80	223.80	L-13
		(v) Steam curing and manual curing									
		Mate	day	0.014	0.014	0.014	397.00	5.56	5.56	5.56	L-12
		Mazdoor	day	0.350	0.350	0.350	373.00	130.55	130.55	130.55	L-13
		(vi) Handling of precast girder, stacking in stockyard and again loading in trailor									
		Mate	day	0.010	0.010	0.010	397.00	3.97	3.97	3.97	L-12
		Mazdoor	day	0.250	0.250	0.250	373.00	93.25	93.25	93.25	L-13
		(vii) Placement of girders in position over pier caps including placement of sand jacks, channel, levelling etc.									
		Mate	day	0.012	0.012	0.012	397.00	4.76	4.76	4.76	L-12
		Mazdoor (Skilled)	day	0.060	0.060	0.060	472.00	28.32	28.32	28.32	L-15
		Mazdoor	day	0.240	0.240	0.240	373.00	89.52	89.52	89.52	L-13
		c) Machinery									
		i) At casting yard Transit truck agitator									
		For transportation (6 cum capacity) ,L1 -lead in Kilometer	tonne-km	2.5xL1	2.5xL1	2.5xL1	10.75	26.88	26.88	26.88	PM76001
		For unloading	hour	0.022	0.022	0.022	1935.00	42.57	42.57	42.57	PM34001
		Hydraulic Boom placer pump	hour	0.022	0.022	0.022	3769.00	82.92	82.92	82.92	PM36001
		Water tanker (speed @ 20km /hr and return speed @ 30 km /hr and 30 mins for uploading)									
		(i)16 KL capacity	hour	0.004XL1+ 0.022			1171.00	30.45			PM11001

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii)12 KL capacity	hour		0.005xL1+ 0.029		997.00		33.90		PM11002
			(iii)6 KL capacity	hour			0.01xL1+ 0.058	752.00			51.14	PM11003
			Crane 35 tonne capacity	hour	0.100	0.100	0.100	5573.00	557.30	557.30	557.30	PM62001
			Trailer 30 tonne capacity	hour	0.100	0.100	0.100	2310.00	231.00	231.00	231.00	PM6001
			ii) For transportation and placement at site									
			Crane 35 tonne capacity	hour	0.150	1.150	2.15	5573.00	835.95	6408.95	11981.95	PM62001
			Trailer 30 tonne capacity for transporting to site.	tonne.km	2.5xL	2.5xL	2.5xL	4.95	12.38	12.38	12.38	PM72001
			(L - Lead in Kilometer)									
			Trailor 30 tonne capacity during placement.	hour	0.150	1.15	2.150	2310.00	346.50	2656.50	4966.50	PM6001
			Cost of formwork, steam curing arrangement, pretensioning arrangement etc @ 5 per cent of cost material, labour and machinery						1175.11	1569.43	1964.45	
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		4935.47	6591.62	8250.67	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2961.28	3954.97	4950.40	
			Rate per cum = (a+b+c+d+e)						32574.09	43504.71	54454.44	
								Say	**32574.10**	**43504.70**	**54454.40**	
14.14	**1700 & 1800**		**Providing and fixing Helical pipes in voided concrete slabs**									
			Unit = 1 RM									
			Taking output = 1 RM									
			a) Material									
			Helical pipes 600mm diameter	metre	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-116
			Tie rods 20mm diameter	each	1.000	1.000	1.000	71.27	71.27	71.27	71.27	M-185
			Consumables for sealing joints etc.@ 5 per cent of cost of material						#VALUE!	#VALUE!	#VALUE!	
			b) Labour									
			Mate	day	0.010	0.010	0.010	397.00	3.97	3.97	3.97	L-12
			Fitter	day	0.050	0.050	0.050	449.00	22.45	22.45	22.45	L-08
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		#VALUE!	#VALUE!	#VALUE!	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per m = (a+b+c+d)						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
14.15	**800**		**Crash Barriers for Bridge**									
			Provision of an Reinforced cement concrete crash barrier at the bridge decks& approaches to bridge structures constructed with Rein forced Cement Concrete With HYSD reinforcement confirming MoRT&H Specification and as per details given IRC-5 including dowel bars ,expansion joints filled with pre-moulded asphalt filler board etc.. and approved drawing and at locations directed by the Engineer ,all as specified .									
			Unit = Linear meter									
			Taking output 10 m									
		A	**Crash Barriers for Bridge (Height 950 mm) as per detais given IRC-5 (fig.-1) (Area - 0.254 sqm. For 1 meter length)**									
			a) M 40 grade concrete &HYSD steel reinforcement									
			M 40 grade concrete (Area -0.254 Sqm. /Meter) (Rate taken from item No. 14.01 E (p) including OH&CP)	cum	2.540	2.540	2.540	6810.30 L 6816.60 M 6843.50 S	17298.16	17314.16	17382.49	14.01 E (i) (p)
			HYSD steel reinforcement including dowel bars (Rate taken from item No. 14.02 including OH & CP)	tonne	0.229	0.229	0.229	83305.40 L 83361.30 M 83468.80 S	19076.94	19089.74	19114.36	14.02 including OH & CP
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			c) Material									
			Pre-moulded ashphalt filler board	sqm	0.265	0.265	0.265	885.00	234.53	234.53	234.53	M-143
			d) Overhead charges @ on (b+c)		(@ 20%)	(@ 20%)	(@ 20%)		124.68	124.68	124.68	
			e) Contractor's profit @ on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		74.81	74.81	74.81	
			Cost for 10 metre =a+b+c+d+e						37197.99	37226.80	37319.74	
			Rate per metre =(a+b+c+d+e) /10						3719.80	3722.68	3731.97	
								Say	**3719.80**	**3722.70**	**3732.00**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.15		**B**	**Crash Barriers for Bridge (Height 1100 mm) as per details given IRC-5 (fig.-2) (Area - 0.298 sqm. For 1 meter length)**									
			a) M 40 grade concrete &HYSD steel reinforcement									
			M 40 grade concrete (Area 0.298 Sqm. /Meter) (Rate taken from item No. 14.01 E (p) including OH&CP)	cum	2.980	2.980	2.980	6810.30 L 6816.60 M 6843.50 S	20294.69	20313.47	20393.63	14.01 E (i) (p)
			HYSD steel reinforcement including dowel bars (Rate taken from item No. 14.02 including OH & CP)	tonne	0.268	0.268	0.268	83305.40 L 83361.30 M 83468.80 S	22325.85	22340.83	22369.64	14.02 including OH & CP
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			c) Material									
			Pre-moulded ashphalt filler board	sqm	0.310	0.310	0.310	885.00	274.35	274.35	274.35	M-143
			d) Overhead charges @ on (b+c)		(@ 20%)	(@ 20%)	(@ 20%)		132.65	132.65	132.65	
			e) Contractor's profit @ on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		79.59	79.59	79.59	
			Cost for 10 metre =a+b+c+d+e						43496.00	43529.76	43638.73	
			Rate per metre =(a+b+c+d+e) /10						4349.60	4352.98	4363.87	
								Say	**4349.60**	**4353.00**	**4363.90**	
14.15		**C**	**Crash Barriers for Bridge (Height 1550 mm) as per detais given IRC-5 (fig.-3) (Surface Area 0.514 sqm. For 1 meter length)**									
			a) M 40 grade concrete &HYSD steel reinforcement									
			M 40 grade concrete (Area 0.514 Sqm. /Meter) (Rate taken from item No. 14.01 E (p) including OH&CP)	cum	5.140	5.140	5.140	6810.30 L 6816.60 M 6843.50 S	35004.94	35037.32	35175.59	14.01 E (i) (p)
			HYSD steel reinforcement including dowel bars (Rate taken from item No. 14.02 including OH & CP)	tonne	0.463	0.463	0.463	83305.40 L 83361.30 M 83468.80 S	38570.40	38596.28	38646.05	14.02 including OH & CP
			b) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			c) Material									

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Premoulded asphalt filler board	sqm	0.540	0.540	0.540	885.00	477.90	477.90	477.90	M-143
			d) Overhead charges @ on (b+c)		(@ 20%)	(@ 20%)	(@ 20%)		212.24	212.24	212.24	
			e) Contractor's profit @ (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		127.35	127.35	127.35	
			Cost for 10 metre =a+b+c+d+e						74976.15	75034.42	75222.45	
			Rate per metre =(a+b+c+d+e) /10						7497.62	7503.44	7522.25	
								Say	**7497.60**	**7503.40**	**7522.20**	
		Note	The rate analysis for semi - rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-8 on Traffic and Transportation.									
14.16	**800**		**Painting on concrete surface**									
			Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.020	0.020	0.020	397.00	7.94	7.94	7.94	L-12
			Painter	day	0.250	0.250	0.250	476.00	119.00	119.00	119.00	L-18
			Mazdoor (Skilled)	day	0.250	0.250	0.250	472.00	118.00	118.00	118.00	L-15
			b) Material									
			Water based paint of approved quality for cement concrete surface	Litres	5.000	5.000	5.000	142.98	714.90	714.90	714.90	M-192
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		191.97	191.97	191.97	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		115.18	115.18	115.18	
			Cost for 10 sqm =a+b+c+d						1266.99	1266.99	1266.99	
			Rate per sqm =(a+b+c+d) /10						126.70	126.70	126.70	
								Say	**126.70**	**126.70**	**126.70**	
14.17	**2604**		**Filler joint**									
		(i)	**Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.**									
			Unit = Running meter									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 12 m									
			a) Labour									
			Cutting, bending, carrying & fixing etc.									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Mazdoor (Skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			Copper plate - 12m long x 250 mm wide	kg	55.000	55.000	55.000	527.00	28985.00	28985.00	28985.00	M-087
			Area = 12 x 0.25 = 3 sqm									
			Weight = 3 x 0.002 x 8900 = 53.4 kg									
			Wastage @ 2.5 per cent = 1.33 kg/54.73 kg say = 55 kg.									
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		5884.68	5884.68	5884.68	
			d) Contractor's profit @on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3530.81	3530.81	3530.81	
			Cost for 12 m =a+b+c+d						38838.86	38838.86	38838.86	
			Rate per m =(a+b+c+d) /12						3236.57	3236.57	3236.57	
								Say	**3236.60**	**3236.60**	**3236.60**	
14.17		**(ii)**	**Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.**									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			For carrying, placing & fixing.									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor	day	0.100	0.100	0.100	373.00	37.30	37.30	37.30	L-13
			Mazdoor (Skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			20 mm thick compressible fibre board 12 m long x 25 cm deep.	sqm	3.000	3.000	3.000	1628.09	4884.27	4884.27	4884.27	M-085
			Area = 12 x 0.25 = 3 sqm									
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		994.39	994.39	994.39	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		596.63	596.63	596.63	
			Cost for 12 m =a+b+c+d						6562.97	6562.97	6562.97	
			Rate per m =(a+b+c+d) /12						546.91	546.91	546.91	
								Say	**546.90**	**546.90**	**546.90**	

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.17		(iii)	**Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.**									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.012	0.012	0.012	397.00	4.76	4.76	4.76	L-12
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			Mazdoor (Skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			Pre-moulded joint filler 12 m long,20 mm thick and 300 mm deep.	sqm	3.600	3.600	3.600	400.00	1440.00	1440.00	1440.00	M-140
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		313.31	313.31	313.31	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		187.99	187.99	187.99	
			Cost for 12 m =a+b+c+d						2067.86	2067.86	2067.86	
			Rate per m =(a+b+c+d) /12						172.32	172.32	172.32	
								Say	**172.30**	**172.30**	**172.30**	
14.17		(iv)	**Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight**									
			Unit = Running meter									
			Taking output = 12 m									
			12m long x 100 mm wide x 10mm deep recess									
			a) Labour									
			Mate	day	0.024	0.024	0.024	397.00	9.53	9.53	9.53	L-12
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Mazdoor (Skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			Sand	cum	0.012	0.012	0.012	577.80	6.93	6.93	6.93	M-004*
			Volume 12 x 0.1 x 0.01 = 0.012 cum									
			Weight 0.012 x 1400 = 16.8kg									

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Bitumen	tonne	0.001	0.001	0.001	60218.00	60.22	60.22	60.22	M-074
			16.8 x 0.06 = 1 kg									
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		62.08	62.08	62.08	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		37.25	37.25	37.25	
			Cost for 12 m =a+b+c+d						409.70	409.70	409.70	
			Rate per m =(a+b+c+d) /12						34.14	34.14	34.14	
								Say	**34.10**	**34.10**	**34.10**	
		Note	For arriving at the final rate of filler joints per m length and per cm depth of joint filling compound, the rates at Sl. No. i), ii), iii) & iv) shall be added									
14.18	**2608**		**Asphaltic Plug joint**									
			Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.052	0.052	0.052	397.00	20.64	20.64	20.64	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (Skilled)	day	0.300	0.300	0.300	472.00	141.60	141.60	141.60	L-15
			b) Material									
			Crushed stone aggregate 12.5 mm nominal size	cum	0.750	0.750	0.750	595.16	446.37	446.37	446.37	M-051
			Polymer modified bitumen	kg	77.500	77.500	77.500	62.04	4808.10	4808.10	4808.10	M-078/1000

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Galvanised structural steel plate 200 mm wide,6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage	kg	113.000	113.000	113.000	59.83	6760.79	6760.79	6760.79	M-103
			Add 1 per cent for welding and foam caulking/backer rod and other incidentals.						67.61	67.61	67.61	
			c) Machinery									
			Mastic cooker 1 tonne capacity	hour	1.000	1.000	1.000	499.00	499.00	499.00	499.00	PM27001
			Smooth 3-wheeled steel roller 8-10 capacity	hour	0.500	0.500	0.500	1593.00	796.50	796.50	796.50	PM8001
			d) Overhead charges @ on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		2782.72	2782.72	2782.72	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1669.63	1669.63	1669.63	
			Cost for 12 m asphalt plug joint =a+b+c+d +e						18365.97	18365.97	18365.97	
			Rate per m =(a+b+c+d+e) /12						1530.50	1530.50	1530.50	
								Say	**1530.50**	**1530.50**	**1530.50**	
		Note	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.									
14.19	**2605**		**Elastomeric Slab Steel Expansion Joint**									
			Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation and clause 2605 of MoRT&H specifications for road & bridge works.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (Skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Material									
			Supply of elastomeric slab seal expansion joint assembly manufactured by using chloroprene, elastomer for elastomeric slab unit conforming to clause 915.1 of IRC: 83 (part II), complete as per approved drawings and standard specification conforming to clause 2605 of MoRT&H Specification	metre	12.000	12.000	12.000	24050.00	288600.00	288600.00	288600.00	M-094
			Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals.						14430.00	14430.00	14430.00	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		60732.56	60732.56	60732.56	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		36439.54	36439.54	36439.54	
			Cost for 12 m =a+b+c+d						400834.92	400834.92	400834.92	
			Rate per m =(a+b+c+d) /12						33402.91	33402.91	33402.91	
								Say	**33402.90**	**33402.90**	**33402.90**	
14.20	**2600**		**Compression Seal Joint**									
			Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
			Mazdoor	day	0.600	0.600	0.600	373.00	223.80	223.80	223.80	L-13
			Mazdoor (Skilled)	day	0.300	0.300	0.300	472.00	141.60	141.60	141.60	L-15
			b) Material									

Analysis of Rate

BRIDGE SUPERS-TRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			1. Galvanised angle sections 100mm x 100mm of 12mm thickness weldable structural steel as per IS: 2062, 2 nos. of 12 m length each @ 17.7 kg/m and 5 per cent wastage.	kg	446.000	446.000	446.000	59.83	26684.18	26684.18	26684.18	M-103
			Add 5 per cent of cost of above for structural steel for anchorage, welding and other incidentals.						1334.21	1334.21	1334.21	
			Preformed continuous chloroprene elastomer or closed cell foam sealing element with high tear strength, vulcanised in a single operation for the full length of a joint to ensure water tightness.	metre	12.000	12.000	12.000	1703.51	20442.12	20442.12	20442.12	M-142
			Add 1 per cent of cost of sealing element for lubricant-cum-adhesive and other consumables.						204.42	204.42	204.42	
			c) Overhead charges @ on on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		9808.92	9808.92	9808.92	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		5885.35	5885.35	5885.35	
			Cost for 12 m =a+b+c+d						64738.90	64738.90	64738.90	
			Rate per m =(a+b+c+d) /12						5394.91	5394.91	5394.91	
								Say	**5394.90**	**5394.90**	**5394.90**	
		Note	**1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.									
			2. 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.									
			3. The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.									
14.21	**2607**		**Strip Seal Expansion Joint**									

Analysis of Rate

BRIDGE SUPERS-TRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.050	0.050	0.050	397.00	19.85	19.85	19.85	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (Skilled)	day	0.250	0.250	0.250	472.00	118.00	118.00	118.00	L-15
			b) Material									
			Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings.	metre	12.000	12.000	12.000	10179.98	122159.76	122159.76	122159.76	M-180
			Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals						6107.99	6107.99	6107.99	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		25755.72	25755.72	25755.72	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		15453.43	15453.43	15453.43	
			Cost for 12 m =a+b+c+d						169987.75	169987.75	169987.75	
			Rate per m =(a+b+c+d) /12						14165.65	14165.65	14165.65	
								Say	**14165.60**	**14165.60**	**14165.60**	
		Note	**1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.									
			2. 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.									
14.22	**2600**		**Modular Strip / Box Seal Joint**									

Analysis of Rate

BRIDGE SUPERS-TRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and laying of a modular strip Box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.056	0.056	0.056	397.00	22.23	22.23	22.23	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Mazdoor (Skilled)	day	0.400	0.400	0.400	472.00	188.80	188.80	188.80	L-15
			b) Material									
			Supply of a modular strip/box seal joint assembly comprising of edge beams, central beam,2 modules chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	12.000	12.000	12.000	36161.50	433938.00	433938.00	433938.00	M-126
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		86904.41	86904.41	86904.41	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		52142.64	52142.64	52142.64	
			Cost for 12 m Modular strip/ box seal joint =a+b+c+d						573569.08	573569.08	573569.08	
			Rate per m =(a+b+c+d) /12						47797.42	47797.42	47797.42	
								Say	**47797.40**	**47797.40**	**47797.40**	
		Note	**1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.									

Analysis of Rate

BRIDGE SUPERS-TRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			2. 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.									
			3. The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.									
14.23	**2600**		**Modular Strip / Box Seal Joint**									
			Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.070	0.070	0.070	397.00	27.79	27.79	27.79	L-12
			Mazdoor	day	1.250	1.250	1.250	373.00	466.25	466.25	466.25	L-13
			Mazdoor (Skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			Supply of a modular box/box seal joint assembly containing 3 modules/cells and comprising of edge beams, two central beams, chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative.	metre	12.000	12.000	12.000	36161.50	433938.00	433938.00	433938.00	M-127
			c) Overhead charges @on(a+b)		(@ 20%)	(@ 20%)	(@ 20%)		86933.61	86933.61	86933.61	
			d) Contractor's profit @on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		52160.16	52160.16	52160.16	
			Cost for 12 m =a+b+c +d						573761.81	573761.81	573761.81	
			Rate per m =(a+b+c +d) /12						47813.48	47813.48	47813.48	

Analysis of Rate

BRIDGE SUPERS-TRUCTURE

Sr No	Ref. To M.	Description		Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	47813.50	47813.50	47813.50	
		Note	**1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.									
			2. 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.									
			3. The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck.									
14.24			**Painting with synthetic enamel paint bridge No. and span arrangements**									
			Painting two coat after filling the surface with synthetic enamel paint bridge No. and span arrangements as per direction by Enginner .									
			Unit = Nos.									
			Taking output = 1 Nos									
			a) Labour									
			Mate	day	0.006	0.006	0.006	397.00	2.38	2.38	2.38	L-12
			Painter	day	0.100	0.100	0.100	476.00	47.60	47.60	47.60	L-18
			Mazdoor	day	0.05	0.05	0.05	373.00	18.65	18.65	18.65	L-13
			b) Material									
			Paint confirming to requirement of clause 803.3	Litre	0.300	0.300	0.300	280.93	84.28	84.28	84.28	M-130
			Add for scaffolding @ 1 percent of labour cost where required						0.69	0.69	0.69	
			Add @ 5 percent cost of labour and materials to prepare the surface by filling minutes roughness on the surface and priming the surface before laying 2 coats of painting.						7.65	7.65	7.65	
			c) Overhead charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		32.25	32.25	32.25	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		19.35	19.35	19.35	
			Cost for 1 No. =a+b+c+d						212.84	212.84	212.84	
			Rate per Nos.=(a+b+c+d)						212.84	212.84	212.84	
								Say	**212.80**	**212.80**	**212.80**	

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.		Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
14.25	**Suggestive**		**Bipolar corrosion inhibiting admixture in concrete for protection of reinforced steel from corrosion**									
			Admix polydentate ,bipolar ,migratory, intergal non nitrate base concrete penetrating corrosion inhibiting admixture at dosage of 3Kg per cu.m. of concrete as per manufactures specification. Inhibitor should conforms to following-									
			i. ASTM G-109-2005-Long term corrosion test resulting in a corrosion rate of zero coulombs.									
			ii JIS Z1535- Accelerated corrosion test showing significant reduction in corrosion using the admixture.									
			iii ASTM G1-Immersion test for 720 hrs indicating rebar weight loss less than 5 mpy.									
			iv ASTM G3-Polarization test by Tafel test indicating Rebar weight loss less than 5 mpy.									
			Unit =Cum									
			Taking output =100.000 cum									
			a) Material									
			Corrosion inhibiting Admixture @3 kg per cubic meter	kg.	300.000	300.000	300.000	29.00	8700.00	8700.00	8700.00	M-182
			b) Overhead charges @ on (a)		(@ 20%)	(@ 20%)	(@ 20%)		1740.00	1740.00	1740.00	
			c) Contractor's profit @ (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		1044.00	1044.00	1044.00	
			Cost for 100 cum. =a+b+c						11484.00	11484.00	11484.00	
			Rate per cum.=(a+b+c)/100						114.84	114.84	114.84	
								Say	**114.80**	**114.80**	**114.80**	
14.26	**1700**		**Providing structural steel for super-structure complete as per drawing and technical specifications**									
			Unit = MT									
			Taking output =17.135 MT									
			a) Material									
			Structural steel in plates ,angles, etc. including 5 percent wastage	Tonne	17.992	17.992	17.992	60255.00	1084107.96	1084107.96	1084107.96	M-181
			Nuts & bolts	kg.	180.000	180.000	180.000	80.28	14450.40	14450.40	14450.40	M-129

Analysis of Rate

BRIDGE SUPER-STRUCTURE

Sr No	Ref. To M.	Description	Unit	Quantity as per peroject category			Rate (Rs)	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		b) Labour									
		(for cutting, bending , marking holes ,joining, welding, and erecting in position)									
		mate	day	21.097	21.097	21.097	397.00	8375.51	8375.51	8375.51	L-12
		Filter	day	77.108	77.108	77.108	449.00	34621.49	34621.49	34621.49	L-08
		Blacksmith	day	77.108	77.108	77.108	449.00	34621.49	34621.49	34621.49	L-25
		Welder	day	77.108	77.108	77.108	503.00	38785.32	38785.32	38785.32	L-02
		Painter Ist class	day	32.385	32.385	32.385	476.00	15415.26	15415.26	15415.26	L-18
		Mazdoor	day	263.708	263.708	263.708	373.00	98363.08	98363.08	98363.08	L-13
		Electrode, cutting gas and other consumables @10 percent of cost of **(a) above**						109855.84	109855.84	109855.84	
		c) Machinery									
		Mobile Hydraulic Crane 10 tonne capacity (for fabrication)	Hrs	68.540	68.540	68.540	931.00	63810.74	63810.74	63810.74	PM63003
		Crane 35 tonne capacity (for Loading &Unloading @1 hr for each operation)	Hrs	4.000	4.000	4.000	1818.00	7272.00	7272.00	7272.00	PM63006
		Crane 35 tonne capacity (for Lifting and placing in position @2 hr)	Hrs	4.000	4.000	4.000	1818.00	7272.00	7272.00	7272.00	PM63006
		Trailer30 tonne capacity for transporting to site	Hrs	4+L1 /15	4+L1 /15	4+L1/15	2310.00	9394.00	9394.00	9394.00	PM6001
		Applying 2 coats primer before painting of Truss and Girder (42 sqm /tonne)	Lit	899.598	899.598	899.598	88.39	79515.47	79515.47	79515.47	M-145
		Painting of Truss and Girder	Lit	899.598	899.598	899.598	142.03	127769.90	127769.90	127769.90	M-058
		Sundries @5% of the above (a,b,&c)						86681.52	86681.52	86681.52	
		d) Overhead charges on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		364062.40	364062.40	364062.40	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		218437.44	218437.44	218437.44	
		Cost for 17.135MT =a+b+c+d+e						2402811.83	2402811.83	2402811.83	
		Rate for per MT.=(a+b+c +d+e) /17.135						140228.29	140228.29	140228.29	
							Say	**140228.30**	**140228.30**	**140228.30**	

CHAPTER - 15

BOX CELL STRUCTURES

CHAPTER-15
BOX CELL STRUCTURES

PREAMBLES :

1 Excavation for structures has been provided both by manual and mechanical means. The rate relevant to a particular situation may be adopted.

2 The earth excavated from Foundation has been proposed to be backfilled and balance quality utilised for road work locally except for marshy soil where disposal has been provided

3 The rock Foundation are required to be prepared which has been analysed.

4 In case of rocks, excavation has been considered up to a depth of 3M only

5 Embedment of foundation is soft and hard rocks has been provided as required by specifications.

6 Mixing of cement concrete has been considered by using batching plant.

7 Concrete batching plant is generally placed within 1 km of the Box Cell site. In case of longer lead, transportation cost may be worked out based on tone km.

8 The Course and fine aggregate for cement concrete shall be as per IS: 383.

9 Description of items has been given very brief. Relevant clauses of MoRT&H specifications may be referred for detailed specification.

10 Filter media and backfilling behind abutments are required to be provided as per guidelines given in IRC:78.

11 weep holes shall be provided as per clause 2706 of MoRT&H Specifications.



CHAPTER - 15
BOX CELL STRUCTURE

Sr. No.		Description	Unit	Rate		
				Large	Medium	Small
15.01		**Excavation for structures**				
		Earth work in excavation of foundation of structures as per drawing and technical specifications, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
	I	**Ordinary soil**				
	A	**Manual Means**				
	(i)	**Depth upto 3 m**	Cum	179.70	179.70	179.70
	(ii)	**Depth 3 m to 6 m**	Cum	231.00	231.00	231.00
	(iii)	**Depth above 6 m**	Cum	308.00	308.00	308.00
	(i)	**Mechanical Means (Depth upto 3 m)**	Cum	98.60	102.30	126.30
	(ii)	**Mechanical Means (Depth 3 m to 6 m)**	Cum	109.00	113.10	139.60
	(iii)	**Mechanical Means (Depth above 6 m)**	Cum	122.00	126.40	156.20
	II	**Ordinary Rock (not requiring blasting)**				
	A	**Manual Means**	Cum	256.70	256.70	256.70
	B	**Mechanical Means**	Cum	616.10	653.00	673.30
	III	**Hard Rock (requiring blasting)**				
	A	**Manual Means**	Cum	590.50	590.50	590.50
	III	**Hard Rock (requiring blasting)**				
		Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No. 303				
	B	**Mechanical Means**	Cum	375.50	377.80	409.40
	IV	**Hard Rock (blasting prohibited)**				
	A	**Mechanical Means**	Cum	828.60	924.90	1054.80
	V	**Marshy soil**				
		Depth upto 3 m				
	A	**Manual Means**	Cum	751.60	751.60	751.60
	B	**Mechanical Means**	Cum	259.40	268.40	330.20
	VI	**Back filling in Marshy foundation pits**	Cum	554.10	554.10	554.10
15.02		**Filling Annular space Around Footing in Rock**				
		PCC-15 nominal mix. Rate may be taken as per item 15.11				
15.03		**Sand Filling in Foundation Trenches as per Drawing and Technical Specification**	Cum	262.30	264.10	271.90
15.04		**Brick Masonary Work in Cement Mortar 1:3 in Foundation complete excluding pointing and plastering, as per Drawing and Technical specifications.**	Cum	6923.70	6928.30	6949.40
15.05	**(A)**	**Cement Mortar 1:3 (1 cement:3 sand)**	Cum	4184.00	4184.00	4184.00
	(B)	**Cement Mortar 1:2 (1 cement:2 sand)**	Cum	5139.80	5139.80	5139.80
	(C)	**Cement Mortar 1:4 (1 cement:4 sand)**	Cum	3547.30	3547.30	3547.30
	(D)	**Cement Mortar 1:6 (1 cement:6 sand)**	Cum	2945.00	2945.00	2945.00

BOX CELL STRUCTURE

Sr. No.		Description	Unit	Rate		
				Large	Medium	Small
15.06		**Stone Masonary Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical specifications.**				
	(A)	Square Rubble Coursed Rubble Masonary(first sort)	Cum	4610.80	4610.80	4610.80
	(B)	Random Rubble Masonary	Cum	4482.40	4482.40	4482.40
15.07		**Brick Masonary Work in 1:3 in sub-structure complete excluding pointing and plastering, as per Drawing and Technical specifications.**	Cum	6836.00	6841.20	6863.00
15.08		**Pointing with cement mortar (1:3) on brick work in sub-structure as per Technical specifications.**	10 Sqm	730.50	730.50	730.50
15.09		**Plastering with cement mortar (1:3) on brick work in sub-structure as per Technical specifications.**	10 Sqm	1387.20	1388.20	1395.20
15.10		**Stone Masonary Work in Cement Mortar 1:3 for substructure complete as per Drawing and Technical specifications.**				
	A	**Random Rubble Masonary**	Cum	4558.30	4568.60	4609.80
	B	**Coursed Rubble Masonary**	Cum	4833.00	4843.30	4884.50
	C	**Ashlar Masonary**	Cum	6201.20	6211.50	6252.70
15.11		**Plain/Reinforced Cement concrete in open Foundation complete as per Drawing and Technical specifications.**				
	A	**PCC Grade M15**				
	Case I	PCC Grade M15 using batching plant & concrete pump	Cum	4880.20	4885.90	4911.10
	Case II	PCC Grade M15 using batching plant & manual placing	Cum	5166.80	5172.70	5197.70
	B	**PCC Grade M20**				
	Case I	PCC Grade M20 using batching plant, transit mixer & concrete pump	Cum	5492.80	5498.70	5523.70
	Case II	PCC Grade M20 using batching plant,transit mixer & manual placing	Cum	5779.40	5785.30	5810.30
	C	**RCC Grade M20**				
	Case I	RCC Grade M20 using batching plant, transit mixer & concrete pump	Cum	5493.30	5499.20	5524.30
	Case II	RCC Grade M20 using batching plant,transit mixer & manual placing	Cum	5798.70	5804.60	5829.60
	D	**PCC Grade M25**				
	Case I	PCC Grade M25 using batching plant, transit mixer & concrete pump	Cum	6005.50	6011.40	6036.40
	Case II	PCC Grade M25 using batching plant,transit mixer & manual placing	Cum	6292.10	6298.00	6323.00
	E	**RCC Grade M25**				
	Case I	RCC Grade M25 using batching plant, transit mixer & concrete pump	Cum	6043.70	6049.70	6074.70
	Case II	RCC Grade M25 using batching plant,transit mixer & manual placing	Cum	6349.20	6355.10	6380.10
	F	**PCC Grade M30**				
	Case I	PCC Grade M30 using batching plant, transit mixer & concrete pump	Cum	6055.40	6061.30	6086.40

BOX CELL STRUCTURE

Sr. No.	Description		Unit	Rate		
				Large	Medium	Small
	Case II	PCC Grade M30 using batching plant,transit mixer & manual placing	Cum	6342.00	6347.90	6372.90
	G	**RCC Grade M30**				
	Case I	RCC Grade M30 using batching plant, transit mixer & concrete pump	Cum	6093.40	6099.30	6124.40
	Case II	RCC Grade M30 using batching plant,transit mixer & manual placing	Cum	6398.80	6404.70	6429.70
	H	**RCC Grade M35**				
	Case I	RCC Grade M35 using batching plant, transit mixer & concrete pump	Cum	6254.60	6260.50	6285.50
	Case II	RCC Grade M35 using batching plant,transit mixer & manual placing	Cum	6560.00	6565.90	6590.90
	I	**RCC Grade M40**				
	Case I	RCC Grade M40 using batching plant, transit mixer & concrete pump	Cum	6402.10	6408.00	6433.10
	Case II	RCC Grade M40 using batching plant,transit mixer & manual placing	Cum	6746.70	6757.90	6805.70
15.12		**Plain/Reinforced cement concrete for wall & slab etc. complete as per Drawing and Technical specifications.**				
	A	**RCC Grade M20**				
		RCC Grade M20 using batching plant, transit mixer & concrete pump	Cum	6242.40	6249.10	6277.60
	B	**RCC Grade M25**				
		RCC Grade M25 using batching plant, transit mixer & concrete pump	Cum	6867.90	6874.60	6903.10
	C	**RCC Grade M30**				
		RCC Grade M30 using batching plant, transit mixer & concrete pump	Cum	6924.30	6931.00	6959.50
	D	**RCC Grade M35**				
		RCC Grade M35 using batching plant, transit mixer & concrete pump	Cum	7107.50	7114.20	7142.70
	E	**RCC Grade M40**				
		RCC Grade M40 using batching plant, transit mixer & concrete pump	Cum	7275.10	7281.80	7310.30
15.13		**Supplying, fitting and placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical specifications**	MT	82861.80	82917.70	83025.30
15.14		**Providing weep holes in Brick masonary/ plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20H towards drawing face. Complete as per drawing and Technical specifications.**	Number	153.40	153.40	153.40
15.15		**PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specifications.**				
	Case I	PCC Grade M15 using batching plant & concrete pump	Cum	4436.50	4441.80	4464.70
	Case II	PCC Grade M15 using batching plant & manual placing	Cum	4697.10	4702.40	4725.20

BOX CELL STRUCTURE

Sr. No.		Description	Unit	Rate		
				Large	Medium	Small
15.16		**Reinforced cement concrete approach slab including reinforcement and formwork complete as per Drawing and Technical specifications.**	Cum	9682.60	9690.70	9718.90
15.17		**Drainage spouts complete as per Drawing and Technical Specifications.**	Number	1066.70	1066.70	1066.70
15.18		**Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical specifications.**	Cum	11828.00	11837.50	11868.40
15.19		**Mastic Asphalt**				
		Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in Table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005 cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516.	Sqm	478.80	478.80	478.80
15.20		**Crash Barriers for Bridge**				
		The rate analysis for semi rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-8 on Traffic and Transportation. The rate analysis for rigid crash barrier in reinforced cement concrete, have been made and included in chapter-14 on Super-structure.				
15.21		**Painting on concrete surface**				
		Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.	Sqm	126.70	126.70	126.70
15.22		**Filler joint**				
	(i)	Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.	Running Metre	3236.60	3236.60	3236.60
	(ii)	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	Running Metre	546.90	546.90	546.90
	(iii)	Providing and fixing in position 20 mm thick pre moulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.	Running Metre	172.30	172.30	172.30

BOX CELL STRUCTURE

Sr. No.	Description		Unit	Rate		
				Large	Medium	Small
	(iv)	Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 percent bitumen by weight	Running Metre	34.10	34.10	34.10
15.23		**Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specifications.**				
	A	Granular material	Cum	759.50	759.50	759.50
	B	Sandy material	Cum	725.20	725.20	725.20
15.24		**Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.**	Cum	1521.40	1521.40	1521.40
15.25		**Painting with synthetic enamel paint bridge No. and span arrangements**				
		Painting two coats after filling the surface with synthetic enamel paint bridge No. and span arrangements as per as directed by Engineer.	Number	212.80	212.80	212.80

CHAPTER - 15
BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
15.01	304		**Excavation for structures**									
			Earth work in excavation of foundation of structures as per drawing and technical specifications, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.									
		I	**Ordinary soil**									
			Unit = cum									
			Taking output = 10 cum									
		A	**Manual Means**									
		(i)	**Depth upto 3 m**									
			a) Labour									
			Mate	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	3.500	3.500	3.500	373.00	1305.50	1305.50	1305.50	L-13
			b) Overhead charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		272.22	272.22	272.22	
			c) Contractor's profit @ on (a + b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		163.33	163.33	163.33	
			Cost for 10 cum = a+b+c						1796.63	1796.63	1796.63	
			Rate per cum = a+b+c/10						179.66	179.66	179.66	
								Say	**179.70**	**179.70**	**179.70**	
		Note	1. Cost of dewatering may be added where required upto 10 percent of labour cost. Assessment for dewatering shall be made as per site conditions.									
			2. The excavated earth can be used partially for backfilling of foundation pit and partly for road work except for marshy soil. Hence cost of disposal has not been added except for marshy soil. This remark is common to all cases of item 15.01 excluding marshy soil.									
			3. The cost of shoring and shuttering, where needed, may be added @ 1 percent on cost of excavation for open foundation.									
15.01	A	(ii)	**Depth 3 m to 6 m**									
			a) Labour									
			Mate/Supervisor	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Mazdoor	day	4.500	4.500	4.500	373.00	1678.50	1678.50	1678.50	L-13
			b) Overhead charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		349.99	349.99	349.99	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Contractor's profit @ on (a + b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		210.00	210.00	210.00	
			Cost for 10 cum = a+b+c						2309.95	2309.95	2309.95	
			Rate per cum = (a+b+c)/10						230.99	230.99	230.99	
								Say	**231.00**	**231.00**	**231.00**	
		Note	Cost of dewatering may be added where required upto 15 percent of labour cost.Assessment for dewatering shall be done as per actual ground conditions.									
15.01	**A**	**(iii)**	**Depth above 6 m**									
			a) Labour									
			Mate/Supervisor	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			b) Overhead charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		466.66	466.66	466.66	
			c) Contractor's profit @ on (a + b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		279.99	279.99	279.99	
			Cost for 10 cum = a+b+c						3079.93	3079.93	3079.93	
			Rate per cum = (a+b+c)/10						307.99	307.99	307.99	
								Say	**308.00**	**308.00**	**308.00**	
		Note	1. Cost of dewatering may be added where required upto 20 percent of labour cost. Assessment for dewatering shall be made as per site conditions.									
15.01	**B**	**(i)**	**Mechanical Means (Depth upto 3 m)**									
			Unit = cum									
			Taking Output = 330 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.627			2778.00	12853.81			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.329		2504.00		13343.82		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.450	2272.00			16926.40	PM3005
			For backfilling (considering 60% of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.776			2778.00	7711.73			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.197		2504.00		8005.29		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.470	2272.00			10155.84	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	198.000			4.95	980.10			PM72001
			(ii) 14 cum capacity	t-km		198.000		5.67		1122.66		PM73001
			(iii)10 cum capacity	t-km			198.000	7.04			1393.92	PM74001

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		4931.33	5116.56	6317.44	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2958.80	3069.94	3790.46	
			Cost for 330 cum = a+b+c+d						32546.81	33769.30	41695.10	
			Rate per cum =(a+b+c+d)/330						98.63	102.33	126.35	
								Say	**98.60**	**102.30**	**126.30**	
15.01	**B**	**(ii)**	**Mechanical Means (Depth 3 m to 6 m)**									
			Unit = cum									
			Taking Output = 300 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.674			2778.00	12984.37			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.383		2504.00		13479.03		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.525	2272.00			17096.80	PM3005
			For backfilling (considering 60% of the excavated material									
			(i) 1.2 cum bucket capacity	hour	2.804			2778.00	7789.51			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.230		2504.00		8087.92		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.515	2272.00			10258.08	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	180.000			4.95	891.00			PM72001
			(ii) 14 cum capacity	t-km		180.000		5.67		1020.60		PM73001
			(iii)10 cum capacity	t-km			180.000	7.04			1267.20	PM74001
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		4955.18	5139.72	6346.62	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2973.11	3083.83	3807.97	
			Cost for 300 cum = a+b+c+d						32704.22	33922.14	41887.72	
			Rate per cum =(a+b+c+d)/300						109.01	113.07	139.63	
								Say	**109.00**	**113.10**	**139.60**	
15.01	**B**	**(iii)**	**Mechanical Means (Depth above 6 m)**									
			Unit = cum									
			Taking Output = 270 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.732			2778.00	13145.50			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.450		2504.00		13646.80		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.619	2272.00			17310.37	PM3005
			For backfilling (considering 60% of the excavated material									
			(i) 1.2 cum bucket capacity	hour	2.839			2778.00	7886.74			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.270		2504.00		8188.08		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.571	2272.00			10385.31	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	162.000			4.95	801.90			PM72001
			(ii) 14 cum capacity	t-km		162.000		5.67		918.54		PM73001
			(iii)10 cum capacity	t-km			162.000	7.04			1140.48	PM74001
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		4989.04	5172.89	6389.44	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2993.42	3103.74	3833.66	
			Cost for 270 cum = a+b+c+d						32927.63	34141.09	42170.30	
			Rate per cum =(a+b+c+d)/270						121.95	126.45	156.19	
								Say	**122.00**	**126.40**	**156.20**	
15.01		**II**	**Ordinary Rock (not requiring blasting)**									
		A	**Manual Means**									
		(i)	**Depth upto 3 m**									
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			b) Overhead charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		388.88	388.88	388.88	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		233.33	233.33	233.33	
			Cost for 10 cum = a+b+c						2566.61	2566.61	2566.61	
			Rate per cum = (a+b+c)/10						256.66	256.66	256.66	
								Say	**256.70**	**256.70**	**256.70**	
		Note	Cost of dewatering upto 10 percent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions.									
15.01		**B**	**Mechanical Means**									
			Unit = cum									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Taking Output = 50 cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			Excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	5.818			2778.00	16162.40			PM3003
			(ii) 1.1 cum bucket capacity	hour		6.845		2504.00		17139.88		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.273	2272.00			16524.26	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.872			2778.00	2422.42			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.005		2504.00		2516.52		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.405	2272.00			3192.16	PM3005
			Jack Hammer	hour	5.818	6.845	7.273	206.00	1198.51	1410.07	1498.24	PM4001
			Tipper for transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	75.000			4.95	371.25			PM72001
			(ii) 14 cum capacity	t-km		75.000		5.67		425.25		PM73001
			(iii)10 cum capacity	t-km			75.000	7.04			528.00	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.872			2310.00	2014.32			PM6001
			(ii) 14 cum capacity	hour		1.005		2065.00		2075.33		PM6002
			(iii)10 cum capacity	hour			1.405	1847.00			2595.04	PM6003
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		4667.11	4946.74	5100.87	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2800.26	2968.04	3060.52	
			Cost for 50 cum= a+b+c+d						30802.91	32648.46	33665.71	
			Rate per cum =(a+b+c+d)/50						616.06	652.97	673.31	
								Say	**616.10**	**653.00**	**673.30**	
15.01	**302 & 303**	**III**	**Hard Rock (requiring blasting)**									
		A	**Manual Means**									
			Unit = cum									
			Taking Output = 10 cum									
			a) Labour									
			Mate	day	0.350	0.350	0.350	397.00	138.95	138.95	138.95	L-12
			Driller	day	0.500	0.500	0.500	388.00	194.00	194.00	194.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			b) Machinery									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Air Compressor 250 cfm with 2 jack hammer for drilling	hour	1.000	1.000	1.000	462.00	462.00	462.00	462.00	PM15001 +2*45001
			c) Material									
			Explosives (Blasting Material)	kg	3.500	3.500	3.500	128.00	448.00	448.00	448.00	M-215
			Detonator electric	each	14.000	14.000	14.000	6.56	91.84	91.84	91.84	M-217
			d) Overhead charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		894.71	894.71	894.71	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		536.82	536.82	536.82	
			Cost for 10 cum = a+b+c+d+e						5905.07	5905.07	5905.07	
			Rate per cum =(a+b+c+d+e)/10						590.51	590.51	590.51	
								Say	**590.50**	**590.50**	**590.50**	
		Note	Cost of dewatering @ 10 percent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions.									
15.01	**302 & 303**	**III**	**Hard Rock (requiring blasting)**									
			Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No. 303									
		B	**Mechanical Means**									
			Unit = cum									
			Taking Output = 120 cum									
			a) Labour									
			Mate	day	0.210	0.210	0.210	397.00	83.37	83.37	83.37	L-12
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Driller	day	2.000	2.000	2.000	388.00	776.00	776.00	776.00	L-06
			Blaster	day	0.250	0.250	0.250	619.00	154.75	154.75	154.75	L-03
			b) Machinery									
			Air Compressor	hour	6.000	6.000	6.000	440.00	2640.00	2640.00	2640.00	PM15001
			Jack Hammer for drilling holes (@ 4.5 m per hour)	hour	24.000	24.000	24.000	206.00	4944.00	4944.00	4944.00	PM4001
			Jack hammer (consider 5% of the volume for dressing)	hour	1.024	1.024	1.024	206.00	210.94	210.94	210.94	PM4001
			Hydraulic Excavator									
			Excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	1.024			2778.00	2844.67			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.024		2504.00		2564.10		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.024	2272.00			2326.53	PM3005

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For loading									
			(i) 1.2 cum bucket capacity	hour	2.094			2778.00	5817.13			PM3003
			(ii) 1.1 cum bucket capacity	hour		2.411		2504.00		6037.14		PM3004
			(iii) 0.9 cum bucket capacity	hour			3.371	2272.00			7658.91	PM3005
			Tipper for transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	180.000			4.95	891.00			PM72001
			(ii) 14 cum capacity	t-km		180.000		5.67		1020.60		PM73001
			(iii)10 cum capacity	t-km			180.000	7.04			1267.20	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	2.094			2310.00	4837.14			PM6001
			(ii) 14 cum capacity	hour		2.411		2065.00		4978.72		PM6002
			(iii)10 cum capacity	hour			3.371	1847.00			6226.24	PM6003
			c) Materials									
			Small dia Explosive at 0.40 kg/cum for 120 cum (120 x0.40) Explosive at 0.20 kg/cum for secondary blast @ 5% of the total volume (120x0.2x5%)	kg	48.000	48.000	48.000	128.00	6144.00	6144.00	6144.00	M-215
			Electric detonators at 1 per hole for main blast holes (21x3+20*2)= 103 nos.	no	69.000	69.000	69.000	6.56	452.64	452.64	452.64	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no	7.000	7.000	7.000	3.28	22.96	22.96	22.96	M-216
			Detonating fuse coil	m	213.000	213.000	213.000	15.00	3195.00	3195.00	3195.00	M-218
			d) Overhead charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		6826.52	6868.64	7444.31	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		4095.91	4121.19	4466.58	
			Cost for 120 cum = a+b+c+d+e						45055.04	45333.05	49132.43	
			Rate per cum = (a+b+c+d+e)/120						375.46	377.78	409.44	
								Say	**375.50**	**377.80**	**409.40**	
15.01		**IV**	**Hard Rock (blasting prohibited)**									
			Unit = cum									
			Taking Output = 35 cum									
		A	**Mechanical Means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
			b) Machinery									
			Jack Hammer	hour	5.973	7.467	9.190	206.00	1230.44	1538.20	1893.14	PM4001
			Hydraulic Excavator									
			Excavator For excavation									
			(i) 1.2 cum bucket capacity	hour	5.973			2778.00	16592.99			PM3003

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) 1.1 cum bucket capacity	hour		7.467		2504.00		18697.37		PM3004
			(iii) 0.9 cum bucket capacity	hour			9.190	2272.00			20879.68	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.611			2778.00	1697.36			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.703		2504.00		1760.31		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.983	2272.00			2233.38	PM3005
			Tipper									
			For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	52.500			4.95	259.88			PM72001
			(ii) 14 cum capacity	t-km		52.500		5.67		297.68		PM73001
			(iii)10 cum capacity	t-km			52.500	7.04			369.60	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.611			2310.00	1411.41			PM6001
			(ii) 14 cum capacity	hour		0.703		2065.00		1451.70		PM6002
			(iii)10 cum capacity	hour			0.983	1847.00			1815.60	PM6003
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		4393.97	4904.60	5593.83	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2636.38	2942.76	3356.30	
			Cost for 35 cum= a+b+c+d						29000.18	32370.38	36919.29	
			Rate per cum = (a+b+c+d)/35						828.58	924.87	1054.84	
								Say	**828.60**	**924.90**	**1054.80**	
15.01		**V**	**Marshy soil**									
			Unit = cum									
			Taking output = 10 cum									
			Depth upto 3 m									
		A	**Manual Means**									
			a) Labour									
			Mate/ Supervisor	day	0.400	0.400	0.400	397.00	158.80	158.80	158.80	L-12
			Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
			b) Machinery									
			Tractor-trolley for removal	hour	2.670	2.670	2.670	676.00	1804.92	1804.92	1804.92	PM12001
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1138.74	1138.74	1138.74	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		683.25	683.25	683.25	
			Cost for 10 cum = a+b+c+d						7515.71	7515.71	7515.71	
			Rate per cum = (a+b+c+d)/10						751.57	751.57	751.57	
								Say	**751.60**	**751.60**	**751.60**	
		Note	1. Cost of dewatering @ 30 percent of (a), may be added where required. Assessment for dewatering shall be made as per site conditions.									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			2. Shoring and strutting 15 percent of (a), where required may be added.									
			3. It is assumed that Marshy soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer analysis in item 15.01 (i) to (iv) for ordinary soil.									
15.01		**B**	**Mechanical Means**									
			Unit = cum									
			Taking Output = 260 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	8.506			2778.00	23629.67			PM3003
			(ii) 1.1 cum bucket capacity	hour		9.796		2504.00		24529.18		PM3004
			(iii) 0.9 cum bucket capacity	hour			13.695	2272.00			31115.04	PM3005
			Tipper									
			For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	390.000			4.95	1930.50			PM72001
			(ii) 14 cum capacity	t-km		390.000		5.67		2211.30		PM73001
			(iii)10 cum capacity	t-km			390.000	7.04			2745.60	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	8.506			2310.00	19648.86			PM6001
			(ii) 14 cum capacity	hour		9.796		2065.00		20228.74		PM6002
			(iii) 10 cum capacity	hour			13.695	1847.00			25294.67	PM6003
			c) Material									
			Selected earth for refilling	cum	156.000	156.000	156.000	35.25	5499.00	5499.00	5499.00	M-164
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		10219.38	10571.42	13008.64	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		6131.63	6342.85	7805.18	
			Cost for 260 cum = a+b+c+d						67447.92	69771.38	85857.00	
			Rate per cum = (a+b+c+d)/260						259.42	268.35	330.22	
								Say	**259.40**	**268.40**	**330.20**	
15.01		**VI**	**Back filling in Marshy foundation pits**									
			Unit= cum									
			Taking Output = 6 cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor for dressing sides, bottom and backfilling	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Machinery									
			Tractor-trolley for transportation	hour	2.000	2.000	2.000	676.00	1352.00	1352.00	1352.00	PM12001
			c) Overhead charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		503.73	503.73	503.73	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		302.24	302.24	302.24	
			Cost for 6 cum = a+b+c+d						3324.60	3324.60	3324.60	
			Rate per cum = (a+b+c+d)/6						554.10	554.10	554.10	
								Say	**554.10**	**554.10**	**554.10**	
15.02	**304**		**Filling Annular Space around Footing in Rock**									
			Unit= cum									
			Taking Output = 1 cum									
			PCC-15 nominal mix. Rate may be taken as per item 15.11									
15.03	**304**		**Sand Filling in Foundation Trenches as per Drawing and Technical Specification(As per Requirement ,Fine Sand/Coarse Sand may be used)**									
			Unit= cum									
			Taking output= 100 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Machinery									
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.125xL1 +0.750			1171.00	1024.63			PM11001
			(ii) 12 KL capacity	hour		0.167xL1+ 1.000		997.00		1163.50		PM11002
			(iii) 6 KL capacity	hour			0.333xL1 +2.000	752.00			1754.42	PM11003
			c) Material									
			Sand (assuming 20 percent voids) at site	cum	120.000	120.000	120.000	144.75	17370.00	17370.00	17370.00	M-006
			Water	KL	18.000	18.000	18.000	60.30	1085.40	1085.40	1085.40	M-191
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		3973.78	4001.56	4119.74	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2384.27	2400.93	2471.84	
			Rate per 100 cum= a+b+c+d+e						26226.95	26410.27	27190.28	
			Rate per cum = (a+b+c+d+e)/100						262.27	264.10	271.90	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	**262.30**	**264.10**	**271.90**	
15.04	**1300**		**Brick Masonary Work in Cement Mortar 1:3 in Foundation complete excluding pointing and plastering, as per Drawing and Technical specifications.**									
			Unit = cum									
			Taking output =5 cum									
			a) Material									
			Brick 1st class	each	2500.000	2500.000	2500.000	6.364	15910.00	15910.00	15910.00	M-079
			Cement mortar 1:3 (Rate taken from sub-analysis items 21.01A)	cum	1.200	1.200	1.200	4218.30	5061.96	5061.96	5061.96	21.01A
			Water for curing	KL	2.415	2.415	2.415	60.30	145.62	145.62	145.62	M-191
			b) Labour									
			Mate	day	0.480	0.480	0.480	397.00	190.56	190.56	190.56	L-12
			Mason	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.017xL1 +0.101			1171.00	138.18			PM11001
			(ii) 12 KL capacity	hour		0.022xL1 +0.134		997.00		155.53		PM11002
			(iii) 6 KL capacity	hour			0.045xL1 +0.268	752.00			235.38	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		5245.26	5248.74	5264.70	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		3147.16	3149.24	3158.82	
			Cost for 5 cum= a+b+c+d+e						34618.75	34641.65	34747.05	
			Rate per cum = (a+b+c+d+e)/5						6923.75	6928.33	6949.41	
								Say	**6923.70**	**6928.30**	**6949.40**	
15.05	**Sub-analysis**	**(A)**	**Cement Mortar 1:3 (1 cement:3 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Materials									
			Cement	tonne	0.510	0.510	0.510	6328.00	3227.28	3227.28	3227.28	M-081
			Sand	cum	1.050	1.050	1.050	577.80	606.69	606.69	606.69	M-004*
			b) Labour									
			Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
			Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Total Material and Labour = (a+b)						4183.96	4183.96	4183.96	
								Say	**4184.00**	**4184.00**	**4184.00**	
	Sub-analysis (Addl.)	**(B)**	**Cement Mortar 1:2 (1 cement:2 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Materials									
			Cement	tonne	0.672	0.672	0.672	6328.00	4252.42	4252.42	4252.42	M-081
			Sand	cum	0.930	0.930	0.930	577.80	537.35	537.35	537.35	M-004*
			b) Labour									
			Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
			Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13
			Total Material and Labour = (a+b)						5139.76	5139.76	5139.76	
								Say	**5139.80**	**5139.80**	**5139.80**	
	Sub-analysis (Addl.)	**(C)**	**Cement Mortar 1:4 (1 cement:4 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Materials									
			Cement	tonne	0.403	0.403	0.403	6328.00	2550.18	2550.18	2550.18	M-081
			Sand	cum	1.120	1.120	1.120	577.80	647.14	647.14	647.14	M-004*
			b) Labour									
			Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
			Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13
			Total Material and Labour = (a+b)						3547.31	3547.31	3547.31	
								Say	**3547.30**	**3547.30**	**3547.30**	
	Sub-analysis (Addl.)	**(D)**	**Cement Mortar 1:6 (1 cement:6 sand)**									
			Unit = 1 cum									
			Taking output = 1 cum									
			a) Materials									
			Cement	tonne	0.288	0.288	0.288	6328.00	1822.46	1822.46	1822.46	M-081
			Sand	cum	1.337	1.337	1.337	577.80	772.52	772.52	772.52	M-004*
			b) Labour									
			Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
			Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13
			Total Material and Labour = (a+b)						2944.97	2944.97	2944.97	
								Say	**2945.00**	**2945.00**	**2945.00**	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
15.06	1400		**Stone Masonary Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical specifications.**									
			Unit = cum									
			Taking output = 5 cum									
	1405.4	(A)	**Square Rubble Coursed Rubble Masonary(first sort)**									
			a) Material									
			Stone	cum	5.500	5.500	5.500	686.03	3773.17	3773.17	3773.17	M-170
			Through and bond stone	each	35.000	35.000	35.000	10.80	378.00	378.00	378.00	M-184
			(35 nos.x0.24mx0.24mx0.39m=0.79 cu.m)									
			Cement mortar 1:3	cum	1.500	1.500	1.500	4218.30	6327.45	6327.45	6327.45	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			b) Labour									
			Mate	day	0.660	0.660	0.660	397.00	262.02	262.02	262.02	L-12
			Mason	day	7.500	7.500	7.500	449.00	3367.50	3367.50	3367.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		3493.03	3493.03	3493.03	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2095.82	2095.82	2095.82	
			Cost for 5 cum = a+b+c+d						23053.98	23053.98	23053.98	
			Rate per cum = (a+b+c+d)/5						4610.80	4610.80	4610.80	
								Say	**4610.80**	**4610.80**	**4610.80**	
	1405.3	(B)	**Random Rubble Masonary**									
			(Coursed/uncoursed)									
			Unit = cum									
			Taking output = 5 cum									
			a) Material									
			Stone	cum	5.500	5.500	5.500	686.03	3773.17	3773.17	3773.17	M-147
			Through and bond stone	each	35.000	35.000	35.000	10.80	378.00	378.00	378.00	M-184
			(35 nos.x0.24mx0.24mx0.39m=0.79 cu.m)									
			. Cement mortar 1:3	cum	1.550	1.550	1.550	4218.30	6538.37	6538.37	6538.37	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			b) Labour									
			Mate	day	0.600	0.600	0.600	397.00	238.20	238.20	238.20	L-12
			Mason	day	6.000	6.000	6.000	449.00	2694.00	2694.00	2694.00	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		3395.75	3395.75	3395.75	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2037.45	2037.45	2037.45	
			Cost for 5 cum = a+b+c+d						22411.92	22411.92	22411.92	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d)/5						4482.38	4482.38	4482.38	
		Note	The labour already considered in cement mortar has been taken into account while proposing labour for masonary works.					**Say**	**4482.40**	**4482.40**	**4482.40**	
15.07	**1300 & 2200**		**Brick Masonary Work in 1:3 in sub-structure complete excluding pointing and plastering, as per Drawing and Technical specifications.**									
			Unit = cum									
			Taking output =1 cum									
			a) Material									
			Brick 1st class	each	500.000	500.000	500.000	6.364	3182.00	3182.00	3182.00	M-079
			Cement mortar 1:3	cum	0.240	0.240	0.240	4218.30	1012.39	1012.39	1012.39	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			Water for curing	KL	0.483	0.483	0.483	60.30	29.12	29.12	29.12	M-191
			b) Labour									
			Mate	day	0.064	0.064	0.064	397.00	25.41	25.41	25.41	L-12
			Mason	day	0.800	0.800	0.800	449.00	359.20	359.20	359.20	L-10
			Mazdoor	day	0.800	0.800	0.800	373.00	298.40	298.40	298.40	L-13
			Add for scaffolding @ 5 percent of cost of material and labour						245.33	245.33	245.33	
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.003xL1 +0.020			1171.00	26.93			PM11001
			(ii) 12 KL capacity	hour		0.004xL1+ 0.027		997.00		30.91		PM11002
			(iii) 6 KL capacity	hour			0.009xL1 +0.054	752.00			47.38	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1035.76	1036.55	1039.85	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		621.45	621.93	623.91	
			Rate per cum = (a+b+c+d+e)						6836.00	6841.24	6862.98	
								Say	**6836.00**	**6841.20**	**6863.00**	
15.08	**1300 & 2200**		**Pointing with cement mortar (1:3) on brick work in sub-structure as per Technical specifications.**									
			Unit =10 sqm									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Taking output =10 sqm									
			a) Material									
			Cement mortar 1:3	cum	0.030	0.030	0.030	4218.30	126.55	126.55	126.55	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			c) Overhead Charges @ on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		110.69	110.69	110.69	
			d) Contractor's profit @ on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		66.41	66.41	66.41	
			Rate per 10 sqm (a+b+c+d)						730.53	730.53	730.53	
								Say	**730.50**	**730.50**	**730.50**	
15.09	**1300 & 2200**		**Plastering with cement mortar (1:3) on brick work in sub-structure as per Technical specifications.**									
			Unit = 10 sqm									
			Taking output =10 sqm									
			a) Material									
			Cement mortar 1:3	cum	0.144	0.144	0.144	4218.30	607.44	607.44	607.44	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			Water for curing	KL	0.139	0.139	0.139	60.30	8.38	8.38	8.38	M-191
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.001xL1 +0.006			1171.00	8.20			PM11001
			(ii) 12 KL capacity	hour		0.001xL1+ 0.008		997.00		8.97		PM11002
			(iii) 6 KL capacity	hour			0.003xL1 +0.016	752.00			14.29	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		210.18	210.33	211.40	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		126.11	126.20	126.84	
			Rate per 10 sqm=(a+b+c+d+e)						1387.18	1388.20	1395.22	
								say	**1387.20**	**1388.20**	**1395.20**	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	The number of masons and mazdoors already catered in the cement mortar have been taken into account while providing these categories in brick masonary, pointing and plastering.									
15.10	1400 & 2200		**Stone Masonary Work in Cement Mortar 1:3 for substructure complete as per Drawing and Technical specifications.**									
		A	**Random Rubble Masonary**									
			(coursed/uncoursed)									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-147
			Through and bond stone	No	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			(7 no.x0.24mx0.24mx0.39m=0.16 cu.m)									
			. Cement mortar 1:3	cum	0.330	0.330	0.330	4218.30	1392.04	1392.04	1392.04	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour									
			Mate	day	0.096	0.096	0.096	397.00	38.11	38.11	38.11	L-12
			Mason	day	1.200	1.200	1.200	449.00	538.80	538.80	538.80	L-10
			Mazdoor	day	1.200	1.200	1.200	373.00	447.60	447.60	447.60	L-13
			Add for scaffolding @ 5 percent of cost of a) material and b) Labour						161.82	161.82	161.82	
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.007xL1 +0.040			1171.00	55.04			PM11001
			(ii) 12 KL capacity	hour		0.009xL1 +0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity	hour			0.018xL1 +0.107	752.00			94.00	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		690.66	692.21	698.45	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		414.39	415.33	419.07	
			Rate per cum (a+b+c+d+e)						4558.34	4568.60	4609.77	
								Say	**4558.30**	**4568.60**	**4609.80**	
15.10		B	**Coursed Rubble Masonary**									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(first sort)									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Stone	cum	1.100	1.100	1.100	686.03	754.63	754.63	754.63	M-170
			Through and bond stone	each	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			(7 no.x0.24mx0.24mx0.39m=0.16 cu.m)									
			. Cement mortar 1:3	cum	0.300	0.300	0.300	4218.30	1265.49	1265.49	1265.49	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			Add for scaffolding @ 5 percent of cost of material and labour						171.73	171.73	171.73	
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.007xL1 +0.040			1171.00	55.04			PM11001
			(ii) 12 KL capacity	hour		0.009xL1 +0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity	hour			0.018xL1 +0.107	752.00			94.00	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		732.28	733.83	740.07	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		439.37	440.30	444.04	
			Rate per cum (a+b+c+d+e)						4833.02	4843.28	4884.45	
								Say	**4833.00**	**4843.30**	**4884.50**	
15.10		**C**	**Ashlar Masonary**									
			(first sort)									
			Plain ashlar									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Stone	cum	1.110	1.110	1.110	686.03	761.49	761.49	761.49	M-170
			Through and bond stone	each	7.000	7.000	7.000	10.80	75.60	75.60	75.60	M-184
			(7 no.x0.24mx0.24mx0.39m=0.16 cu.m)									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			. Cement mortar 1:3	cum	0.330	0.330	0.330	4218.30	1392.04	1392.04	1392.04	21.01A
			(Rate taken from sub-analysis items 21.01 A)									
			Water for curing	KL	0.966	0.966	0.966	60.30	58.25	58.25	58.25	M-191
			b) Labour for masonary work									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mason	day	2.500	2.500	2.500	449.00	1122.50	1122.50	1122.50	L-10
			Mazdoor	day	2.500	2.500	2.500	373.00	932.50	932.50	932.50	L-13
			Add for scaffolding @ 5 percent of cost of a)material and b) Labour						221.09	221.09	221.09	
			c) Machinery									
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and spreading @ 30 mins per trip)									
			(i) 16 KL capacity	hour	0.007xL1 +0.040			1171.00	55.04			PM11001
			(ii) 12 KL capacity	hour		0.009xL1 +0.054		997.00		62.81		PM11002
			(iii) 6 KL capacity	hour			0.018xL1 +0.107	752.00			94.00	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		939.58	941.14	947.37	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		563.75	564.68	568.42	
			Rate per cum (a+b+c+d+e)						6201.24	6211.50	6252.67	
								Say	**6201.20**	**6211.50**	**6252.70**	
		Note	The labour already considered in the cement mortar have been taken into account while providing these categories in the stone masonary works.									
15.11	**1500, 1700 & 2100**		**Plain/Reinforced Cement concrete in open Foundation complete as per Drawing and Technical specifications.**									
		A	**PCC Grade M15**									
		Case I	**PCC Grade M15 using batching plant & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3108.60	93258.00	93258.00	93258.00	21.03
			(Rate taken from sub-analysis items 21.03)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.143xL1 +0.875		997.00		1014.95		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						10083.00	10094.91	10146.97	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		22182.59	22208.80	22323.34	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		13309.56	13325.28	13394.01	
			Cost for 30 cum= a+b+c+d+e+f						146405.13	146578.10	147334.07	
			Rate per cum = (a+b+c+d+e+f)/30						4880.17	4885.94	4911.14	
								Say	**4880.20**	**4885.90**	**4911.10**	
		Case II	**PCC Grade M15 using batching plant & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3108.60	46629.00	46629.00	46629.00	21.03
			(Rate taken from sub-analysis items 21.03)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						5337.57	5343.67	5369.50	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		11742.65	11756.07	11812.90	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7045.59	7053.64	7087.74	
			Cost for 15 cum= a+b+c+d+e+f						77501.51	77590.04	77965.13	
			Rate per cum = (a+b+c+d+e+f)/15						5166.77	5172.67	5197.68	
								Say	**5166.80**	**5172.70**	**5197.70**	
15.11		**B**	**PCC Grade M20**									
		Case I	**PCC Grade M20 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3530.50	105914.94	105914.94	105914.94	21.04
			(Rate taken from sub-analysis items 21.04)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						11348.69	11360.90	11412.67	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		24967.12	24993.99	25107.87	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		14980.27	14996.39	15064.72	
			Cost for 30 cum= a+b+c+d+e+f						164783.00	164960.32	165711.95	
			Rate per cum = (a+b+c+d+e+f)/30						5492.77	5498.68	5523.73	
								Say	**5492.80**	**5498.70**	**5523.70**	
		Case II	**PCC Grade M20 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3530.50	52957.47	52957.47	52957.47	21.04
			(Rate taken from sub-analysis items 21.04)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						5970.42	5976.51	6002.35	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		13134.92	13148.33	13205.16	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7880.95	7889.00	7923.10	
			Cost for 15 cum= a+b+c+d+e+f						86690.45	86778.98	87154.07	
			Rate per cum = (a+b+c+d+e+f)/15						5779.36	5785.27	5810.27	
								Say	**5779.40**	**5785.30**	**5810.30**	
15.11		**C**	**RCC Grade M20**									
		Case I	**RCC Grade M20 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3517.90	105537.00	105537.00	105537.00	21.05
			(Rate taken from sub-analysis items 21.05)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						11349.79	11362.00	11413.76	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		24969.53	24996.40	25110.28	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		14981.72	14997.84	15066.17	
			Cost for 30 cum= a+b+c+d+e+f						164798.89	164976.21	165727.83	
			Rate per cum = (a+b+c+d+e+f)/30						5493.30	5499.21	5524.26	
								Say	**5493.30**	**5499.20**	**5524.30**	
		Case II	**RCC Grade M20 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3517.90	52768.50	52768.50	52768.50	21.05
			(Rate taken from sub-analysis items 21.05)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						5990.41	5996.50	6022.34	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		13178.90	13192.31	13249.14	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7907.34	7915.39	7949.49	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 15 cum= a+b+c+d+e+f						86980.72	87069.25	87444.34	
			Rate per cum = (a+b+c+d+e+f)/15						5798.71	5804.62	5829.62	
								Say	**5798.70**	**5804.60**	**5829.60**	
15.11		**D**	**PCC Grade M25**									
		Case I	**PCC Grade M25 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3883.60	116508.00	116508.00	116508.00	21.06
			(Rate taken from sub-analysis items 21.06)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						12408.00	12420.21	12471.97	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		27297.59	27324.46	27438.34	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		16378.56	16394.68	16463.01	
			Cost for 30 cum= a+b+c+d+e+f						180164.13	180341.45	181093.07	
			Rate per cum = (a+b+c+d+e+f)/30						6005.47	6011.38	6036.44	
								Say	**6005.50**	**6011.40**	**6036.40**	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Case II	**PCC Grade M25 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3883.60	58254.00	58254.00	58254.00	21.06
			(Rate taken from sub-analysis items 21.06)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6500.07	6506.17	6532.00	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		14300.15	14313.57	14370.40	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8580.09	8588.14	8622.24	
			Cost for 15 cum= a+b+c+d+e+f						94381.01	94469.54	94844.63	
			Rate per cum = (a+b+c+d+e+f)/15						6292.07	6297.97	6322.98	
								Say	**6292.10**	**6298.00**	**6323.00**	
15.11		**E**	**RCC Grade M25**									
		Case I	**RCC Grade M25 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			(Rate taken from sub-analysis items 21.07)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						12487.09	12499.30	12551.06	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		27471.59	27498.46	27612.34	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		16482.95	16499.07	16567.40	
			Cost for 30 cum= a+b+c+d+e+f						181312.48	181489.80	182241.43	
			Rate per cum = (a+b+c+d+e+f)/30						6043.75	6049.66	6074.71	
								Say	**6043.70**	**6049.70**	**6074.70**	
		Case II	**RCC Grade M25 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3897.00	58455.00	58455.00	58455.00	21.07
			(Rate taken from sub-analysis items 21.07)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6559.06	6565.15	6590.99	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		14429.93	14443.34	14500.17	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8657.96	8666.00	8700.10	
			Cost for 15 cum= a+b+c+d+e+f						95237.52	95326.05	95701.14	
			Rate per cum = (a+b+c+d+e+f)/15						6349.17	6355.07	6380.08	
								Say	**6349.20**	**6355.10**	**6380.10**	
15.11		**F**	**PCC Grade M30**									
		Case I	**PCC Grade M30 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3918.00	117540.00	117540.00	117540.00	21.08
			(Rate taken from sub-analysis items 21.08)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	397.00	44.86	44.86	44.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	1.325	1.325	1.325	373.00	494.23	494.23	494.23	L-13

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						12511.20	12523.41	12575.17	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		27524.63	27551.50	27665.38	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		16514.78	16530.90	16599.23	
			Cost for 30 cum= a+b+c+d+e+f						181662.59	181839.91	182591.53	
			Rate per cum = (a+b+c+d+e+f)/30						6055.42	6061.33	6086.38	
								Say	**6055.40**	**6061.30**	**6086.40**	
		Case II	**PCC Grade M30 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3918.00	58770.00	58770.00	58770.00	21.08
			(Rate taken from sub-analysis items 21.08)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	397.00	150.86	150.86	150.86	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6551.67	6557.77	6583.60	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		14413.67	14427.09	14483.92	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8648.20	8656.25	8690.35	
			Cost for 15 cum= a+b+c+d+e+f						95130.24	95218.78	95593.86	
			Rate per cum = (a+b+c+d+e+f)/15						6342.02	6347.92	6372.92	
								Say	**6342.00**	**6347.90**	**6372.90**	
15.11		**G**	**RCC Grade M30**									
		Case I	**RCC Grade M30 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09
			(Rate taken from sub-analysis items 21.09)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						12589.69	12601.90	12653.66	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		27697.31	27724.18	27838.06	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		16618.38	16634.51	16702.83	
			Cost for 30 cum= a+b+c+d+e+f						182802.23	182979.56	183731.18	
			Rate per cum = (a+b+c+d+e+f)/30						6093.41	6099.32	6124.37	
								Say	**6093.40**	**6099.30**	**6124.40**	
		Case II	**RCC Grade M30 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	3931.20	58968.00	58968.00	58968.00	21.09
			(Rate taken from sub-analysis items 21.09)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6610.36	6616.45	6642.29	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		14542.79	14556.20	14613.03	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8725.67	8733.72	8767.82	
			Cost for 15 cum= a+b+c+d+e+f						95982.39	96070.93	96446.01	
			Rate per cum = (a+b+c+d+e+f)/15						6398.83	6404.73	6429.73	
								Say	**6398.80**	**6404.70**	**6429.70**	
15.11		**H**	**RCC Grade M35**									
		Case I	**RCC Grade M35 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			(Rate taken from sub-analysis items 21.11)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL1	75xL1	75xL1	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						12922.69	12934.90	12986.66	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		28429.91	28456.78	28570.66	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		17057.94	17074.07	17142.39	
			Costfor 30 cum= a+b+c+d+e+f						187637.39	187814.72	188566.34	
			Rate per cum = (a+b+c+d+e+f)/30						6254.58	6260.49	6285.54	
								Say	**6254.60**	**6260.50**	**6285.50**	
		Case II	**RCC Grade M35 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	4042.20	60633.00	60633.00	60633.00	21.11
			(Rate taken from sub-analysis items 21.11)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.055xL1 +0.328			1171.00	448.49			PM11001
			(ii) 12 KL capacity	hour		0.073xL1 +0.438		997.00		509.47		PM11002
			(iii) 6 KL capacity	hour			0.146xL1 +0.875	752.00			767.79	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6776.86	6782.95	6808.79	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		14909.09	14922.50	14979.33	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8945.45	8953.50	8987.60	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 15 cum= a+b+c+d+e+f						98399.97	98488.51	98863.59	
			Rate per cum = (a+b+c+d+e+f)/15						6560.00	6565.90	6590.91	
								Say	**6560.00**	**6565.90**	**6590.90**	
15.11		**I**	**RCC Grade M40**									
		Case I	**RCC Grade M40 using batching plant, transit mixer & concrete pump**									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			(Rate taken from sub-analysis items 21.12)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						13227.49	13239.70	13291.46	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		29100.47	29127.34	29241.22	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		17460.28	17476.40	17544.73	
			Cost for 30 cum= a+b+c+d+e+f						192063.09	192240.41	192992.04	
			Rate per cum = (a+b+c+d+e+f)/30						6402.10	6408.01	6433.07	
								Say	**6402.10**	**6408.00**	**6433.10**	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.	Description		Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Case II	**RCC Grade M40 using batching plant,transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per cum Basic cost	cum	15.000	15.000	15.000	4143.80	62157.00	62157.00	62157.00	21.12
			(Rate taken from sub-analysis items 21.12)									
			Water for curing	KL	7.875	7.875	7.875	60.30	474.86	474.86	474.86	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	397.00	166.74	166.74	166.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	9.000	9.000	9.000	373.00	3357.00	3357.00	3357.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	37.5xL	37.5xL	37.5xL	10.75	403.13	403.13	403.13	PM76001
			For unloading	hour	0.833	0.833	0.833	1935.00	1611.86	1611.86	1611.86	PM34001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.104xL1 +0.625			1171.00	853.66			PM11001
			(ii) 12 KL capacity	hour		0.139xL1 +0.833		997.00		969.08		PM11002
			(iii) 6 KL capacity	hour			0.278xL1 +1.667	752.00			1462.64	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material,labour and machinery						6969.77	6981.32	7030.67	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		15333.50	15358.90	15467.48	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		9200.10	9215.34	9280.49	
			Cost for 15 cum= a+b+c+d+e+f						101201.12	101368.72	102085.36	
			Rate per cum = (a+b+c+d+e+f)/15						6746.74	6757.91	6805.69	
								Say	**6746.70**	**6757.90**	**6805.70**	
15.12	**1500,1700 & 2100**		**Plain/Reinforced cement concrete for wall & slab etc. complete as per Drawing and Technical specifications.**									
		A	**RCC Grade M20**									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			RCC Grade M20 using batching plant, transit mixer & concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3517.90	105537.00	105537.00	105537.00	21.05
			(Rate taken from sub-analysis items 21.05)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 25 percent on cost of concrete i.e. cost of material,labour and machinery						28374.46	28404.99	28534.41	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		28374.46	28404.99	28534.41	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		17024.68	17043.00	17120.64	
			Cost for 30 cum= a+b+c+d+e+f						187271.46	187472.96	188327.08	
			Rate per cum = (a+b+c+d+e+f)/30						6242.38	6249.10	6277.57	
								Say	**6242.40**	**6249.10**	**6277.60**	
15.12		**B**	**RCC Grade M25**									
			RCC Grade M25 using batching plant, transit mixer & concrete pump									
			Unit = cum									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3897.00	116910.00	116910.00	116910.00	21.07
			(Rate taken from sub-analysis items 21.07)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 25 percent on cost of concrete i.e. cost of material,labour and machinery						31217.71	31248.24	31377.66	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		31217.71	31248.24	31377.66	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		18730.63	18748.95	18826.59	
			Cost for 30 cum= a+b+c+d+e+f						206036.91	206238.41	207092.53	
			Rate per cum = (a+b+c+d+e+f)/30						6867.90	6874.61	6903.08	
								Say	**6867.90**	**6874.60**	**6903.10**	
15.12		**C**	**RCC Grade M30**									
			RCC Grade M30 using batching plant, transit mixer & concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	3931.20	117936.00	117936.00	117936.00	21.09

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(Rate taken from sub-analysis items 21.09)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 25 percent on cost of concrete i.e. cost of material,labour and machinery						31474.21	31504.74	31634.16	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		31474.21	31504.74	31634.16	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		18884.53	18902.85	18980.49	
			Cost for 30 cum= a+b+c+d+e+f						207729.81	207931.31	208785.43	
			Rate per cum = (a+b+c+d+e+f)/30						6924.33	6931.04	6959.51	
								Say	**6924.30**	**6931.00**	**6959.50**	
15.12		**D**	**RCC Grade M35**									
			RCC Grade M35 using batching plant, transit mixer & concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	4042.20	121266.00	121266.00	121266.00	21.11
			(Rate taken from sub-analysis items 21.11)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
			Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
			(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
			(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
			(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
			d) Formwork @ 25 percent on cost of concrete i.e. cost of material,labour and machinery						32306.71	32337.24	32466.66	
			e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		32306.71	32337.24	32466.66	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		19384.03	19402.35	19479.99	
			Cost for 30 cum= a+b+c+d+e+f						213224.31	213425.81	214279.93	
			Rate per cum = (a+b+c+d+e+f)/30						7107.48	7114.19	7142.66	
								Say	**7107.50**	**7114.20**	**7142.70**	
15.12		**E**	**RCC Grade M40**									
			RCC Grade M40 using batching plant, transit mixer & concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per cum Basic cost	cum	30.000	30.000	30.000	4143.80	124314.00	124314.00	124314.00	21.12
			(Rate taken from sub-analysis items 21.12)									
			Water for curing	KL	15.750	15.750	15.750	60.30	949.73	949.73	949.73	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	397.00	60.74	60.74	60.74	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	2.325	2.325	2.325	373.00	867.23	867.23	867.23	L-13

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
				Large	Medium	Small		Large	Medium	Small	
		c) Machinery									
		Transit truck agitator									
		For transportation (6 cum capacity)	tonne-km	75xL	75xL	75xL	10.75	806.25	806.25	806.25	PM76001
		For unloading	hour	0.650	0.650	0.650	1935.00	1257.75	1257.75	1257.75	PM34001
		Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3769.00	2449.85	2449.85	2449.85	PM36001
		Water tanker(speed @ 20 km/hr and return speed @ 30 km/hr and 30 mins for unloading)									
		(i) 16 KL capacity	hour	0.109xL1 +0.656			1171.00	895.82			PM11001
		(ii) 12 KL capacity	hour		0.146xL1 +0.875		997.00		1017.94		PM11002
		(iii) 6 KL capacity	hour			0.292xL1 +1.750	752.00			1535.58	PM11003
		d) Formwork @ 25 percent on cost of concrete i.e. cost of material,labour and machinery						33068.71	33099.24	33228.66	
		e) Overhead Charges @ on (a+b+c+d)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		33068.71	33099.24	33228.66	
		f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		19841.23	19859.55	19937.19	
		Cost for 30 cum= a+b+c+d+e+f						218253.51	218455.01	219309.13	
		Rate per cum = (a+b+c+d+e+f)/30						7275.12	7281.83	7310.30	
							Say	**7275.10**	**7281.80**	**7310.30**	
15.13	**1600**	**Supplying, fitting and placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical specifications**									
		Unit = MT									
		Taking output = 8 MT									
		a) Material									
		HYSD bars including 5 percent overlaps and wastage	tonne	8.400	8.400	8.400	58030.00	487452.00	487452.00	487452.00	M-083
		Binding wire	kg	48.000	48.000	48.000	46.00	2208.00	2208.00	2208.00	M-072
		b) Labour for straightening, cutting, bending,shifting to site, tying and placing in position									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-25
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Cutting machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
			Bending machine	hour	5.333	5.333	5.333	358.00	1909.21	1909.21	1909.21	PM43001
			Electric generator 15 KVA	hour	5.333	5.333	5.333	292.00	1557.24	1557.24	1557.24	PM22009
			Tipper									
			Tipper for transportation									
			(i) 18 cum capacity	t.km	8 x L			4.95	39.60			PM72001
			(ii) 14 cum capacity	t.km		8 x L		5.67		45.36		PM73001
			(iii) 10 cum capacity	t.km			8 x L	7.04			56.32	PM74001
			Loading and Unloading Time									
			(i) 18 cum capacity	hour	1.000			2310.00	2310.00			PM6001
			(ii) 14 cum capacity	hour		1.280		2065.00		2643.20		PM6002
			(iii) 10 cum capacity	hour			1.778	1847.00			3283.97	PM6003
			Light Weight Crane									
			At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
			At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
			d) Overhead Charges on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		100438.56	100506.35	100636.69	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		60263.13	60303.81	60382.02	
			Cost for 8 MT= a+b+c+d+e						662894.47	663341.90	664202.18	
			Rate for per MT = (a+b+c+d+e)/8						82861.81	82917.74	83025.27	
								Say	**82861.80**	**82917.70**	**83025.30**	
15.14	**2706 & 2200**		**Providing weep holes in Brick masonary/ plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20H towards drawing face. Complete as per drawing and Technical specifications.**									
			Unit = Nos.									
			Taking output = 30 Nos.									
			a) Material									
			AC pipe 100 mm dia	metre	31.500	31.500	31.500	45.34	1428.21	1428.21	1428.21	M-056
			(including wastage @ 5 percent)									
			Average length of weep hole is taken as one metre for the purpose of estimating.									
			MS clamp	each	30.000	30.000	30.000	49.08	1472.40	1472.40	1472.40	M-122
			Collar for AC pipe	each	10.000	10.000	10.000	4.53	45.34	45.34	45.34	M056*0.1
			(average) taking 10% of above pipe rate									
			Cement mortar 1:3	cum	0.050	0.050	0.050	4218.30	210.92	210.92	210.92	21.01A

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(Rate taken from sub-analysis items 21.01 A)									
			b) Labour									
			Mate	day	0.030	0.030	0.030	397.00	11.91	11.91	11.91	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor	day	0.250	0.250	0.250	373.00	93.25	93.25	93.25	L-13
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		697.31	697.31	697.31	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		418.38	418.38	418.38	
			Cost for 30 nos. = a+b+c+d						4602.21	4602.21	4602.21	
			Rate per nos. = (a+b+c+d)/30						153.41	153.41	153.41	
								Say	**153.40**	**153.40**	**153.40**	
	Note		1. In case of stone masonary, the size of the weep hole shall be 150 mm x 80 mm or circular with 150 mm diameter									
			2. For structure in stone masonary, the weep holes shall be deemed to be included in the item of stone masonary work and shall not be paid separately.									
15.15	**2700**		**PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specifications.**									
			Unit = cum									
			Taking output = 1 cum									
		a)	**Material**									
		Case I	**PCC Grade M15 using batching plant & concrete pump**									
			a) Material									
			Concrete, item no- 15.11(A), Case-I excluding formworks	cum	1.000			3361.00	3361.00			
			Concrete, item no- 15.11(A), Case-I excluding formworks	cum		1.000		3364.97		3364.97		
			Concrete, item no- 15.11(A), Case-I excluding formworks	cum			1.000	3382.32			3382.32	
			b) Overhead Charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		672.20	672.99	676.46	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		403.32	403.80	405.88	
			Cost for 1 cum = a+b+c						4436.52	4441.76	4464.67	
			Rate per cum = (a+b+c)						4436.52	4441.76	4464.67	
								Say	**4436.50**	**4441.80**	**4464.70**	
		b)	**Material**									
		Case II	**PCC Grade M15 using batching plant & manual placing**									
			Concrete, item no- 15.11(A), Case-II excluding formworks	cum	1.000			3558.38	3558.38			

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Concrete, item no- 15.11(A), Case-II excluding formworks	cum		1.000		3562.44		3562.44		
			Concrete, item no- 15.11(A), Case-II excluding formworks	cum			1.000	3579.67			3579.67	
			b) Overhead Charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		711.68	712.49	715.93	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		427.01	427.49	429.56	
			Cost for 1 cum = a+b+c						4697.06	4702.43	4725.16	
			Rate per cum = (a+b+c)						4697.06	4702.43	4725.16	
								Say	**4697.10**	**4702.40**	**4725.20**	
15.16	**1500,1600, 1700 & 2704**		**Reinforced cement concrete approach slab including reinforcement and formwork complete as per Drawing and Technical specifications.**									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Cement concrete M30 Grade refer relevant item of concrete in item 15.11 G Case -I by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH and CP)	cum	1.000	1.000	1.000	4196.56-L 4200.63-M 4217.88-S	4196.56	4200.63	4217.89	15.11G case 1
			HYSD bar (Reinforcement rate as per item no. 15.13 excluding OH & CP)	tonne	0.050	0.050	0.050	62774.09-L 62816.46-M 62897.93-S	3138.70	3140.82	3144.90	
			b) Overhead Charges @ on (a)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1467.05	1468.29	1472.56	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		880.23	880.97	883.53	
			Rate per cum = (a+b+c)						9682.55	9690.72	9718.88	
								Say	**9682.60**	**9690.70**	**9718.90**	
		Note	The grade of reinforced cement concrete may be adopted as M30 for severe conditions and M25 for moderate conditions.									
15.17	**2705**		**Drainage spouts complete as per Drawing and Technical Specifications.**									
			Unit = No.									
			Taking output = 1 No.									
			a) Material									
			Corrosion resistant structural steel including 5 percent wastage	kg	4.000	4.000	4.000	75.30	301.20	301.20	301.20	M-088
			GI pipe 100mm dia	metre	0.320	0.320	0.320	647.76	207.28	207.28	207.28	M-239
			GI bolt 10mm dia	each	6.000	6.000	6.000	20.76	124.56	124.56	124.56	M-109
			Galvanised MS flat clamp	each	2.000	2.000	2.000	18.01	36.02	36.02	36.02	M-101
			b) Labour									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For fabrication									
			Mate	day	0.002	0.002	0.002	397.00	0.79	0.79	0.79	L-12
			Skilled (Blacksmith, Welder etc.)	day	0.020	0.020	0.020	503.00	10.06	10.06	10.06	L-02
			Mazdoor	day	0.020	0.020	0.020	373.00	7.46	7.46	7.46	L-13
			For fixing in position									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mason	day	0.010	0.010	0.010	449.00	4.49	4.49	4.49	L-10
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			Add @ 5 percent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.						38.48	38.48	38.48	
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		161.63	161.63	161.63	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		96.98	96.98	96.98	
			Rate per metre (a+b+c+d)						1066.73	1066.73	1066.73	
								Say	**1066.70**	**1066.70**	**1066.70**	
		Note	1. 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.									
			2. 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.									
15.18	**2702**		**Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical specifications.**									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Cement concrete M30 Grade Refer relevant item of concrete in item 15.12(C) excluding formwork	cum	1.000	1.000	1.000	4196.56-L 4200.63-M 4217.88-S	4196.56	4200.63	4217.89	
			HYSD bar reinforcement Rate as per item No 15.13 (Excluding OH & CP)	tonne	0.075	0.075	0.075	62774.09-L 62816.46-M 62897.93-S	4708.06	4711.24	4717.35	
			b) Labour									
			Mazdoor for cleaning deck slab concrete surface	day	0.150	0.150	0.150	373.00	55.95	55.95	55.95	L-13
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1792.11	1793.56	1798.24	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1075.27	1076.14	1078.94	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum (a+b+c+d)						11827.95	11837.52	11868.36	
								Say	**11828.00**	**11837.50**	**11868.40**	
15.19	**516 & 2702**		**Mastic Asphalt**									
			Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in Table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005 cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516.									
			Unit = sqm									
			Taking output= 72.46 sqm (2 tonnes)(0.869 cum) assuming a density of 2.3 tonnes/cum.									
			a) Labour									
			Mate	day	0.490	0.490	0.490	397.00	194.53	194.53	194.53	L-12
			Mazdoor	day	11.000	11.000	11.000	373.00	4103.00	4103.00	4103.00	L-13
			Mazdoor (Skillled)	day	1.250	1.250	1.250	472.00	590.00	590.00	590.00	L-15
			b) Machinery									
			Mechanical broom @ 1250 sqm per hour	hour	0.060	0.060	0.060	794.00	47.64	47.64	47.64	PM23001
			Air compressor 250 cfm	hour	0.060	0.060	0.060	440.00	26.40	26.40	26.40	PM15001
			Mastic cooker 1 tonne capacity	hour	6.000	6.000	6.000	499.00	2994.00	2994.00	2994.00	PM27001
			Bitumen boiler 1500 litres capacity	hour	6.000	6.000	6.000	552.00	3312.00	3312.00	3312.00	PM26001
			Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
			c) Material									
			Base mastic (without coarse aggregates) = 60 percent									
			Coarse aggregate (3.35 mm to 9.5 mm size)= 40 percent									
			Proportion of material required for mastic ashphalt with coarse aggregates (based on mix design done by CRRI for a specific case)									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			i) Bitumen 80/100 or 60/70 or 30/40 @ 10.2 percent by weight of mix.	tonne	0.204	0.204	0.204	62440.00	12737.76	12737.76	12737.76	M-327
			2 x 10.2/100 = 0.204	.								
			ii) Crusher stone dust @ 31.9 percent by weight of mix= 2x31.9/100=0.638 tonnes= 0.638/1.625=0.39	cum	0.390	0.390	0.390	264.78	103.26	103.26	103.26	M-020
			iii) Lime stone dust filler with calcium carbonate content not less than 80 percent by weight @ 17.92 percent by weight of mix =2x17.92/100=0.36	tonne	0.360	0.360	0.360	3000.00	1080.00	1080.00	1080.00	M-190
			iv) Coarse aggregates 9.5 mm to 3.35 mm size @ 40 percent by weight of mix=2x40/100=0.8 MT=0.8/1.456=0.55	cum	0.550	0.550	0.550	595.16	327.34	327.34	327.34	M-024
			v) Pre-coated stone chips of 9.5 mm nominal size for skid resistance= 72.46x0.005/10=0.036	cum	0.036	0.036	0.036	655.09	23.58	23.58	23.58	M-141
			vi) Bitumen for coating of chips @ 2 percent by weight= 0.036x1.456x2/100=0.001048 MT= 1.05 kg	kg	1.050	1.050	1.050	62.44	65.56	65.56	65.56	M-327
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		5256.22	5256.22	5256.22	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		3153.73	3153.73	3153.73	
			Cost for 72.46 sqm = a+b+c+d+e						34691.02	34691.02	34691.02	
			Rate per sqm = (a+b+c+d+e)/72.46						478.76	478.76	478.76	
								Say	**478.80**	**478.80**	**478.80**	
		Note	1. The rates for 6 mm or any other thickness may be worked out on pro-rata basis.									
			2. Where tack coat is required to be provided before laying mastic ashphalt, the same is required to be measured and paid separately.									
			3. The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design									
			4. This rate analysis is based on design made by CRRI for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case									
			5. The quantity of bitumen works out 17 percent of the mastic asphalt blocks without aggregates and falls within the standards laid down by MoRT&H Specifications									
15.20	**800**		**Crash Barriers for Bridge**									
			The rate analysis for semi rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-8 on Traffic and Transportation. The rate analysis for rigid crash barrier in reinforced cement concrete, have been made and included in chapter-14 on Super-structure.									
15.21	**800**		**Painting on concrete surface**									

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.020	0.020	0.020	397.00	7.94	7.94	7.94	L-12
			Painter	day	0.250	0.250	0.250	476.00	119.00	119.00	119.00	L-18
			Mazdoor (skilled)	day	0.250	0.250	0.250	472.00	118.00	118.00	118.00	L-15
			b) Material									
			Water based paint of approved quality for cement concrete surface	Litres	5.000	5.000	5.000	142.98	714.90	714.90	714.90	M-192
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		191.97	191.97	191.97	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		115.18	115.18	115.18	
			Cost for 10 sqm (a+b+c+d)						1266.99	1266.99	1266.99	
			Rate per sqm (a+b+c+d)/10						126.70	126.70	126.70	
								Say	**126.70**	**126.70**	**126.70**	
15.22	**2605**		**Filler joint**									
		(i)	Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			cutting, bending, carrying & fixing etc.									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Material									
			Copper plate- 12 m long x 250 mm wide	kg	55.000	55.000	55.000	527.00	28985.00	28985.00	28985.00	M-087
			Area = 12x0.25=3 sqm									
			weight = 3x0.002x8900=53.4 kg									
			wastage @ 2.5 percent=1.33 kg/54.73 kg say=55 kg									
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		5884.68	5884.68	5884.68	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		3530.81	3530.81	3530.81	
			Cost for 12 m= a+b+c+d						38838.86	38838.86	38838.86	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per m= (a+b+c+d)/12						3236.57	3236.57	3236.57	
								Say	**3236.60**	**3236.60**	**3236.60**	
15.22		(ii)	**Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.**									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			for carrying, placing & fixing									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor	day	0.100	0.100	0.100	373.00	37.30	37.30	37.30	L-13
			Mazdoor (skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			20 mm thick compressible fibre board 12 m longx 25 cm deep.	sqm	3.000	3.000	3.000	1628.09	4884.27	4884.27	4884.27	M-085
			Area = 12x0.25 = 3 sqm									
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		994.39	994.39	994.39	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		596.63	596.63	596.63	
			Cost for 12 m= a+b+c+d						6562.97	6562.97	6562.97	
			Rate per m= (a+b+c+d)/12						546.91	546.91	546.91	
								Say	**546.90**	**546.90**	**546.90**	
15.22		(iii)	**Providing and fixing in position 20 mm thick pre moulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.**									
			Unit = Running meter									
			Taking output = 12 m									
			a) Labour									
			Mate	day	0.012	0.012	0.012	397.00	4.76	4.76	4.76	L-12
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			Mazdoor (skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			Pre-moulded joint filler 12 m long, 20 mm thick and 300 mm deep	sqm	3.600	3.600	3.600	400.00	1440.00	1440.00	1440.00	M-140
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		313.31	313.31	313.31	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		187.99	187.99	187.99	

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 12 m= a+b+c+d						2067.86	2067.86	2067.86	
			Rate per m= (a+b+c+d)/12						172.32	172.32	172.32	
								Say	**172.30**	**172.30**	**172.30**	
15.22		(iv)	**Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 percent bitumen by weight**									
			Unit = Running meter									
			Taking output = 12 m									
			12m long x 100 mm wide x 10 mm deep recess									
			a) Labour									
			Mate	day	0.024	0.024	0.024	397.00	9.53	9.53	9.53	L-12
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Mazdoor (skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			sand	cum	0.012	0.012	0.012	577.80	6.93	6.93	6.93	M-004*
			volume 12 x 0.1 x 0.01 = 0.012 cum									
			Weight 0.012 x 1400 = 16.8 kg									
			Bitumen	tonne	0.001	0.001	0.001	60218.00	60.22	60.22	60.22	M-074
			16.8 x 0.06 = 1 kg									
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		62.08	62.08	62.08	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		37.25	37.25	37.25	
			Cost for 12 m= a+b+c+d						409.70	409.70	409.70	
			Rate per m= (a+b+c+d)/12						34.14	34.14	34.14	
								Say	**34.10**	**34.10**	**34.10**	
		Note	For arriving at the final rate of filler joints per m length and per cm depth of joint filling compound, the rates at Sl. No. i), ii), iii) & iv) shall be added.									
15.23	**710.1.4 of IRC:78 & 2200**		**Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specifications.**									
			Unit = cum									
			Taking output = 10 cum									
		A	**Granular material**									
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Mazdoor	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			b) Material									
			Granular material	cum	12.000	12.000	12.000	167.03	2004.36	2004.36	2004.36	M-009
			c) Machinery									
			Plate	hour	2.500	2.500	2.500	396.00	990.00	990.00	990.00	PM46001

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Compactor/power rammer									
			Water tanker 6 KL capacity	hour	0.050	0.050	0.050	752.00	37.60	37.60	37.60	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1150.82	1150.82	1150.82	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		690.49	690.49	690.49	
			Cost for 10 cum of granular backfill= a+b+c+d+e						7595.44	7595.44	7595.44	
			Rate per cum = (a+b+c+d+e)/10						759.54	759.54	759.54	
								Say	**759.50**	**759.50**	**759.50**	
15.23		**B**	**Sandy material**									
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Mazdoor for filling,watering,ramming etc.	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			b) Material									
			Sand	cum	12.000	12.000	12.000	144.75	1737.00	1737.00	1737.00	M-006
			c) Machinery									
			Plate	hour	2.500	2.500	2.500	396.00	990.00	990.00	990.00	PM46001
			Compactor/power rammer									
			Water tanker 6 KL capacity	hour	0.060	0.060	0.060	752.00	45.12	45.12	45.12	PM11003
			d) Overhead Charges @ on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		1098.86	1098.86	1098.86	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		659.31	659.31	659.31	
			Cost for 10 cum of sandy backfill= a+b+c+d+e						7252.45	7252.45	7252.45	
			Rate per cum = (a+b+c+d+e)/10						725.24	725.24	725.24	
								Say	**725.20**	**725.20**	**725.20**	
15.24	**710.1.4. of IRC:78 and 2504.2**		**Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.**									
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
			Mazdoor for filling,watering,ramming etc.	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
			Mazdoor (skilled)	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15

Analysis of Rate

BOX CELL STRUCTURE

Sr. No.	Ref. To MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Material									
			Filter media of stone aggregate conforming to clause 2504.2.2. of MoRT&H specifications.	cum	12.000	12.000	12.000	689.23	8270.76	8270.76	8270.76	M-011
			c) Machinery									
			Water tanker of 6 KL capacity	hour	0.060	0.060	0.060	752.00	45.12	45.12	45.12	PM11003
			d) Overhead Charges on (a+b+c)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		2305.18	2305.18	2305.18	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1383.11	1383.11	1383.11	
			Cost for 10 cum of Filter media= a+b+c+d+e						15214.21	15214.21	15214.21	
			Rate per cum = (a+b+c+d+e)/10						1521.42	1521.42	1521.42	
								Say	**1521.40**	**1521.40**	**1521.40**	
15.25			**Painting with synthetic enamel paint bridge No. and span arrangements**									
			Painting two coats after filling the surface with synthetic enamel paint bridge No. and span arrangements as per as directed by Engineer.									
			Unit = Nos.									
			Taking output = 1 Nos.									
			a) Labour									
			Mate	day	0.006	0.006	0.006	397.00	2.38	2.38	2.38	L-12
			Painter	day	0.100	0.100	0.100	476.00	47.60	47.60	47.60	L-18
			Mazdoor	day	0.050	0.050	0.050	373.00	18.65	18.65	18.65	L-13
			b) Material									
			Paint conforming to requirement of clause 803.3.	Litre	0.300	0.300	0.300	280.93	84.28	84.28	84.28	M-130
			Add for scaffolding @ 1 percent of labour cost where required						0.69	0.69	0.69	
			Add @ 5 percent cost of labour and materials to prepare the surface by filling minutes roughness on the surface and priming the surface before laying 2 coats of painting.						7.65	7.65	7.65	
			c) Overhead Charges @ on (a+b)		**(@ 20%)**	**(@ 20%)**	**(@ 20%)**		32.25	32.25	32.25	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		19.35	19.35	19.35	
			Cost for 1 No.= a+b+c+d						212.84	212.84	212.84	
			Rate per Nos. = (a+b+c+d)					**Say**	**212.80**	**212.80**	**212.80**	

CHAPTER - 16

RIVER TRAINING AND PROTECTION WORKS

CHAPTER-16
RIVER TRAINING AND PROTECTION WORKS

PREAMBLES :

1 Three types of aprons on riverbed as under have been catered.

a) Boulder apron laid dry

b) Boulder apron laid in wire crates

c) Apron laid in cement concrete blocks on M 15

2 A toe wall for toe protection of pitching can be either in dry rubble masonary (uncoursed) or in nominal mix cement concrete M 15. Depending upon the design, the rates may be adopted under respective clauses.

3 Flooring has been proposed in dry rubble stone, rubble stone laid in Cement Mortar 1: 3 and with cement concrete blocks M 15.

4 Curtain wall proposed are of the following two types :

a) Course rubble stone masonry (1st sort) in CM 1: 3.

b) Cement concrete M 15 grade.

5 The rate analysis for gabion structures comprising of stone boulders laid in wire crates have been included. Such structures are suited as retaining structures and for erosion in river training works especially for situations where some settlement of foundation is anticipated. These structures can adjust in minor settlements, being flexible structures, without loosing their functional requirement.

CHAPTER - 16

RIVER TRAINING AND PROTECTION WORKS

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
16.01	Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.	Cum	1600.40	1600.40	1600.40
16.02	**Boulder Apron Laid in Wire Crates.** Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10 percent extra for laps and joints laid with stone boulders weighing not less than 40 kg each.	Cum	2051.40	2051.40	2051.40
16.03	**Cement Concrete Blocks (size 0.5 x 0.5 x 0.5 m).**Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with minimum cement content of 250 kg/cum.	Cum	4982.60	4988.30	5012.50
16.04	Providing and laying pitching on slopes Laid over prepared filter media including boulder apron laid dry in front of toe as per drawing and technical specifications.				
A	Stone/Boulder	Cum	1600.40	1600.40	1600.40
B	Cement Concrete Blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15	Cum	4982.60	4988.30	5012.50
16.05	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	Cum	1766.10	1766.10	1766.10
16.06	**Geotextile Filter.** (Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.)	Sqm	158.00	158.00	158.00

RIVER TRAINING AND PROTECTION WORKS

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
16.07	**Toe Protection**.(A toe wall for toe protection can either be in dry rubble masonry in case of dry rubble pitching or pitching with stones in wire crates or it can be in PCC M15 nominal mix if cement concrete block have been used for pitching . Rates for toe wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, dry rubble masonry and PCC M15 have been analysed and given in respective chapters.)				
16.08	**Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.**				
A	Rubble stone laid in cement mortar 1:3	Cum	4375.40	4377.30	4385.30
B	Cement Concrete blocks Grade M15 including 100 mm thick bedding.	Cum	6197.99	6205.51	6237.34
16.09	**Dry Rubble Flooring.** (Construction of dry rubble flooring at cross drainage works for relatively less important works.)	Cum	2088.20	2088.20	2088.20
16.10	**Curtain wall complete as per drawing and Technical specification**				
A	Stone masonry in cement mortar (1:3)	Cum	4610.80	4610.80	4610.80
B	Cement concrete Grade M15	Cum	4614.00	4619.60	4643.30
16.11	**Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.**	Cum	1684.00	1684.00	1684.00
16.12	**Gabion Structure for Retaining Earth**. (Providing and construction of a gabion structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire)	Cum	2056.50	2056.50	2056.50

RIVER TRAINING AND PROTECTION WORKS

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
16.13	**Gabion Structure for Erosion Control, River Training Works and Protection works.(** Providing and constructing gabion structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire)	Cum	3000.10	3000.10	3000.10
16.14	Providing & making Gabion structure with Mechanically Woven Double Twisted Hexagonal Shaped Wire mesh Gabion Boxes as per IS 16014:2012, MORT&H Clause 2500, of required size, Mesh Type 10x12 (D=100 mm with Tolerance of+/- 2%) Zinc Coated Mesh Wire diameter 3.0 mm, mechanically edged/ selvedge with partitions at every 1m interval and shall have minimum 10 number of openings per meter of mesh perpendicular to twist , tying with lacing wire of diameter 2.2 mm, supplied @ 3% by weight of Gabion boxes, filled with boulders with least dimension of 200 mm, as per drawing, all complete as per direction of Engineer-in-charge.	Cum	2296.00	2296.00	2296.00
16.15	**Embankment Erosion Protection using Fine Aggregate concrete filled fabric form mattress system** (Laying of a fine aggregate concrete grade M30 filled fabric form for erosion protection of embankments)	Sqm	763.60	764.10	766.40

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RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
16.01	2503		Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.									
		A	Boulder Laid Dry without wire crates									
			Unit = cum									
			Taking output= 1 cum									
			a) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-003
			Stone Spalls	cum	0.200	0.200	0.200	360.11	72.02	72.02	72.02	M-008
			b) Labour									
			Mate	day	0.044	0.044	0.044	397.00	17.47	17.47	17.47	L-12
			Mason	day	0.350	0.350	0.350	449.00	157.15	157.15	157.15	L-10
			Mazdoor*	day	0.750	0.750	0.750	373.00	279.75	279.75	279.75	L-13
			Total cost without OH & CP (a+b)						1212.42	1212.42	1212.42	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**242.48**	**242.48**	**242.48**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**145.49**	**145.49**	**145.49**	
			Rate per cum= (a+b+c+d)						**1600.39**	**1600.39**	**1600.39**	
								Say	**1600.40**	**1600.40**	**1600.40**	
		*	Including excavation for trimming for preparation of bed.									
		Note	Nominal excavation required for preparation of bed has been taken into account while making provision for labour.									
16.02	2503		**Boulder Apron Laid in Wire Crates**									

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10 percent extra for laps and joints laid with stone boulders weighing not less than 40 kg each.									
			Unit = cum									
			Taking output = 3 mx1.5mx1.25m = 5.63 cum									
			a) Material									
			4mm GI wire crates woven in mesh size of 100 mm x 100 mm.	sqm	22.000	22.000	22.000	117.36	2581.92	2581.92	2581.92	M-102
			Stone	cum	5.630	5.630	5.630	686.03	3862.35	3862.35	3862.35	M-003
			Stone Spalls	cum	1.130	1.130	1.130	360.11	406.92	406.92	406.92	M-008
			b) Labour									
			Mate	day	0.180	0.180	0.180	397.00	71.46	71.46	71.46	L-12
			Mazdoor (Skilled)	day	1.500	1.500	1.500	472.00	708.00	708.00	708.00	L-15
			Mazdoor*	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			Total cost without OH & CP (a+b)						8749.65	8749.65	8749.65	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**1749.93**	**1749.93**	**1749.93**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**1049.96**	**1049.96**	**1049.96**	
			Cost for 5.63 cum = a+b+c+d						11549.54	11549.54	11549.54	
			Rate per cum = (a+b+c+d)/5.63						**2051.43**	**2051.43**	**2051.43**	
								Say	**2051.40**	**2051.40**	**2051.40**	
		*	Mazdoor Including excavation for trimming for preparation of bed.									

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.									
16.03	**2503**		**Cement Concrete Blocks (size 0.5 x 0.5 x 0.5 m)**									
			Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with minimum cement content of 250 kg/cum.									
			Unit = cum									
			Taking out put = 1 cum									
			Concrete Grade M15 (Rate taken from items 12.08 A, Case II) including OH & CP	cum	1.000	1.000	1.000	L-4884.9 M-4890.50 S-4914.20	4884.90	4890.50	4914.20	12.08 A Case II
			Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks.						97.70	97.81	98.28	
			Rate per cum						4982.60	4988.31	5012.48	
								say	**4982.60**	**4988.30**	**5012.50**	

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
16.04	2504		Providing and laying pitching on slopes Laid over prepared filter media including boulder apron laid dry in front of toe as per drawing and technical specifications..									
		A	**Stone/Boulder**									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Stone weighing not less than 40kg	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-003
			Stone spalls of minimum 25 mm size	cum	0.200	0.200	0.200	360.11	72.02	72.02	72.02	M-008
			b) Labour									
			Mate	day	0.044	0.044	0.044	397.00	17.47	17.47	17.47	L-12
			Mason	day	0.350	0.350	0.350	449.00	157.15	157.15	157.15	L-10
			Mazdoor	day	0.750	0.750	0.750	373.00	279.75	279.75	279.75	L-13
			Total cost without OH & CP (a+b)						1212.42	1212.42	1212.42	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**242.48**	**242.48**	**242.48**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**145.49**	**145.49**	**145.49**	
			Rate per cum = (a+b+c+d)						**1600.39**	**1600.39**	**1600.39**	
								Say	**1600.40**	**1600.40**	**1600.40**	
16.04		B	**Cement Concrete Blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15**									

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit = cum									
			Taking output = 1 cum									
			Concrete Grade M15 (Rate taken from items 12.08 A, Case II) including OH & CP	cum	1.000	1.000	1.000	L-4884.9 M-4890.50 S-4914.20	4884.90	4890.50	4914.20	12.08 A Case II
			Add 2 per cent of cost to account for nominal surface reinforcement and filling of granular material in recesses between blocks.						97.70	97.81	98.28	
			Rate per cum						4982.60	4988.31	5012.48	
								Say	**4982.60**	**4988.30**	**5012.50**	
16.05	**2504**		Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification									
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Graded stone aggregate of required size	cum	1.200	1.200	1.200	689.23	827.08	827.08	827.08	M-011
			b) Labour									
			Mate	day	0.050	0.050	0.050	397.00	19.85	19.85	19.85	L-12
			Mazdoor (Skilled)	day	0.250	0.250	0.250	472.00	118.00	118.00	118.00	L-15
			Mazdoor*	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Total cost without OH & CP (a+b)						1337.93	1337.93	1337.93	

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**267.59**	**267.59**	**267.59**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**160.55**	**160.55**	**160.55**	
			Rate per cum = (a+b+c+d)						**1766.06**	**1766.06**	**1766.06**	
								Say	**1766.10**	**1766.10**	**1766.10**	
			* Includes Mazdoor required for trimming of slope to proper profile and preparation of bed.									
16.06	**700 & 2504**		**Geotextile Filter**									
			Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.									
			Unit = sqm									
			Taking output = 10 sqm.									
			a) Labour									
			Mate	day	0.016	0.016	0.016	397.00	6.35	6.35	6.35	L-12
			Mazdoor	day	0.300	0.300	0.300	373.00	111.90	111.90	111.90	L-13
			Mazdoor (Skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			b) Material									
			Permeable synthetic geotextile including 5 percent for overlap and wastage	sqm	11.000	11.000	11.000	93.77	1031.47	1031.47	1031.47	M-301
			Total cost without OH & CP (a+b)						1196.92	1196.92	1196.92	

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**239.38**	**239.38**	**239.38**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**143.63**	**143.63**	**143.63**	
			Cost for 10 sqm = a+b+c+d						1579.94	1579.94	1579.94	
			Rate per sqm = (a+b+c+d)/10						**157.99**	**157.99**	**157.99**	
								Say	**158.00**	**158.00**	**158.00**	
16.07	**2504**		**Toe protection**									
			A toe wall for toe protection can either be in dry rubble masonry in case of dry rubble pitching or pitching with stones in wire crates or it can be in PCC M15 nominal mix if cement concrete block have been used for pitching . Rates for toe wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, dry rubble masonry and PCC M15 have been analysed and given in respective chapters.									
16.08	**2505**		**Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.**									
		A	**Rubble stone laid in cement mortar 1:3**									
			Unit = cum									
			Taking output = 1 cum									

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Cement mortar 1:3 (Rate taken from Items 21.01 A)	cum	0.133	0.133	0.133	4218.30	561.03	561.03	561.03	21.01A
			b) Add for cement concrete bedding (M15 Nominal mix) vide Item 12.08 (A) including OH & CP . Quantity shall be adopted as per design (Assume Rubble stone Flooring thickness 300 mm and cement concrete bedding thickness 100 mm)	cum	0.333	0.333	0.333	4614.00-L 4619.60-M 4643.30-S	1536.46	1538.33	1546.22	12.08 A Case I
			Add 1 per cent of cost to account for excavation for preparation of bed.						20.97	20.99	21.07	
			c) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-003
			Stone Spalls	cum	0.200	0.200	0.200	360.11	72.02	72.02	72.02	M-008
			d) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			Mazdoor (for laying stones, filling of quarry spalls)	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
								(a+c+d)	2134.85	2134.85	2134.85	
			e) Overhead charges on (a+c+d)		(@ 20%)	(@ 20%)	(@ 20%)		**426.97**	**426.97**	**426.97**	
			f) Contractor's profit on (a+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**256.18**	**256.18**	**256.18**	
			Rate per cum = (a+b+c+d+e+f)						**4375.43**	**4377.32**	**4385.29**	

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	**4375.40**	**4377.30**	**4385.30**	
		*	Includes cement mortar for laying and filling of joints.									
16.08		**B**	**Cement Concrete blocks Grade M15 including 100 mm thick bedding.**									
			Concrete Grade M15 block. (Rate taken from items 12.8 A case- (i) including OH & CP.	cum	1.000	1.000	1.000	4614.00-L 4619.60-M 4643.30-S	4614.00	4619.60	4643.30	12.08 A Case I
			Add for cement concrete bedding (M15 Nominal mix) vide Item 12.08 (A) case-(i) including OH & CP. Quantity shall be adopted as per design (Assume Cement Concrete blocks thickness 300mm and cement concrete bedding thickness 100mm)	cum	0.330	0.330	0.330	4614.00-L 4619.60-M 4643.30-S	1522.62	1524.47	1532.29	12.08 A Case I
			Add 1 per cent of cost to account for excavation for preparation of bed.						61.37	61.44	61.76	
			Rate per cum						**6197.99**	**6205.51**	**6237.34**	
16.09	**2506**		**Dry Rubble Flooring**									
			Construction of dry rubble flooring at cross drainage works for relatively less important works.									

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit = cum									
			Taking output = 1 cum									
			a) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-003
			Stone Spalls	cum	0.200	0.200	0.200	360.11	72.02	72.02	72.02	M-008
			b) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mason	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10
			mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			Add 1 per cent of (b) for trimming and preparation of base.						8.16	8.16	8.16	
			Total cost without OH & CP						1581.97	1581.97	1581.97	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**316.39**	**316.39**	**316.39**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**189.84**	**189.84**	**189.84**	
			Rate per cum = (a+b+c+d)						**2088.20**	**2088.20**	**2088.20**	
								Say	**2088.20**	**2088.20**	**2088.20**	
16.10	**2507.2**		**Curtain wall complete as per drawing and Technical specification**									
			Unit =Cum									
			Taking output = 1 cum									
		A	**Stone masonry in cement mortar (1:3)**									

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Coursed rubble masonry (1st sort) (Rate taken from items 12.07 A) including OH & CP	cum	1.000	1.000	1.000	4610.80	4610.80	4610.80	4610.80	12.07 (A)
			Rate same as per item No. 12.07 (A) including OH & CP									
			Rate per cum						**4610.80**	**4610.80**	**4610.80**	
			or									
16.10		**B**	**Cement concrete Grade M15**									
			Concrete Grade M15 (Rate taken from items 12.08 A) including OH & CP	cum	1.000	1.000	1.000	4614.00-L 4619.60-M 4643.30-S	4614.00	4619.60	4643.30	12.08 A Case I
			Rate per cum						4614.00	4619.60	4643.30	
		Note	Other items like excavation for foundation, filling behind wall, filter media, weep holes etc. shall be added separately as per approved design.									
16.11	**2507.2**		**Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.**									
			Unit = cum									
			Taking Output = 1 cum									
			a) Material									
			Stone	cum	1.000	1.000	1.000	686.03	686.03	686.03	686.03	M-003
			Stone Spalls	cum	0.200	0.200	0.200	360.11	72.02	72.02	72.02	M-008
			b) Labour									

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.050	0.050	0.050	397.00	19.85	19.85	19.85	L-12
			Mason	day	0.250	0.250	0.250	449.00	112.25	112.25	112.25	L-10
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			Add 1 per cent of cost of (a+b) for trimming and preparation of bed.						12.63	12.63	12.63	
			Total cost without OH & CP						1275.78	1275.78	1275.78	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**255.16**	**255.16**	**255.16**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**153.09**	**153.09**	**153.09**	
			Rate per cum = (a+b+c+d)						**1684.03**	**1684.03**	**1684.03**	
								Say	**1684.00**	**1684.00**	**1684.00**	
16.12	**2503.3**		**Gabion Structure for Retaining Earth**									
			Providing and construction of a gabion structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire								

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit = cum									
			Taking output = 7 x 3 x 0.6 = 12.60 cum									
			a) Labour									
			Mate	day	0.280	0.280	0.280	397.00	111.16	111.16	111.16	L-12
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			Mazdoor (Skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
			b) Material									
			Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	sqm	61.000	61.000	61.000	117.36	7158.96	7158.96	7158.96	M-102
			Stone boulders with least dimension of 200 mm	cum	12.600	12.600	12.600	686.03	8643.98	8643.98	8643.98	M-003
			Stone spalls of minimum size 25 mm	cum	2.520	2.520	2.520	360.11	907.48	907.48	907.48	M-008
			Total cost without OH & CP (a+b)						19630.58	19630.58	19630.58	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**3926.12**	**3926.12**	**3926.12**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**2355.67**	**2355.67**	**2355.67**	
			Cost for 12.60 cum (a+b+c+d)						25912.36	25912.36	25912.36	
			Rate per cum (a+b+c+d)/12.60						**2056.54**	**2056.54**	**2056.54**	
		Note	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.					**Say**	**2056.50**	**2056.50**	**2056.50**	

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
16.13	2503.3		**Gabion Structure for Erosion Control, River Training Works and Protection works**									
			Providing and constructing gabion structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.									
			Unit = cum									
			Taking output = 2 x 1 x 0.3 x 10 Nos. = 6.00 cum									
			a) Labour									
			Mate	day	0.140	0.140	0.140	397.00	55.58	55.58	55.58	L-12
			Mazdoor	day	2.500	2.500	2.500	373.00	932.50	932.50	932.50	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
			b) Material									

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size to cover 6.00 cum.	sqm	65.000	65.000	65.000	117.36	7628.40	7628.40	7628.40	M-102
			Stone boulders with least dimension of 200 mm	cum	6.000	6.000	6.000	686.03	4116.18	4116.18	4116.18	M-003
			Stone spalls of minimum size 25 mm	cum	1.200	1.200	1.200	360.11	432.13	432.13	432.13	M-008
			Total cost without OH & CP (a+b)						13636.79	13636.79	13636.79	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		**2727.36**	**2727.36**	**2727.36**	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		**1636.42**	**1636.42**	**1636.42**	
			Cost for 6.00 cum (a+b+c+d)						18000.57	18000.57	18000.57	
			Rate per cum (a+b+c+d)/6.00						**3000.09**	**3000.09**	**3000.09**	
		Note	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.					**Say**	**3000.10**	**3000.10**	**3000.10**	

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
16.14	2503		Providing & making Gabion structure with Mechanically Woven Double Twisted Hexagonal Shaped Wire mesh Gabion Boxes as per IS 16014:2012, MORT&H Clause 2500, of required size, Mesh Type 10x12 (D=100 mm with Tolerance of+/- 2%) Zinc Coated Mesh Wire diameter 3.0 mm, mechanically edged/ selvedge with partitions at every 1m interval and shall have minimum 10 number of openings per meter of mesh perpendicular to twist , tying with lacing wire of diameter 2.2 mm, supplied @ 3% by weight of Gabion boxes, filled with boulders with least dimension of 200 mm, as per drawing, all complete as per direction of Engineer-in-charge.									
			Unit = cum									
			Taking output = 2 x 1 x1 m = 2 cum									
			a) Material									
			Crates made of Mesh Type 10 x12 (D= 100mm) Zn coated. (Mesh wire diameter 3.00 mm). Surface Area required= 11.00 sqm.	sqm	11.000	11.000	11.000	117.36	1290.96	1290.96	1290.96	M-102
			Stone boulder with least dimension 200mm	cum	2.000	2.000	2.000	686.03	1372.06	1372.06	1372.06	M-003
			b) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mason (for plain stone work) 2nd class	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-10

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	1.500	1.500	1.500	373.00	559.50	559.50	559.50	L-13
			Total cost without OH & CP (a+b)						3478.78	3478.78	3478.78	
			c) Overhead charges on (a+b)		(@ 20%)	(@ 20%)	(@ 20%)		695.76	695.76	695.76	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		417.45	417.45	417.45	
			Cost for 2 cum= (a+b+c+d)						4591.99	4591.99	4591.99	
			Rate per cum = (a+b+c+d)/2						2295.99	2295.99	2295.99	
								Say	**2296.00**	**2296.00**	**2296.00**	
16.15			**Embankment Erosion Protection using Fine Aggregate concrete filled fabric form mattress system**									
			Laying of a fine aggregate concrete grade M30 filled fabric form for erosion protection of embankments									
			Unit= Sqm									
			Taking output=60 sqm									
			a) Labour									
			Mate	day	0.096	0.096	0.096	397.00	38.11	38.11	38.11	L-12
			Mazdoor	day	1.800	1.800	1.800	373.00	671.40	671.40	671.40	L-13
			Mazdoor (skilled)	day	0.600	0.600	0.600	472.00	283.20	283.20	283.20	L-15
			b) Machinery									
			Transit Truck agitator									
			For Transportation Transit truck agitator 6 cum capacity (L =1Km)	t.km	13.800x L	13.800x L	13.800x L	10.75	148.35	148.35	148.35	PM76001

Analysis of Rate

RIVER TRAINING AND PROTECTION WORKS

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (Rs.)	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unloading time	hour	0.130	0.130	0.130	1935.00	251.55	251.55	251.55	PM34001
			Concrete Pump	hour	0.130	0.130	0.130	1032.00	134.16	134.16	134.16	PM35001
			c) Materials									
			PCC M30 Grade Refer relevent item of concrete in item 12.08 (F) Case I by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c)	cum	6.000	6.000	6.000	4170.40-L 4174.47-M 4191.73-S	25022.40	25046.82	25150.35	12.08 (F) Case I
			Fabric Form Mattress with 30% Shrinkage	sqm	78.000	78.000	78.000	93.77	7314.06	7314.06	7314.06	M-108
			Non-woven Geotextile to be placed under concrete filled fabric form including 15 percent for overlap and shrinkage	sqm	9.000	9.000	9.000	93.77	843.93	843.93	843.93	M-107
			Total cost without OH & CP						34707.16	34731.58	34835.11	
			d) Overhead charges on (a+b+c)		(@ 20%)	(@ 20%)	(@ 20%)		6941.43	6946.32	6967.02	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		4164.86	4167.79	4180.21	
			Cost for 60 sqm= (a+b+c+d+e)						45813.45	45845.69	45982.35	
			Rate per sqm = (a+b+c+d)/60						763.56	764.09	766.37	
								Say	**763.60**	**764.10**	**766.40**	

CHAPTER - 17

REPAIR AND REHABILITATION

CHAPTER-17
REPAIR AND REHABILITATION

PREAMBLES :

1 Removal of cement concrete wearing coat and asphaltic wearing coat has been proposed with pneumatic breakers.

2 The rate for external pre-stressing has been analysed for three different spans of 25,50 and 100 m.

3 Sealing of cranks has been proposed with cement grout, cement mortar (1:1) grout and epoxy grout by injecting with grout pump through nipples.

4 Bonding of new concrete with old concrete is proposed with epoxy resin.

5 The repair and placement of the following structures has been included :

a) Bridge bearings

b) Expansion Joints

c) Concrete Railing

d) Mild steel railing

e) Crash barrier

CHAPTER - 17

REPAIR AND REHABILITATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
17.01	Removal of existing cement concrete wearing coat including its disposal complete as per technical specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000 m	Sqm	168.40	168.40	168.40
17.02	Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concrete laid over 12 mm thick mastic asphalt including disposal with all lifts and lead upto 1000 m.	Sqm	128.70	128.70	128.70
17.03	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification.	Sqm	927.40	927.40	927.40
17.04	Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per technical Specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy	No.	231.50	231.50	231.50
17.05	Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per Technical Specification.				
A	Cement Grout	Kg	221.00	221.00	221.00
B	Cement Mortar (1:1) Grouting	Kg	215.30	215.30	215.30
17.06	Patching of damaged concrete surface with polymer concrete and curing compounds,initiator and promoter,available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.	Sqm	8869.40	8869.40	8869.40
17.07	Sealing of crack/porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1	Kg	777.00	777.00	777.00
17.08	Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical Specification.	Sqm	698.20	698.20	698.20

REPAIR AND REHABILITATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
17.09	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1 sand and coarse aggregates conforming to IS:383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.	Sqm	498.90	498.90	498.90
17.10	Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete	Sqm	431.40	431.40	431.40
17.11	Epoxy bonding of new concrete to old concrete	Sqm	875.70	875.70	875.70
17.12	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.	MT	450784.70	450784.70	450784.70
17.13	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.	MT	435487.20	435487.20	435487.20
17.14	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.	MT	422902.00	422902.00	422902.00
17.15	Replacement of Bearings complete as per Technical Specification (Lifting of superstructure span by jacking up from below i.e by placing the jacks on pier/abutment caps for span length of 30m)	No.	146143.20	146143.20	146143.20
17.16	Rectification of Bearings as per Technical Specifications (Lifting of superstructure span by jacking up from below i.e by placing the jacks on pier/abutment caps for span length of 30m)	No.	23253.27	23253.27	23253.27

Summary of Rate Analysis

REPAIR AND REHABILITATION

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
17.17	Replacement of expansion joints complete as per drawings	RM	2894.70	2896.80	2905.70
17.18	Replacement of Damaged Concrete Railing.	RM	374.70	374.70	374.70
17.19	Replacement of Crash barrier.	RM	652.80	652.80	652.80
17.20	Replacement of Damaged mild Steel Railing	RM	319.10	319.10	319.10
17.21	Repair of Crash Barrier (Repair of concrete crash barrier with cement concrete of M-30 grade by cutting and trimming the damaged portion to a regular shape,cleaning the area to be repaired thoroughly applying cement concrete after erection of proper form work)	RM	269.80	270.00	270.80
17.22	Repair of RCC Railing (Carrying out repair of RCC M-30 railing to bring it to the original shape)	RM	199.80	200.00	200.40
17.23	Repair of Steel Railing (Repair of Steel Railing to bring it to the original shape)	RM	390.00	390.00	390.00
17.24	Mobile Bridge Inspection Unit (MBIU) (Inspection of bridge by using of Mobile Bridge Inspection Unit(MBIU))	Km	54544.60	54544.60	54544.60

CHAPTER - 17

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
17.01	**2811**		**Removal of existing cement concrete wearing coat including its disposal complete as per technical specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000 m**									
			Unit = Sqm (Thickness 75 mm)									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Machinery									
			Air Compressor 250 cfm with pneumatic breaker/jack hammer along with accessories.	hour	1.000	1.000	1.000	451.00	451.00	451.00	451.00	PM15001 + PM45001
			Tractor-trolley	hour	0.500	0.500	0.500	676.00	338.00	338.00	338.00	PM12001
			Total cost without OH & CP						1177.88	1177.88	1177.88	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		353.36	353.36	353.36	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		153.12	153.12	153.12	
			cost for 10sqm=(a +b+c+d)						1684.37	1684.37	1684.37	
			Rate per sqm=(a+b+c+d)/10						168.44	168.44	168.44	
								Say	**168.40**	**168.40**	**168.40**	
17.02	**2811**		**Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concrete laid over 12 mm thick mastic asphalt including disposal with all lifts and lead upto 1000 m.**									
			Unit=Sqm									
			Taking output=10 Sqm									
			a) Labour									
			Mate	day	0.030	0.030	0.030	397.00	11.91	11.91	11.91	L-12
			Masdoor	day	0.750	0.750	0.750	373.00	279.75	279.75	279.75	L-13
			b) Machinery									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Air Compressor 250 cfm with pneumatic breaker	hour	0.750	0.750	0.750	451.00	338.25	338.25	338.25	PM15001 +PM45001
			Tractor-trolley	hour	0.400	0.400	0.400	**676.00**	270.40	270.40	270.40	**PM12001**
			Total cost without OH & CP						900.31	900.31	900.31	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		270.09	270.09	270.09	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		117.04	117.04	117.04	
			Cost for 10 sqm=(a+b+c+d)						1287.44	1287.44	1287.44	
			Rate per sqm=(a+b+c+d)/10						128.74	128.74	128.74	
								Say	**128.70**	**128.70**	**128.70**	
17.03	**2807**		**Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification.**									
			Unit=Sqm									
			Taking output= 1 sqm									
			Assuming thickness 25mm									
			a) Material									
			Cement	kg	16.000	16.000	16.000	6.33	101.25	101.25	101.25	M081/ 1000
			Graded sand	cum	0.040	0.040	0.040	577.80	23.11	23.11	23.11	M-004*
			Wire mesh 50mm x 50mm size of 3mm wire	kg	2.000	2.000	2.000	58.48	116.96	116.96	116.96	M-194
			Epoxy	kg	0.670	0.670	0.670	390.00	261.30	261.30	261.30	M-095
			Accelerator compound for guniting @ 4 percent of weight of cement	kg	0.640	0.640	0.640	29.00	18.56	18.56	18.56	M-227
			Add 2 percent of cost of material for miscelleneous consumables like nozzles,wire brush,cotton waste etc.						10.42	10.42	10.42	
			b) Labour									
			Mate	day	0.007	0.007	0.007	397.00	2.78	2.78	2.78	L-12
			Mason	day	0.040	0.040	0.040	449.00	17.96	17.96	17.96	L-10
			Mazdoor	day	0.140	0.140	0.140	373.00	52.22	52.22	52.22	L-13

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Compressor with guniting equipment along with accessories	hour	0.100	0.100	0.100	440.00	44.00	44.00	44.00	PM15001
			Total cost without OH & CP						648.563	648.563	648.563	
			d) Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		194.569	194.569	194.569	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		84.313	84.313	84.313	
			Rate per sqm=(a+b+c+d+e)						927.445	927.445	927.445	
									927.400	927.400	927.400	
17.04	**2800**		**Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per technical Specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy**									
			Unit=Number									
			Taking output=1 No									
			a)Material									
			Nipples	each	1.000	1.000	1.000	52.01	52.01	52.01	52.01	M-128
			Cement,fixing compound and consumables@15 percent of cost of nipple						7.80	7.80	7.80	
			b) Labour									
			Mate	day	0.006	0.006	0.006	397.00	2.38	2.38	2.38	L-12
			Mazdoor(Skilled) labour for drilling	day	0.080	0.080	0.080	472.00	37.76	37.76	37.76	L-15
			Mazdoor (skilled) labour for fixing nipple and sealing inlets	day	0.080	0.080	0.080	472.00	37.76	37.76	37.76	L-15
			Mazdoor for cutting and removing of nipples	day	0.040	0.040	0.040	373.00	14.92	14.92	14.92	L-13
			Add 10 percent of labour cost for drilling holes etc						9.28	9.28	9.28	
			Total cost without OH & CP						161.92	161.92	161.92	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		48.57	48.57	48.57	

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		21.05	21.05	21.05	
			Rate per no=(a+b+c+d)						231.54	231.54	231.54	
								Say	**231.50**	**231.50**	**231.50**	
17.05	**2806**		**Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per Technical Specification.**									
		A	**Cement Grout**									
			Unit= kg									
			Taking output= 1kg									
			a) Material									
			Cement including 10 percent wastage	kg	1.100	1.100	1.100	6.33	6.96	6.96	6.96	M081/ 1000
			Admixtures (anti shrinkage compound) @ 20 percent of cost of cement						1.39	1.39	1.39	
			b) Labour									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor(Skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			Mazdoor	day	0.100	0.100	0.100	373.00	37.30	37.30	37.30	L-13
			c) Machinery									
			Grout pump with agitator and accessories	hour	0.100	0.100	0.100	585.00	58.50	58.50	58.50	PM60001
			Total cost without OH & CP						154.53	154.53	154.53	
			d) overhead Charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		46.36	46.36	46.36	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		20.09	20.09	20.09	
			Rate per kg =(a+b+c+d+e)						220.98	220.98	220.98	
								Say	**221.00**	**221.00**	**221.00**	
		B	**Cement Mortar (1:1) Grouting**									
			Unit=kg									
			Taking output=1kg									
			a) Material									
			Cement including 10 percent wastage	kg	0.550	0.550	0.550	6.33	3.48	3.48	3.48	M081/ 1000
			Sand including 10 percent wastage	kg	0.550	0.550	0.550	0.39	0.21	0.21	0.21	M004 /1500

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Admixtures (anti shrinkage compound) @ 20 percent of cost of cement						0.70	0.70	0.70	
			b) Labour									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor(skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			Mazdoor	day	0.100	0.100	0.100	373.00	37.30	37.30	37.30	L-13
			c) Machinery									
			Grout pump with agitator and accessories	hour	0.100	0.100	0.100	585.00	58.50	58.50	58.50	PM60001
			Total cost without OH & CP						150.56	150.56	150.56	
			d) overhead Charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		45.17	45.17	45.17	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		19.57	19.57	19.57	
			Rate per kg =(a+b+c+d+e)						215.31	215.31	215.31	
								Say	**215.30**	**215.30**	**215.30**	
17.06	**2800**		**Patching of damaged concrete surface with polymer concrete and curing compounds,initiator and promoter,available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.**									
			Unit =sqm									
			Taking output=10sqm for an average thickness of 25mm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Mazdoor(skilled)	day	0.750	0.750	0.750	472.00	354.00	354.00	354.00	L-15
			Mazdoor	day	0.750	0.750	0.750	373.00	279.75	279.75	279.75	L-13
			b) Material									
			Pre-packed polymer concrete based on epoxy system complete with curing compound, initiator and promotor including 5 percentage wastage.	kg	315.000	315.000	315.000	191.10	60196.50	60196.50	60196.50	M-144
			c) Machinery									
			Grout pump with agitator and accessories	hour	2.000	2.000	2.000	585.00	1170.00	1170.00	1170.00	PM60001

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Total cost without OH & CP						62024.070	62024.070	62024.070	
			d) Overhead Charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		18607.221	18607.221	18607.221	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8063.129	8063.129	8063.129	
			Cost for 10 sqm=a+b+c+d+e						88694.420	88694.420	88694.420	
			Rate per sqm=(a+b+c+d+e)/10						8869.442	8869.442	8869.442	
									8869.400	8869.400	8869.400	
		Note	This item is a proprietary item available in market as pre-packed polymer concrete and is required to be applied as per instructions of the manufacturer.									
17.07	**2803**		**Sealing of crack/porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1**									
			Unit=kg									
			Taking output=1kg									
			a) Material									
			Epoxy including 10 percent wastage	kg	1.100	1.100	1.100	390.00	429.00	429.00	429.00	M-095
			b) Labour									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor(skilled)	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			Mazdoor	day	0.100	0.100	0.100	373.00	37.30	37.30	37.30	L-13
			c) Machinery									
			Epoxy injection gun	hour	0.100	0.100	0.100	267.00	26.70	26.70	26.70	PM68001
			Total cost without OH & CP						543.38	543.38	543.38	
			d) Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		163.01	163.01	163.01	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		70.64	70.64	70.64	
			Rate per kg= (a+b+c+d+e)						777.03	777.03	777.03	
								Say	**777.00**	**777.00**	**777.00**	
17.08	**2804**		**Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical Specification.**									
			Unit=sqm									
			Taking output=10 sqm									

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Assuming average 10mm thickness of epoxy mortar									
			a) Material									
			Epoxy resin-hardener mix for prime coat	kg	2.500	2.500	2.500	690.00	1725.00	1725.00	1725.00	M-098
			Epoxy mortar	kg	2.200	2.200	2.200	550.00	1210.00	1210.00	1210.00	M-096
			Epoxy resin-hardener mix for seal coat.	kg	2.000	2.000	2.000	690.00	1380.00	1380.00	1380.00	M-098
			Add 3 percent cost of material for other consumables like acetone etc and to cover wastage.						129.45	129.45	129.45	
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor(skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Total cost without OH & CP						4882.83	4882.83	4882.83	
			c) Overhead charge on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		1464.85	1464.85	1464.85	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		634.77	634.77	634.77	
			Cost for 10 sqm=a+b+c+d						6982.45	6982.45	6982.45	
			Rate per sqm=(a+b+c+d)/10						698.24	698.24	698.24	
								Say	**698.20**	**698.20**	**698.20**	
17.09	**2807**		**Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1 sand and coarse aggregates conforming to IS:383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.**									
			Unit=sqm									
			Taking output=10sqm,									
			40mm average thickness									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Mazdoor(skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			b) Machinery									
			Air compressor 250 cfm	hour	1.000	1.000	1.000	440.00	440.00	440.00	440.00	PM15001
			shotcreting equipment	hour	1.000	1.000	1.000	1403.00	1403.00	1403.00	1403.00	PM59001
			water tanker 6KL capacity	hour	0.020	0.020	0.020	752.00	15.04	15.04	15.04	PM11003
			c) Material									
			Cement	kg	120.000	120.000	120.000	6.33	759.36	759.36	759.36	M081/ 1000
			Sand	cum	0.150	0.150	0.150	577.80	86.67	86.67	86.67	M-004*
			Coarse aggregate of size 4.75mm	cum	0.150	0.150	0.150	264.78	39.72	39.72	39.72	M-018
			Quick setting compound	kg	2.500	2.500	2.500	120.16	300.40	300.40	300.40	M-146
			Water	KL	0.100	0.100	0.100	60.30	6.03	6.03	6.03	M-191
			Total cost without OH & CP						3488.597	3488.597	3488.597	
			d) Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		1046.579	1046.579	1046.579	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		453.518	453.518	453.518	
			Cost for 10 sqm=a+b+c+d+e						4988.694	4988.694	4988.694	
			Rate per sqm=(a+b+c+d+e)/10						498.869	498.869	498.869	
									498.900	498.900	498.900	
17.10	**2800**		**Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete**									
			Unit=sqm									
			Taking output=10sqm									
			Assumed thickness-10mm									
			a) Material									
			Acrylic polymer bonding coat	Litre	1.400	1.400	1.400	150.21	210.29	210.29	210.29	M-057
			Pre-packed cement based polymer mortar of strength 45 Mpa at 28 days	Kg	12.000	12.000	12.000	191.10	2293.20	2293.20	2293.20	M-144
			Add 3 percent of (a) above for wastage						75.10	75.10	75.10	
			b) Labour									

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Total cost without OH & CP						3016.979	3016.979	3016.979	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		905.094	905.094	905.094	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		392.207	392.207	392.207	
			Cost for 10 sqm=a+b+c+d						4314.280	4314.280	4314.280	
			Rate per sqm=(a+b+c+d)/10						431.428	431.428	431.428	
									431.400	431.400	431.400	
17.11	**2805**		**Epoxy bonding of new concrete to old concrete**									
			Unit= sqm									
			Taking output=10sqm									
			a) Material									
			Epoxy resin with pot life not less than 60-90 minutes and satisfying testing as per clause 2803.9	kg	8.000	8.000	8.000	690.00	5520.00	5520.00	5520.00	M-098
			Add 3 percent of (a) above for wastage						165.60	165.60	165.60	
			b) Labour									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			Mazdoor	day	0.500	0.500	0.500	373.00	186.50	186.50	186.50	L-13
			Total cost without OH & CP						6123.98	6123.98	6123.98	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		1837.19	1837.19	1837.19	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		796.12	796.12	796.12	
			Cost for 10 sqm=a+b+c+d						8757.29	8757.29	8757.29	
			Rate per sqm=(a+b+c+d)/10						875.73	875.73	875.73	
								Say	**875.70**	**875.70**	**875.70**	

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
17.12	**2812**		**Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.**									
			Span assumed: 25m									
			No. of cables:4 no.									
			No. of anchorages:8 no.									
			Unit=MT									
			Taking output = 1MT									
			Assume 12.7mm dia.Strand in 12T13 system Weight-9.42 kg/m of cable.									
			a) Material									
			HTS strand including 5 percent wastage and extra length of jacking	tonne	1.050	1.050	1.050	88946.15	93393.46	93393.46	93393.46	M-118
			HDPE pipes 75mm dia including 5 percent wastage	meter	112.000	112.000	112.000	243.65	27288.80	27288.80	27288.80	M-113
			cement for grouting	kg	400.000	400.000	400.000	6.33	2531.20	2531.20	2531.20	M081 /1000
			Tube anchorage set complete with bearing plate,permanent wedges etc.	each	8.000	8.000	8.000	57.26	458.08	458.08	458.08	M-189
			Epoxy	kg	6.000	6.000	6.000	390.00	2340.00	2340.00	2340.00	M-095
			MS plates for deviator(where deviator blocks are not provided)	tonne	2.100	2.100	2.100	60255.00	126535.50	126535.50	126535.50	M-181
			Add 20 percent cost of material for other materials like lead sheet,sleeves,deviator fixture etc.						50509.41	50509.41	50509.41	
			b) Labour									
			i) For making holes in the structure									
			Mate	day	0.240	0.240	0.240	397.00	95.28	95.28	95.28	L-12
			Mazdoor(Semi-skilled)	day	3.000	3.000	3.000	388.00	1164.00	1164.00	1164.00	L-14

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			ii) For making and fixing anchorages for cables and placement of cables.									
			Mate	day	0.440	0.440	0.440	397.00	174.68	174.68	174.68	L-12
			Blacksmith	day	3.000	3.000	3.000	449.00	1347.00	1347.00	1347.00	L-25
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			iii) For prestressing									
			Mate/Supervisor	day	0.134	0.134	0.134	397.00	53.20	53.20	53.20	L-12
			Fitter	day	0.700	0.700	0.700	449.00	314.30	314.30	314.30	L-08
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			iv) For grouting									
			Mate/Supervisor	day	0.134	0.134	0.134	397.00	53.20	53.20	53.20	L-12
			Mason	day	0.700	0.700	0.700	449.00	314.30	314.30	314.30	L-10
			Mazdoor	day	2.650	2.650	2.650	373.00	988.45	988.45	988.45	L-13
			c) Machinery									
			stressing jack with pump	hour	4.000	4.000	4.000	448.00	1792.00	1792.00	1792.00	PM65001
			Grouting pump with agitator	hour	1.350	1.350	1.350	585.00	789.75	789.75	789.75	PM60001
			Total cost without OH & CP						315234.05	315234.05	315234.05	
			d) Overhead charge on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		94570.22	94570.22	94570.22	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		40980.43	40980.43	40980.43	
			Rate per MT=(a+b+c+d+e)						450784.69	450784.69	450784.69	
								Say	**450784.70**	**450784.70**	**450784.70**	
17.13	**2812**		**Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.**									
			Span assumed: 50 m									
			No.of cables:4 no									
			No.of anchorages:8 no.									
			Unit=MT									
			Taking output = 3.10MT									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Assume 12.7mm dia.Strand in 19T13 system Weight-14.73 kg/m of cable.									
			a)Material									
			HTS strand including 5 percent wastage and extra length for jacking	tonne	3.100	3.100	3.100	88946.15	275733.07	275733.07	275733.07	M118
			HDPE pipes 90mm dia including 5 percent wastage	meter	224.000	224.000	224.000	243.65	54577.60	54577.60	54577.60	M114
			Cement for grouting	tonne	1.010	1.010	1.010	6328.00	6391.28	6391.28	6391.28	M081
			Tube anchorage set complete with bearing plate, permanent wedges etc	each	8.000	8.000	8.000	57.26	458.08	458.08	458.08	M189
			Epoxy	kg	10.000	10.000	10.000	390.00	3900.00	3900.00	3900.00	M095
			MS plates for deviator(where deviator blocks are not provided)	tonne	7.000	7.000	7.000	60255.00	421785.00	421785.00	421785.00	M181
			Add 20 percent cost of material for other materials like lead sheet,sleeves,deviator fixture etc.						152569.01	152569.01	152569.01	
			b)Labour									
			i)For making holes in the structure									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mazdoor(Semi-skilled)	day	8.000	8.000	8.000	388.00	3104.00	3104.00	3104.00	L-14
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			ii)For making and fixing anchorages for cables and placement of cables.									
			Mate	day	1.280	1.280	1.280	397.00	508.16	508.16	508.16	L-12
			Blacksmith	day	7.000	7.000	7.000	449.00	3143.00	3143.00	3143.00	L-25
			Mazdoor	day	25.000	25.000	25.000	373.00	9325.00	9325.00	9325.00	L-13
			iii) For prestressing									
			Mate/Supervisor	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Fitter	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-08
			Mazdoor	day	4.000	4.000	4.000	373.00	1492.00	1492.00	1492.00	L-13

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			iv) For grouting									
			Mate/Superviser	day	0.260	0.260	0.260	397.00	103.22	103.22	103.22	L-12
			Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			c) Machinery									
			Stressing jack with pump	hour	7.000	7.000	7.000	448.00	3136.00	3136.00	3136.00	PM65001
			Grouting pump with agitator	hour	3.000	3.000	3.000	585.00	1755.00	1755.00	1755.00	PM60001
			Total cost without OH & CP						944063.07	944063.07	944063.07	
			d) Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		283218.92	283218.92	283218.92	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		122728.20	122728.20	122728.20	
			Cost for 3.10 MT=a+b+c+d+e						1350010.19	1350010.19	1350010.19	
			Rate per MT=(a+b+c+d+e)/3.10						435487.16	435487.16	435487.16	
								Say	**435487.20**	**435487.20**	**435487.20**	
17.14	**2812**		**Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification.**									
			Span assumed:100 m									
			No. of cables:6 No.									
			No. of anchorages:12 no.									
			Unit=MT									
			Taking output = 9.28MT									
			Assume 12.7mm dia Strand in 19T13 system.Weight - 14.73kg/m of cable.									
			a) Material									
			HTS strand including 5 percent wastage and extra length for jacking	tonne	9.280	9.280	9.280	88946.15	825420.27	825420.27	825420.27	M-118
			HDPE pipes 90 mm dia including 5 percent wastage	meter	672.000	672.000	672.000	243.65	163732.80	163732.80	163732.80	M-114
			Cement for grouting	tonne	3.040	3.040	3.040	6328.00	19237.12	19237.12	19237.12	M-081

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Tube anchorage set complete with bearing plate,permanent wedges etc.	each	12.000	12.000	12.000	57.26	687.12	687.12	687.12	M-189
			Epoxy	kg	14.000	14.000	14.000	390.00	5460.00	5460.00	5460.00	M-095
			MS plates for deviator(where deviator blocks are not provided)	tonne	20.000	20.000	20.000	60255.00	1205100.00	1205100.00	1205100.00	M-181
			Add 20 percent cost of material for other materials like lead sheet,sleeves,deviator fixture etc.						443927.46	443927.46	443927.46	
			b)Labour									
			i) For making holes in the structure									
			Mate	day	1.720	1.720	1.720	397.00	682.84	682.84	682.84	L-12
			Mazdoor(Semi-skilled)	day	18.000	18.000	18.000	388.00	6984.00	6984.00	6984.00	L-14
			Mazdoor	day	25.000	25.000	25.000	373.00	9325.00	9325.00	9325.00	L-13
			ii) For making and fixing anchorages for cables and placement of cables.									
			Mate	day	4.000	4.000	4.000	397.00	1588.00	1588.00	1588.00	L-12
			Blacksmith	day	20.000	20.000	20.000	449.00	8980.00	8980.00	8980.00	L-25
			Mazdoor	day	80.000	80.000	80.000	373.00	29840.00	29840.00	29840.00	L-13
			iii) For prestressing									
			Mate/Supervisor	day	0.300	0.300	0.300	397.00	119.10	119.10	119.10	L-12
			Fitter	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-08
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			iv) For grouting									
			Mate/Supervisor	day	1.000	1.000	1.000	397.00	397.00	397.00	397.00	L-12
			Mason	day	5.000	5.000	5.000	449.00	2245.00	2245.00	2245.00	L-10
			Mazdoor	day	20.000	20.000	20.000	373.00	7460.00	7460.00	7460.00	L-13
			c) Machinery									
			stressing jack with pump	hour	10.000	10.000	10.000	448.00	4480.00	4480.00	4480.00	PM65001
			Grouting pump with agitator	hour	10.000	10.000	10.000	585.00	5850.00	5850.00	5850.00	PM60001
			Total cost without OH & CP						2744427.21	2744427.21	2744427.21	
			d) Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		823328.16	823328.16	823328.16	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		356775.54	356775.54	356775.54	
			Cost for 9.28MT=a+b+c+d+e						3924530.92	3924530.92	3924530.92	

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Rate per MT=(a+b+c+d+e)/9.28						422902.04	422902.04	422902.04	
								Say	**422902.00**	**422902.00**	**422902.00**	
17.15	**2810**		**Replacement of Bearings complete as per Technical Specification**									
			Unit=No									
			Taking output=3No.									
			Lifting of superstructure span by jacking up from below i.e by placing the jacks on pier/abutment caps for span length of 30m									
			a)Labour									
			Mate	day	0.640	0.640	0.640	397.00	254.08	254.08	254.08	L-12
			Mazdoor(skilled)	day	4.000	4.000	4.000	472.00	1888.00	1888.00	1888.00	L-15
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			b)Machinery									
			i)Hire charges for jack of 40 tonne lifting capacity(Lifting of span)	hour	3.000	3.000	3.000	275.00	825.00	825.00	825.00	PM70001
			c)Material									
			Wooden packing	cum	0.150	0.150	0.150	26000.00	3900.00	3900.00	3900.00	M-197
			Cost of bearing (Replacement of bearing)	each	3.000	3.000	3.000	98417.03	295251.09	295251.09	295251.09	M-065
			Total cost without OH & CP						306594.17	306594.17	306594.17	
			d)Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		91978.25	91978.25	91978.25	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		39857.24	39857.24	39857.24	
			Cost of repair of 3 bearings =a+b+c+d+e						438429.66	438429.66	438429.66	
			Rate of repair per bearing=(a+b+c+d+e)/3						146143.22	146143.22	146143.22	
									146143.20	146143.20	146143.20	
		Note	The work entails replacement of all the bearings on one side of the span.									
17.16	**2811**		**Rectification of Bearings as per Technical Specifications**									
			Unit= No									
			Taking output=3 No.									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Lifting of superstructure span by jacking up from below i.e by placing the jacks on pier/abutment caps for span length of 30m									
			a)Labour									
			Mate	day	0.640	0.640	0.640	397.00	254.08	254.08	254.08	L-12
			Mazdoor(skilled)	day	4.000	4.000	4.000	472.00	1888.00	1888.00	1888.00	L-15
			Mazdoor	day	12.000	12.000	12.000	373.00	4476.00	4476.00	4476.00	L-13
			b)Machinery									
			i)Hire charges for jack of 40 tonne lifting capacity.	hour	3.000	3.000	3.000	275.00	825.00	825.00	825.00	PM70001
			c)Material									
			Cost of parts to be replaced for 3 bearings	each	3.000	3.000	3.000	12480.00	37440.00	37440.00	37440.00	M-064
			Wooden packing	cum	0.150	0.150	0.150	26000.00	3900.00	3900.00	3900.00	M-197
			Total cost without OH & CP						48783.08	48783.08	48783.08	
			d)Overhead charges on (a+b+c)		(@ 30%)	(@ 30%)	(@ 30%)		14634.92	14634.92	14634.92	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		6341.80	6341.80	6341.80	
			Cost of repair of 3 bearings=a+b+c+d+e						69759.80	69759.80	69759.80	
			Rate of repair per bearing =(a+b+c+d+e)/3						23253.27	23253.27	23253.27	
		Note	The rectification of 3 bearings included in this analysis are on the same side of the span .									
17.17			**Replacement of expansion joints complete as per drawings**									
			Unit=1 RM									
			Taking output=12 RM									
			a)Material									
			Epoxy for bonding new concrete to old concrete @ 0.8 kg/sqm	kg	9.600	9.600	9.600	390.00	3744.00	3744.00	3744.00	M-095
			M-30 grade cement concrete excluding OH&CP (Rate taken from item 14.01c (i) (p)	cum	3.600	3.600	3.600	4991.657-L 4996.497-M 5017.205-S	17969.97	17987.39	18061.94	14.01 C (i) (P)
			b)Labour									
			Removal of old expansion joint including breaking of concrete, cutting of lugs and shifting of broken material etc.									
			Mate	day	0.260	0.260	0.260	397.00	103.22	103.22	103.22	L-12

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
			Mazdoor (skilled)	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			Total cost without OH & CP						24291.19	24308.61	24383.16	
			c)Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		7287.36	7292.58	7314.95	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3157.85	3160.12	3169.81	
			Cost for replacement of 12 RM=a+b+c+d						34736.39	34761.31	34867.92	
			Rate per RM=(a+b+c+d)/12						2894.70	2896.78	2905.66	
								Say	**2894.70**	**2896.80**	**2905.70**	
		Note	The rate for the installation of new expansion joints may be taken from the chapter on superstructure. Broken concrete will have to be replaced which has been included in this analysis.									
17.18			**Replacement of Damaged Concrete Railing.**									
			Unit =RM									
			Taking output = 10 RM									
			a)Labour									
			Labour for dismantling old railing and disposal of dismantled material.									
			Mate	day	0.200	0.200	0.200	397.00	79.40	79.40	79.40	L-12
			Mazdoor	day	5.000	5.000	5.000	373.00	1865.00	1865.00	1865.00	L-13
			b)Machinery									
			Tractor-trolly for disposal of dismantled material	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
			Total cost without OH & CP						2620.40	2620.40	2620.40	
			c)Overhead charge on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		786.12	786.12	786.12	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		340.65	340.65	340.65	
			Cost for 10 M =a+b+c+d						3747.17	3747.17	3747.17	
			Rate per metre = (a+b+c+d)/10						374.72	374.72	374.72	
								Say	**374.70**	**374.70**	**374.70**	
		Note	The rate for the provision of new railing may be adopted from the chapter on superstructure									
17.19			**Replacement of Crash barrier.**									
			Unit =RM									
			Taking output = 10M									
			a) Labour									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Labour for dismantaling old railing and disposal of dismantled material.									
			Mate	day	0.400	0.400	0.400	397.00	158.80	158.80	158.80	L-12
			Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
			b) Machinery									
			Tractor-trolley for disposal of dismantled material.	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
			Total cost without OH & CP						4564.80	4564.80	4564.80	
			c) Overhead charged on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		1369.44	1369.44	1369.44	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		593.42	593.42	593.42	
			Cost for 10m = a+b+c+d						6527.66	6527.66	6527.66	
			Rate per metre = (a+b+c+d)/10						652.77	652.77	652.77	
								Say	**652.80**	**652.80**	**652.80**	
		Note	The rate for the construction of new crash barrier may be adopted from chapter 8 0n Traffic and Transportation.									
17.20			**Replacement of Damaged mild Steel Railing**									
			Unit = RM									
			Taking output = 10M									
			a) Labour									
			Labour for dismantling old railing and disposal of dismantled material.									
			Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
			Mazdoor	day	4.000	4.000	4.000	373.00	1492.00	1492.00	1492.00	L-13
			b) Machinery									
			Tractor-trolley for disposal of dismantled material	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
			Total cost without OH & CP						2231.52	2231.52	2231.52	
			c)Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		669.46	669.46	669.46	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		290.10	290.10	290.10	
			Cost for 10 m=a+b+c+d						3191.07	3191.07	3191.07	
			Rate per metre = (a+b+c+d)/10						319.11	319.11	319.11	
								Say	**319.10**	**319.10**	**319.10**	
17.21			**Repair of Crash Barrier**									

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Repair of concrete crash barrier with cement concrete of M-30 grade by cutting and trimming the damaged portion to a regular shape,cleaning the area to be repaired thoroughly applying cement concrete after erection of proper form work.									
			Unit = Running meter									
			Taking output = 10 m									
			It is assumed that damage is to the extent of 10 percent of the volume of concrete. This will require 0.30 cum of concrete									
			a) Manpower*									
			Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			*For dismantling and trimming the surface to a regular shape and removal of damaged material.									
			b)Material									
			M-30 grade cement concrete excluding OH &CP (Rate taken from item 14.01C(i)(p)	cum	0.300	0.300	0.300	4991.657-L 4996.497-M 5017.205-S	1497.50	1498.95	1505.16	14.01 C (i) (P)
			This may be priced based on the rate given the chapter of superstructure									
			Total cost without OH & CP						1886.38	1887.83	1894.04	
			c)Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		565.91	566.35	568.21	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		245.23	245.42	246.23	
			Cost for 10m = a+b+c+d						2697.52	2699.60	2708.48	
			Rate per meter = (a+b+c+d)/10						269.75	269.96	270.85	
								Say	**269.80**	**270.00**	**270.80**	
17.22			**Repair of RCC Railing**									

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Carrying out repair of RCC M-30 railing to bring it to the original shape									
			Unit = Running meter									
			Taking output = 10M									
			It is assumed that damage is to the extent of 10 percent.									
			a)Material									
			M - 30 grade cement concrete excluding OH & CP (Rate taken from items 14.01 C (i)(p)	cum	0.100	0.100	0.100	4991.657-L 4996.497-M 5017.205-S	499.17	499.65	501.72	14.01 C (i) (P)
			HYSD bar reinforcement Rate as per item No 14.02(Excluding OH & CP)A	tonne	0.013	0.013	0.013	63110.14-L 63152.51-M 63233.97-S	820.43	820.98	822.04	14.02
			b)Labour*									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			*For dismantling and trimming the surface to a regular shape and removal of damaged material.									
			Total cost without OH & CP						1397.37	1398.41	1401.54	
			c)Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		419.21	419.52	420.46	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		181.66	181.79	182.20	
			Cost of 10m = a+b+c+d						1998.24	1999.72	2004.20	
			Rate per meter = (a+b+c+d)/10						199.82	199.97	200.42	
								Say	**199.80**	**200.00**	**200.40**	
17.23			**Repair of Steel Railing**									
			Repair of Steel Railing to bring it to the original shape									
			It is assumed that the damage to the steel railing is to the extent of 10 percent.									

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Unit = Running meter									
			Taking output = 10 M									
			a) Material									
			Mild steel ISMC series	kg	29.000	29.000	29.000	60.26	1747.40	1747.40	1747.40	M181/ 1000
			Flat iron	kg	10.000	10.000	10.000	60.26	602.55	602.55	602.55	M181/ 1000
			MS bolt and nuts	kg	1.000	1.000	1.000	80.28	80.28	80.28	80.28	M-129
			Add 5 percent of cost of material for painting						121.51	121.51	121.51	
			b)Labour									
			Mate	day	0.016	0.016	0.016	397.00	6.35	6.35	6.35	L-12
			Mazdoor(Skilled)	day	0.200	0.200	0.200	472.00	94.40	94.40	94.40	L-15
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			Total cost without OH & CP						2727.09	2727.09	2727.09	
			c)Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		818.13	818.13	818.13	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		354.52	354.52	354.52	
			Cost of repair for 10m =a+b+c+d						3899.74	3899.74	3899.74	
			Cost per meter = (a+b+c+d)/10						389.97	389.97	389.97	
								Say	**390.00**	**390.00**	**390.00**	
17.24			**Mobile Bridge Inspection Unit (MBIU)**									
			Inspection of bridge by using of Mobile Bridge Inspection Unit(MBIU)									
			Unit = Km									
			Taking Output = 50km									
			a) Labour									
			Mate	day	1.360	1.360	1.360	397.00	539.92	539.92	539.92	L-12
			Mazdoor(skilled)	day	34.000	34.000	34.000	472.00	16048.00	16048.00	16048.00	L-15
			Mazdoor	day	34.000	34.000	34.000	373.00	12682.00	12682.00	12682.00	L-13
			b)Machinery									
			Mobile Bridge Inspection Unit (MBIU)	hour	266.667	266.667	266.667	6600.00	1760002.20	1760002.20	1760002.20	PM80001
			Mobile Bridge Inspection Unit (MBIU) Mobilization & demobilization	hour	15.000	15.000	15.000	6600.00	99000.00	99000.00	99000.00	PM80001

Analysis of Rate

REPAIR AND REHABILITATION

Sr No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
					Large	Medium	Small		Large	Medium	Small	
			Add 1 percent of cost of a+b for Miscellaneous work						18882.72	18882.72	18882.72	
			Total cost without OH & CP						1907154.84	1907154.84	1907154.84	
			c) Overhead charges on (a+b)		(@ 30%)	(@ 30%)	(@ 30%)		572146.45	572146.45	572146.45	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		247930.13	247930.13	247930.13	
			Cost for 50 km = a+b+c+d						2727231.42	2727231.42	2727231.42	
			Rate per km = (a+b+c+d)/50						54544.63	54544.63	54544.63	
								Say	**54544.600**	**54544.600**	**54544.600**	
		Note	(i)Average Distance has been considered 300 km for mobilization at working site and same for demobilization.									
			(ii) Speed of vehicle 40km/ hour has been considered.									

PART - C
TUNNEL WORK

C. TUNNEL WORKS
BASIC APPROACH AND GENERAL CONDITIONS FOR THE PREPARATION OF STANDARD DATA BOOK

The basic approach for the preparation of standard Data Book for Tunnel Works is indicated as under :

Description of items

The description of items is given briefly and linked with the relevant IRC-91, which may be referred for detailed description, provisions and interpretation.

Overhead Charges

The overhead charges include the following elements :

i. Site accommodation, setting up plant, access road, water supply, electricity and general site arrangements.

ii. Office furniture, equipment and communications

iii. Expenditure on
Corporate office of contractor
Site supervision
Documentation and "as built" drawings

iv. Mobilization/de-mobilization of resources

v. Labour camps with minimum amenities and transportation to work sites

vi. Light vehicles for site supervision including administrative and managerial requirements

vii. Laboratory equipment and quality control including field and laboratory testing

viii. Minor T&P and survey instruments and setting out works, including verification of line, dimensions, trial pits and bore holes, where required.

ix. Temporary Diversion

x. Watch and ward

xi. Traffic management during construction

xii. Expenditure on 'safeguarding environment

xiii. Sundries

xiv. Financing Expenditure

xv. Work Insurance/compensation

xvi. Car Policy

xvii. Employee Insurance

xviii. Property Insurance (Camp Builtup Area)

For the purpose of calculation of overhead charges

Tunnel Works	25 percent
Contractor Profit	10 percent of cost of works

Contractor profit is also added on overhead charges.

Basic Inputs

Basic inputs are only given in the standard data book. The rates for material and labour have to be updated by concerned State/UT govt. Officials like E-in-C, CE(NH), State PWDs.

Plants and Equipment

In the analysis of rates, for any items of work, capacity of equipment with corresponding output has been indicated which is most common in use for estimation purpose. Seeing the volume of job, different capacity equipment with corresponding output as indicated in Chapter-20 can be usage for preparing the estimate.

Materials

The rates of material should include basic cost at crushing units, cost of carriage including loading and unloading and stacking of material at site of work and shall be determined through market enquiries.

Labour

Highly skilled labour include mason (1sst class), carpenter, Blacksmith (1st class)/Welder/Plumber/Electrician, (1st class), mechanics and other trades.

One mate has been provided for 25 labours.

Carriage of Materials

The unit for vehicle for carriage has been taken as under:

a) In hours where lead is defined including time required for loading and unloading

b) In tonne. km where lead is variable. The loading and unloading for such cases have been provided separately.

General :

Most of tunnels works in India is constructed/under construction using NATM technology and Rate has been analysed using the same. However, analysis of rate for tunnel construction with TBM will be incorporated in future.

Various items for tunnel work i.e. firefighting, ventilation, tunnel lighting, safety items etc. has been included in this Chapter.

The testing of materials and finished items of work is covered under overhead charges.

The Standard Data Book is for Department use only. It cannot be produced in Court of law as references/authority and this is a privilege document.

CHAPTER - 18
TUNNEL WORKS

CHAPTER-18
TUNNEL WORKS

PREAMBLES :

1 For drilling, pneumatically and hydraulically powered method is considered.

2 The excavated materials suitable for construction shall be stockpiled at approved locations otherwise it should be dumped at the approved disposal location.

3 Cement Grouting has been also considered to prevent the seepage of water from the side wall of the tunnel. The grout mix shall have low or no bleedability and low shrinkage characteristics. Guniting to sides and arch of tunnel with cement mortar 1 : 3 proporation by weight is also considered for analysis.

4 Two types of material for shotcrete i.e. welded wire mesh and fiber reinforced micro silica has been considered.

5 Rock bolting, steel support and lining items are considered for analysis.

6 Permanent structural steel supports i.e. lattice girder has been also consider for analysis.

7 The basic rates are inclusive of scaling loose material, removal of under-cuts, cleaning bed and lighting and ventilation inside tunnel during construction.

8 The items related to road works, drain, footpath, crash barrier, railing, kerb etc. of tunnel is covered under relevant Chapters. But overhead charges are applicable for tunnel work.

9 The basic rates are exclusive of cost of dewatering. Separate provision shall be made in the estimate for dewatering

10 The rate for lighting, ventilation and firefighting items are required to be ascertained from the marked, this being a commercially produced item by specialized firms.



CHAPTER - 18
TUNNEL WORK

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
18.01	**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with Disposal upto 1000 meters.**(Excavation for Portal in Ordinary Rock with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m)	Cum	737.50	737.50	737.50
18.02	**Excavation in Hard Rock (blasting prohibited).** (Excavation for Portal in Hard Rock (blasting prohibited) with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m)	Cum	859.40	859.40	859.40
18.03	**Excavation in Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 meters.** (Excavation for portal in soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m.**)**	Cum	67.50	67.50	67.50
18.04	**Drill steel with Drill jumbo** (Excavation for tunnel by using drilling & blasting methods in all types of rock including cost of all materials,machinery, labour, scaling excavated surface, marking, ventilation, lighting, drainage, removing and hauling the excavated muck outside tunnel upto specified dump area and all other ancillary operations etc.)	Cum	#VALUE!	#VALUE!	#VALUE!
18.05	**Dewatering tunnel by pumping out water collected by natural drainage inside tunnel including** (Dewatering in tunnel by pumping out water collected by natural drainage inside tunnel including providing sump wherever necessary, cost of all materials, machinery, labour, drainage and all other ancillary operations etc., complete.)	hour	389.70	389.70	389.70

Summary of Rate Analysis

TUNNEL WORK

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
18.06	**Providing , Fitting and Placing of Ribs** (Providing , Fitting and Placing of Ribs including Fabrication, Erection,Temporary fixture, Handling of material inside fabrication workshop, final matching, field welding and complete as per Drawing and Technical Specifications.)	Tonne	120387.40	120387.40	120387.40
18.07	**Shotcreting with Steel fibre reinforced micro silica shotcrete (SFRS)** (Shotcreting to upper bench / lower bench with steel fiber reinforced shotcrete (SFRS) , shotcrete compressive strength shall be 25 N/mm2 and complete as per Drawing and Technical Specifications.)	Cum	#VALUE!	#VALUE!	#VALUE!
18.08	**Shotcreting with welded wire mesh.** (Shotcreting to upper bench / lower bench with welded wire mesh, shotcrete compressive strength shall be 25 N/mm2 and complete as per Drawing and Technical Specifications.)	Cum	10705.30	10705.30	10705.30
18.09	**Providing and fixing 25 mm diameter 3 meter long steel rock bolts including drilling 45 mm dia holes, plate, nuts, cement grout, cost of all materials, machinery, labour, ventilation, lighting, drainage and all other ancillary operations etc. complete as per Drawing and Technical Specifications.**	No.	#VALUE!	#VALUE!	#VALUE!
18.10	**Providing and fixing 32 mm diameter 7 meter long steel rock bolts including drilling 51 mm dia holes, plate, nuts, cement grout, cost of all materials, machinery, labour, ventilation, lighting, drainage and all other ancillary operations etc. complete as per Drawing and Technical Specifications.**	No.	#VALUE!	#VALUE!	#VALUE!
18.11	**Grouting with Cement** (Grouting cement slurry in grout holes under specified pressure for consolidation / contact grouting including cost of all materials, machinery, labour, predrilling wherever necessary, ventilation,lighting, drainage and other ancillary operations etc. complete as per Drawing and Technical Specifications.)	Tonne	#VALUE!	#VALUE!	#VALUE!

Summary of Rate Analysis

TUNNEL WORK

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
18.12	**Furnishing and Placing Reinforced cement concrete in Tunnel Work as per drawing and Technical Specification**				
A	**RCC Grade M 20** (Using Batching Plant ,Transit Mixer and Concrete Pump.)	Cum	7225.80	7225.80	7225.80
B	**RCC Grade M 25** (Using Batching Plant ,Transit Mixer and Concrete Pump.)	Cum	7955.60	7955.60	7955.60
C	**RCC Grade M 30** (Using Batching Plant ,Transit Mixer and Concrete Pump.)	Cum	8021.50	8021.50	8021.50
D	**RCC Grade M35** (Using Batching Plant ,Transit Mixer and Concrete Pump.)	Cum	8235.10	8235.10	8235.10
E	**RCC Grade M-40** (Using Batching Plant ,Transit Mixer and Concrete Pump.)	Cum	8430.70	8430.70	8430.70
F	**RCC Grade M-45**	Cum	8478.80	8478.80	8478.80
G	**RCC Grade M-50**	Cum	9604.60	9604.60	9604.60
H	**RCC Grade M-55**	Cum	9758.60	9758.60	9758.60
I	**RCC Grade M-60**	Cum	10078.50	10078.50	10078.50
J	**RCC Grade M-65**	Cum	10158.20	10158.20	10158.20
18.13	**Supplying, Fitting and placing HYSD bar reinforcement in Tunnel Work complete as per drawing and technical specifications.**	MT	87090.20	87090.20	87090.20

CHAPTER 18

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
18.01	304	**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with Disposal upto 1000 meters.**									
		Excavation for Portal in Ordinary Rock with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m									
		Unit = cum									
		Taking Output = 60 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
		Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
		b) Machinery									
		Excavator 1.1 cum bucket capacity	hour	8.214	8.214	8.214	2504.00	20567.86	20567.86	20567.86	PM3004
		Jack hammer	hour	8.214	8.214	8.214	206.00	1692.08	1692.08	1692.08	PM4001
		Loading & unloading charges for disposed of grabbed material (Using by 10 cum capacity Tipper & 1 Cum capacity Loader)	cum	72.000	72.000	72.000	103.86	7477.92	7477.92	7477.92	PM77003
		Tipper 10 cum capacity for transportation to dumping yard considering lead @ 1 km	t.km	120.000	120.000	120.000	17.11	2053.20	2053.20	2053.20	PM74003
		Total cost Without O.H.&C.P.						32179.94	32179.94	32179.94	
		C) Overhead charge on (a+b)		(@ 25%)	(@ 25%)	(@ 25%)		8044.99	8044.99	8044.99	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4022.49	4022.49	4022.49	
		Cost for 60 cum = (a+b+c+d)						44247.42	44247.42	44247.42	
		Rate per cum= (a+b+c+d) / 60						737.46	737.46	737.46	
							Say	**737.50**	**737.50**	**737.50**	
18.02	303& 304	**Excavation in Hard Rock (blasting prohibited)**									

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Excavation for Portal in Hard Rock (blasting prohibited) with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m									
		Unit = cum									
		Taking Output = 50 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
		Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
		b) Machinery									
		Excavator 1.1 cum bucket capacity	hour	10.039	10.039	10.039	2504.00	25137.66	25137.66	25137.66	PM3004
		Jack hammer	hour	10.039	10.039	10.039	206.00	2068.03	2068.03	2068.03	PM4001
		Loading & unloading charges for disposed of grabbed material (using by 10 cum capacity Tipper & 1 Cum capacity Loader)	cum	60.000	60.000	60.000	103.86	6231.60	6231.60	6231.60	PM77003
		Tipper 10 cum capacity for transportation to dumping yard considering lead @ 1 km	t.km	100.000	100.000	100.000	7.04	704.00	704.00	704.00	PM74001
		Credit for excavated rock found suitable for use @ 50 percent of excavated quantity.	cum	30.000	30.000	30.000	109.34	-3280.20	-3280.20	-3280.20	M-090
		Total cost Without O.H.&C.P.						31249.97	31249.97	31249.97	
		C) Overhead charge on (a+b)		(@ 25%)	(@ 25%)	(@ 25%)		7812.49	7812.49	7812.49	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3906.25	3906.25	3906.25	
		Cost for 50 cum = (a+b+c+d)						42968.71	42968.71	42968.71	
		Rate per cum= (a+b+c+d) / 50						859.37	859.37	859.37	
							Say	**859.40**	**859.40**	**859.40**	
18.03	**304**	**Excavation in Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 meters.**									

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Excavation for portal in soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and disposal of excavated materials including all lifts and lead upto 1000m.									
		Unit = cum									
		Taking Output = 350 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	397.00	15.88	15.88	15.88	L-12
		Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
		b) Machinery									
		Excavator 1.1 cum bucket capacity	hour	5.024	5.024	5.024	2504.00	12580.10	12580.10	12580.10	PM3004
		Loading & unloading charges for disposal of grabbed material (using by 10 cum capacity Tipper & 1 Cum capacityLoader)	cum	5.024	5.024	5.024	103.86	521.79	521.79	521.79	PM77003
		Tipper 10 cum capacity for transportation to dumping yard considering lead @ 1 km	t.km	525.000	525.000	525.000	7.04	3696.00	3696.00	3696.00	PM74001
		Total cost Without O.H.&C.P.						17186.77	17186.77	17186.77	
		c) Overhead charge on (a+b)		(@ 25%)	(@ 25%)	(@ 25%)		4296.69	4296.69	4296.69	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2148.35	2148.35	2148.35	
		Cost for 350 cum = (a+b+c+d)						23631.81	23631.81	23631.81	
		Rate per cum= (a+b+c+d) / 350						67.52	67.52	67.52	
							Say	**67.50**	**67.50**	**67.50**	
18.04		**Drill steel with Drill jumbo**									
		Excavation for tunnel by using drilling & blasting methods in all types of rock including cost of all materials,machinery, labour, scaling excavated surface, marking, ventilation, lighting, drainage, removing and hauling the excavated muck outside tunnel upto specified dump area and all other ancillary operations etc.									

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Unit = cum									
		Taking Output = 480 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
		Mazdoor	day	6.000	6.000	6.000	373.00	2238.00	2238.00	2238.00	L-13
		Mazdoor (Skilled)	day	2.000	2.000	2.000	472.00	944.00	944.00	944.00	L-15
		b) Machinery									
		Three boom hydraulic Drill jumbo	hour	25.067	25.067	25.067	9692.00	242949.36	242949.36	242949.36	PM56001
		Excavator for Scaling	hour	2.000	2.000	2.000	2504.00	5008.00	5008.00	5008.00	PM3004
		Tipper 10 cum capacity for transportation	t.km	480x2xL	480x2xL	480x2xL	7.04	6758.40	6758.40	6758.40	PM74001
		Loading & unloading charges (Using by 10 cum capacity tipper & 1 cum capacity Loader)	cum	576.000	576.000	576.000	103.86	59823.36	59823.36	59823.36	PM77003
		Dozer(175HP)	hour	9.600	9.600	9.600	4326.00	41529.60	41529.60	41529.60	PM1002
		c) Materials									
		Explosives	kg	576.000	576.000	576.000	128.00	73728.00	73728.00	73728.00	M-215
		Delay Detonators	Nos	228.000	228.000	228.000	3.28	747.84	747.84	747.84	M-216
		Electric Detonators	Nos	35.000	35.000	35.000	6.56	229.60	229.60	229.60	M-217
		Detonation fuse coil	Meter	50.000	50.000	50.000	15.00	750.000	750.000	750.000	M-218
		3.7 meter long extension rod	Nos	1.043	1.043	1.043	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
		Drifter rod	Nos	0.505	0.505	0.505	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
		R 32 shank adapter	Nos	1.043	1.043	1.043	INPUT	#VALUE!	#VALUE!	#VALUE!	M-222
		45 mm Button Bit	Nos	3.692	3.692	3.692	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
								#VALUE!	#VALUE!	#VALUE!	
		Add 10 percent of cost of a+b+c towards Other consumable petty stores such as blasting batteries,galvanometers and sharpening charges of bit etc…						#VALUE!	#VALUE!	#VALUE!	
		Total cost Without O.H.&C.P.						#VALUE!	#VALUE!	#VALUE!	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Cost for 480 cum=(a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
		Rate per cum=(a+b+c+d+e)/480						#VALUE!	#VALUE!	#VALUE!	

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
18.05	304	**Dewatering tunnel by pumping out water collected by natural drainage inside tunnel including**									
		Dewatering in tunnel by pumping out water collected by natural drainage inside tunnel including providing sump wherever necessary, cost of all materials, machinery, labour, drainage and all other ancillary operations etc., complete.									
		Unit=Hour									
		Taking output=20000 Hour									
		a) Labour									
		Mate	day	100.00	100.00	100.00	397.00	39700.00	39700.00	39700.00	L-12
		Mazdoor	day	2500.00	2500.00	2500.00	373.00	932500.00	932500.00	932500.00	L-13
		b) Machinery									
		Water Pump 10 HP	hour	20000.00	20000.00	20000.00	217.00	4340000.00	4340000.00	4340000.00	PM61001
		C) Materials									
		GI Pipe 100 mm Dia	Meter	500.00	500.00	500.00	647.76	323880.00	323880.00	323880.00	M-239
		Flange	Kg	41.667	41.667	41.667	220.00	9166.74	9166.74	9166.74	M-241
		Nut & Bolt	Kg	133.333	133.333	133.333	80.28	10703.97	10703.97	10703.97	M-129
		Bracket	Kg	1125.00	1125.00	1125.00	97.16	109305.00	109305.00	109305.00	M-240
		Credit for salvage value of GI Pipe @ 30 percent	Meter	150.00	150.00	150.00	647.76	-97164.00	-97164.00	-97164.00	M-239
		Total cost Without O.H.&C.P.						5668091.713	5668091.713	5668091.713	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		1417022.928	1417022.928	1417022.928	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		708511.464	708511.464	708511.464	
		Cost for 20000 hour =(a+b+c+d+e)						7793626.106	7793626.106	7793626.106	
		Rate per hour = (a+b+c+d+e) / 20000						389.681	389.681	389.681	
							Say	**389.700**	**389.700**	**389.700**	
18.06		**Providing , Fitting and Placing of Ribs**									

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Providing , Fitting and Placing of Ribs including Fabrication, Erection,Temporary fixture, Handling of material inside fabrication workshop, final matching, field welding and complete as per Drawing and Technical Specifications.									
		Unit=Tonne									
		Taking output=26 Tonne									
		a) Labour									
		Mate	day	0.800	0.800	0.800	397.00	317.60	317.60	317.60	L-12
		Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
		Mazdoor(Semi-Skilled)	day	5.000	5.000	5.000	388.00	1940.00	1940.00	1940.00	L-14
		Welder	day	5.000	5.000	5.000	503.00	2515.00	2515.00	2515.00	L-02
		b) Machinery									
		Rotating Telehandlers	hour	37.180	37.180	37.180	935.00	34763.30	34763.30	34763.30	PM58001
		C) Materials									
		ISMB 350 (Including 0.25% Wastage)	Tonne	20.732	20.732	20.732	60255.00	1249206.66	1249206.66	1249206.66	M-181
		MS Channel ISMC 75 (Including 0. 25% Wastage)	Tonne	3.830	3.830	3.830	60255.00	230776.65	230776.65	230776.65	M-181
		MS Plate 200x200x12mm (Including 0.25% Wastage)	Tonne	1.504	1.504	1.504	60255.00	90623.52	90623.52	90623.52	M-181
		Nuts & Bolts (M 16x40)	Kg	151.200	151.200	151.200	80.28	12138.34	12138.34	12138.34	M-129
		Add 40 percent of cost of a+b+c towards of Fabrication, Erection,Temporary fixture, Handling of material, final matching and field welding etc.						650404.43	650404.43	650404.43	
		Total cost Without O.H.&C.P.						2276415.49	2276415.49	2276415.49	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		569103.87	569103.87	569103.87	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		284551.94	284551.94	284551.94	
		Cost for 26 Tonne =(a+b+c+d+e)						3130071.30	3130071.30	3130071.30	
		Rate per Tonne = (a+b+c+d+e) / 26						120387.36	120387.36	120387.36	
							Say	**120387.40**	**120387.40**	**120387.40**	

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
18.07	2807	**Shotcreting with Steel fibre reinforced micro silica shotcrete (SFRS)**									
		Shotcreting to upper bench / lower bench with steel fiber reinforced shotcrete (SFRS) , shotcrete compressive strength shall be 25 N/mm2 and complete as per Drawing and Technical Specifications.									
		Unit=cum									
		Taking output=120 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
		Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
		b) Machinery									
		Batching Plant of capacity 120 cum / hour	hour	1.333	1.333	1.333	3672.00	4894.78	4894.78	4894.78	PM19002
		Generator 250 KVA	hour	1.333	1.333	1.333	3130.00	4172.29	4172.29	4172.29	PM22004
		Loader 3.1 cum capacity	hour	1.333	1.333	1.333	3506.00	4673.50	4673.50	4673.50	PM5001
		Transit Truck agitator									
		For transportation (6 cum capacity)	t.km.	300xL	300xL	300xL	10.75	3225.00	**3225.00**	**3225.00**	PM76001
		For Loading & unloading	hour	11.333	11.333	11.333	1935.00	21929.36	21929.36	21929.36	PM34001
		Shotcrete Machine @ 12 cum /hour	hour	10.000	10.000	10.000	1403.00	14030.00	14030.00	14030.00	PM59001
		Compressor 500 cfm	hour	10.000	10.000	10.000	1920.00	19200.00	19200.00	19200.00	PM15002
		c) Materials									
		Cement	Tonne	49.440	49.440	49.440	6328.00	312856.32	312856.32	312856.32	M-081
		Sand	Cum	86.850	86.850	86.850	577.80	50181.93	50181.93	50181.93	M-004*
		10mm to 4.76 mm Aggregate	Cum	52.080	52.080	52.080	595.16	30995.93	30995.93	30995.93	M-039
		Steel Fiber	Tonne	6.120	6.120	6.120	INPUT	#VALUE!	#VALUE!	#VALUE!	M-225
		Admixture @ 0.4 % of Cement	Kg	197.760	197.760	197.760	29.00	5735.04	5735.04	5735.04	M-182
		Micro Silica @ 6 % of Cement	Kg	2966.400	2966.400	2966.400	28.36	84127.10	84127.10	84127.10	M-226
		Accelerator @ 4.5 % of Cement	Kg	2224.800	2224.800	2224.800	29.00	64519.200	64519.200	64519.200	M-227
		Add 20 Percent of cost of a+b+c for Wastage due to rebound.						#VALUE!	#VALUE!	#VALUE!	
		Total cost Without O.H.&C.P.						#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Cost for 120 Cum =(a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
		Rate per Cum = (a+b+c+d+e) / 120						#VALUE!	#VALUE!	#VALUE!	
								#VALUE!	#VALUE!	#VALUE!	
18.08	**2807**	**Shotcreting with welded wire mesh.**									
		Shotcreting to upper bench / lower bench with welded wire mesh, shotcrete compressive strength shall be 25 N/mm2 and complete as per Drawing and Technical Specifications.									
		Unit=cum									
		Taking output=120 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
		Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
		b) Machinery									
		Batching Plant of capacity 120 cum / hour	hour	1.333	1.333	1.333	3672.00	4894.78	4894.78	4894.78	PM19002
		Generator 250 KVA	hour	1.333	1.333	1.333	3130.00	4172.29	4172.29	4172.29	PM22004
		Loader 3.1 cum capacity	hour	1.333	1.333	1.333	3506.00	4673.50	4673.50	4673.50	PM5001
		Transit Truck agitator									
		For transportation (6 cum capacity)	t.km.	300xL	300xL	300xL	10.75	3225.00	3225.00	3225.00	PM76001
		For Loading & unloading	hour	11.333	11.333	11.333	1935.00	21929.36	21929.36	21929.36	PM34001
		Shotcrete Machine @ 12 cum /hour	hour	10.000	10.000	10.000	1403.00	14030.00	14030.00	14030.00	PM59001
		Compressor 500 cfm	hour	10.000	10.000	10.000	1920.00	19200.00	19200.00	19200.00	PM15002
		c) Materials									
		Cement	Tonne	49.440	49.440	49.440	6328.00	312856.32	312856.32	312856.32	M-081
		Sand	Cum	86.850	86.850	86.850	577.80	50181.93	50181.93	50181.93	M-004*
		10mm to 4.76 mm Aggregate	Cum	52.080	52.080	52.080	595.16	30995.93	30995.93	30995.93	M-039
		Wire mesh (Including 10 % for lapping.)	Sqm	1320.000	1320.000	1320.000	117.36	154915.20	154915.20	154915.20	M-102
		Admixture @ 0.4 % of Cement	Kg	197.760	197.760	197.760	29.00	5735.04	5735.04	5735.04	M-182
		Micro Silica @ 6 % of Cement	Kg	2966.400	2966.400	2966.400	28.36	84127.10	84127.10	84127.10	M-226
		Accelerator @ 4.5 % of Cement	Kg	2224.800	2224.800	2224.800	29.00	64519.20	64519.20	64519.20	M-227
								778566.686	778566.686	778566.686	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Add 20 Percent of cost of a+b+c for Wastage due to rebound.						155713.337	155713.337	155713.337	
		Total cost Without O.H.&C.P.						934280.023	934280.023	934280.023	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		233570.006	233570.006	233570.006	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		116785.003	116785.003	116785.003	
		Cost for 120 Cum =(a+b+c+d+e)						1284635.032	1284635.032	1284635.032	
		Rate per cum = (a+b+c+d+e) / 120						10705.292	10705.292	10705.292	
								10705.300	10705.300	10705.300	
18.09	**2806 & 3200**	Providing and fixing 25 mm diameter 3 meter long steel rock bolts including drilling 45 mm dia holes, plate, nuts, cement grout, cost of all materials, machinery, labour, ventilation, lighting, drainage and all other ancillary operations etc. complete as per Drawing and Technical Specifications.									
		Unit=Number									
		Taking output=155 Nos									
		a) Labour									
		Mate	day	0.480	0.480	0.480	397.00	190.56	190.56	190.56	L-12
		Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
		Mason (IInd class)	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-10
		b) Machinery									
		Single boom Hydraulic Drill Jumbo.	hour	25.833	25.833	25.833	4436.00	114595.19	114595.19	114595.19	PM54001
		c) Materials									
		3.7 m long extension rod.	Nos	1.011	1.011	1.011	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
		R32 shank adapter.	Nos	1.011	1.011	1.011	INPUT	#VALUE!	#VALUE!	#VALUE!	M-222
		45mm Dia cross bit.	Nos	3.577	3.577	3.577	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
		25mm Tor Steel (Including 2.5% Wastage)	Tonne	1.927	1.927	1.927	58030.00	111823.81	111823.81	111823.81	M-083
								#VALUE!	#VALUE!	#VALUE!	
		Add 15 % of cost of a+b+c towards cutting, making tip, Threading,nut,plate,grouting and bit sharpening etc..						#VALUE!	#VALUE!	#VALUE!	
		Total cost Without O.H.&C.P.						#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Cost for 155 Nos =(a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
		Rate per Number = (a+b+c+d+e) /155						#VALUE!	#VALUE!	#VALUE!	
								#VALUE!	#VALUE!	#VALUE!	
18.10	**2806 & 3200**	Providing and fixing 32 mm diameter 7 meter long steel rock bolts including drilling 51 mm dia holes, plate, nuts, cement grout, cost of all materials, machinery, labour, ventilation, lighting, drainage and all other ancillary operations etc. complete as per Drawing and Technical Specifications.									
		Unit=Number									
		Taking output=70 Nos									
		a) Labour									
		Mate	day	0.600	0.600	0.600	397.00	238.20	238.20	238.20	L-12
		Mazdoor	day	10.000	10.000	10.000	373.00	3730.00	3730.00	3730.00	L-13
		Mason (IInd class)	day	5.000	5.000	5.000	449.00	2245.00	2245.00	2245.00	L-10
		b) Machinery									
		Single boom Hydraulic	hour	17.500	17.500	17.500	4436.00	77630.00	77630.00	77630.00	PM54001
		c) Materials									
		3.7 m long extension rod.	Nos	1.065	1.065	1.065	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
		R32 shank adapter.	Nos	1.065	1.065	1.065	INPUT	#VALUE!	#VALUE!	#VALUE!	M-222
		32mm coupling sleeve	Nos	1.065	1.065	1.065	INPUT	#VALUE!	#VALUE!	#VALUE!	M-220
		51mm Dia button bit	Nos	3.769	3.769	3.769	INPUT	#VALUE!	#VALUE!	#VALUE!	M-224
		32mm Tor Steel (Including 2.5% Wastage)	Tonne	3.237	3.237	3.237	58030.00	187843.11	187843.11	187843.11	M-083
								#VALUE!	#VALUE!	#VALUE!	
		Add 15 % of cost of a+b+c towards cutting,making tip, Threading,nut,plate,grouting and bit sharpening etc..						#VALUE!	#VALUE!	#VALUE!	
		Total cost Without O.H.&C.P.						#VALUE!	#VALUE!	#VALUE!	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Cost for 70 Nos =(a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
		Rate per Number = (a+b+c+d+e) / 70						#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
								#VALUE!	#VALUE!	#VALUE!	
18.11	2806	**Grouting with Cement**									
		Grouting cement slurry in grout holes under specified pressure for consolidation / contact grouting including cost of all materials, machinery, labour, predrilling wherever necessary, ventilation,lighting, drainage and other ancillary operations etc. complete as per Drawing and Technical Specifications.									
		Unit=Tonne									
		Taking output=1.5 Tonne									
		a) Labour									
		Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
		Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
		b) Machinery									
		Grouting Machine @ 25 Bags Per Hours	hour	1.200	1.200	1.200	585.00	702.00	702.00	702.00	PM60001
		Pump 10 HP.	hour	1.200	1.200	1.200	217.00	260.40	260.40	260.40	PM61001
		Single boom Hydraulic .	hour	1.250	1.250	1.250	4436.00	5545.00	5545.00	5545.00	PM54001
		c) Materials									
		Cement (Including 1% Wastage)	Tonne	1.515	1.515	1.515	6328.00	9586.92	9586.92	9586.92	M-081
		Cost of Water (Water /Cement Ratio-0.4)	KL	0.606	0.606	0.606	60.30	36.54	36.54	36.54	M-191
		3.7 m long extension rod.	Nos	0.076	0.076	0.076	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
		R32 shank adapter.	Nos	0.076	0.076	0.076	INPUT	#VALUE!	#VALUE!	#VALUE!	M-222
		32mm coupling sleeve	Nos	0.076	0.076	0.076	INPUT	#VALUE!	#VALUE!	#VALUE!	M-220
		51mm Dia cross bit	Nos	0.269	0.269	0.269	INPUT	#VALUE!	#VALUE!	#VALUE!	M-224
								#VALUE!	#VALUE!	#VALUE!	
		Add 5 % of cost of a+b+c towards cutting,making tip, Threading,nut,plate,grouting and bit sharpening etc..						#VALUE!	#VALUE!	#VALUE!	
		Total cost Without O.H.&C.P.						#VALUE!	#VALUE!	#VALUE!	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Cost for 1.5 Tonne =(a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Rate per Tonne = (a+b+c+d+e) /1.5						#VALUE!	#VALUE!	#VALUE!	
								#VALUE!	#VALUE!	#VALUE!	
18.12	**1700**	**Furnishing and Placing Reinforced cement concrete in Tunnel Work as per drawing and Technical Specification**									
	A	**RCC Grade M 20**									
		Using Batching Plant ,Transit Mixer and Concrete Pump.									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.05	cum	120.000	120.000	120.000	3517.90	422148.00	422148.00	422148.00	21.05
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	450442.56	450442.56	450442.56	

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		d) Formwork and staging 40 percent of (a+b+c)						180177.02	180177.02	180177.02	
		Total cost Without O.H.&C.P.						630619.58	630619.58	630619.58	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		157654.89	157654.89	157654.89	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		78827.45	78827.45	78827.45	
		Cost for 120 cum =(a+b+c+d+e+f)						867101.92	867101.92	867101.92	
		Rate per cum = (a+b+c+d+e+f) /120						7225.85	7225.85	7225.85	
							Say	**7225.80**	**7225.80**	**7225.80**	
18.12	**1700 B**	**RCC Grade M 25**									
		Using Batching Plant ,Transit Mixer and Concrete Pump.									
		Unit = Cum									
		Taking output=120 Cum									
		a)Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.07	cum	120.000	120.000	120.000	3897.00	467640.00	467640.00	467640.00	21.07
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
							a+b+c=	495934.56	495934.56	495934.56	
		d) Formwork and staging 40 percent of (a+b+c)						198373.82	198373.82	198373.82	
		Total cost Without O.H.&C.P.						694308.38	694308.38	694308.38	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		173577.09	173577.09	173577.09	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		86788.55	86788.55	86788.55	
		Cost for 120 cum =(a+b+c+d+e+f)						**954674.02**	**954674.02**	**954674.02**	
		Rate per cum = (a+b+c+d+e+f) /120						7955.62	7955.62	7955.62	
							Say	**7955.60**	**7955.60**	**7955.60**	
18.12	**1700 C**	**RCC Grade M 30**									
		Using Batching Plant ,Transit Mixer and Concrete Pump.									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.09	cum	120.000	120.000	120.000	3931.20	471744.00	471744.00	471744.00	21.09
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	500038.56	500038.56	500038.56	
		d) Formwork and staging 40 percent of (a+b+c)						200015.42	200015.42	200015.42	
		Total cost Without O.H.&C.P.						700053.98	700053.98	700053.98	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		175013.49	175013.49	175013.49	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		87506.75	87506.75	87506.75	
		Cost for 120 cum =(a+b+c+d+e+f)						962574.22	962574.22	962574.22	
		Rate per cum = (a+b+c+d+e+f) /120						8021.45	8021.45	8021.45	
							Say	**8021.50**	**8021.50**	**8021.50**	
18.12	**1700 D**	**RCC Grade M35**									
		Using Batching Plant ,Transit Mixer and Concrete Pump.									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.11)	cum	120.000	120.000	120.000	4042.20	485064.00	485064.00	485064.00	21.11
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		(i)12KL capacity.	hour	0.583xL1+ 3.5	0.583xL1+ 3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	513358.56	513358.56	513358.56	
		d) Formwork and staging 40 percent of (a+b+c)						205343.42	205343.42	205343.42	
		Total cost Without O.H.&C.P.						718701.98	718701.98	718701.98	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		179675.49	179675.49	179675.49	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		89837.75	89837.75	89837.75	
		Cost for 120 cum =(a+b+c+d+e+f)						988215.22	988215.22	988215.22	
		Rate per cum = (a+b+c+d+e+f) /120						8235.13	8235.13	8235.13	
							Say	**8235.10**	**8235.10**	**8235.10**	
18.12	**1700 E**	**RCC Grade M-40**									
		Using Batching Plant ,Transit Mixer and Concrete Pump.									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.12	cum	120.000	120.000	120.000	4143.80	497256.00	497256.00	497256.00	21.12
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	525550.56	525550.56	525550.56	
		d) Formwork and staging 40 percent of (a+b+c)						210220.22	210220.22	210220.22	
		Total cost Without O.H.&C.P.						735770.78	735770.78	735770.78	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		**183942.69**	**183942.69**	**183942.69**	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		91971.35	91971.35	91971.35	
		Cost for 120 cum =(a+b+c+d+e+f)						1011684.82	1011684.82	1011684.82	
		Rate per cum = (a+b+c+d+e+f) /120						8430.71	8430.71	8430.71	
							Say	**8430.70**	**8430.70**	**8430.70**	
18.12	**1700 F**	**RCC Grade M-45**									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.13	cum	120.000	120.000	120.000	4168.80	500256.00	500256.00	500256.00	21.13
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	528550.56	528550.56	528550.56	
		d) Formwork and staging 40 percent of (a+b+c)						211420.22	211420.22	211420.22	
		Total cost Without O.H.&C.P.						739970.78	739970.78	739970.78	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		**184992.69**	**184992.69**	**184992.69**	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		92496.35	92496.35	92496.35	
		Cost for 120 cum =(a+b+c+d+e+f)						1017459.82	1017459.82	1017459.82	
		Rate per cum = (a+b+c+d+e+f) /120						8478.83	8478.83	8478.83	
							Say	**8478.80**	**8478.80**	**8478.80**	
18.12	**1700 G**	**RCC Grade M-50**									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.14	cum	120.000	120.000	120.000	4753.60	570432.00	570432.00	570432.00	21.14
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
							a+b+c=	598726.56	598726.56	598726.56	
		d) Formwork and staging 40 percent of (a+b+c)						239490.62	239490.62	239490.62	
		Total cost Without O.H.&C.P.						838217.18	838217.18	838217.18	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		**209554.29**	**209554.29**	**209554.29**	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		104777.15	104777.15	104777.15	
		Cost for 120 cum =(a+b+c+d+e+f)						1152548.62	1152548.62	1152548.62	
		Rate per cum = (a+b+c+d+e+f) /120						9604.57	9604.57	9604.57	
							Say	**9604.60**	**9604.60**	**9604.60**	
18.12	**1700 H**	**RCC Grade M-55**									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.15)	cum	120.000	120.000	120.000	4833.60	580032.00	580032.00	580032.00	21.15
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1+3.5	0.583xL1+3.5	0.583xL1+3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	608326.56	608326.56	608326.56	
		d) Formwork and staging 40 percent of (a+b+c)						243330.62	243330.62	243330.62	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Total cost Without O.H.&C.P.						851657.18	851657.18	851657.18	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		212914.29	212914.29	212914.29	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		106457.15	106457.15	106457.15	
		Cost for 120 cum =(a+b+c+d+e+f)						1171028.62	1171028.62	1171028.62	
		Rate per cum = (a+b+c+d+e+f) /120						9758.57	9758.57	9758.57	
							Say	**9758.60**	**9758.60**	**9758.60**	
18.12	**1700 I**	**RCC Grade M-60**									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.16)	cum	120.000	120.000	120.000	4999.80	599976.00	599976.00	599976.00	21.16
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6 cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	628270.56	628270.56	628270.56	
		d) Formwork and staging 40 percent of (a+b+c)						251308.22	251308.22	251308.22	
		Total cost Without O.H.&C.P.						879578.78	879578.78	879578.78	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		219894.69	219894.69	219894.69	

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		109947.35	109947.35	109947.35	
		Cost for 120 cum =(a+b+c+d+e+f)						1209420.82	1209420.82	1209420.82	
		Rate per cum = (a+b+c+d+e+f) /120						10078.51	10078.51	10078.51	
							Say	**10078.50**	**10078.50**	**10078.50**	
18.12	**1700 J**	**RCC Grade M-65**									
		Unit=Cum									
		Taking output=120 Cum									
		a) Material									
		Per Cum Basic Cost									
		(Rate taken from sub-analysis -21.17)	cum	120.000	120.000	120.000	5041.20	604944.00	604944.00	604944.00	21.17
		Water for curing	KL	63.000	63.000	63.000	60.30	3798.90	3798.90	3798.90	M-191
		b) Labour									
		For pouring and placing									
		Mate	day	0.232	0.232	0.232	397.00	92.10	92.10	92.10	L-12
		Mason	day	1.500	1.500	1.500	449.00	673.50	673.50	673.50	L-10
		Mazdoor	day	4.300	4.300	4.300	373.00	1603.90	1603.90	1603.90	L-13
		c) Machinery									
		Transit Truck agitator									
		For Transportation (6cum Capacity),L1-Lead in Kilometer.	t.km	300xL1	300xL2	300xL3	10.75	3225.00	3225.00	3225.00	PM76001
		For unloading	hour	2.600	2.600	2.600	1935.00	5031.00	5031.00	5031.00	PM34001
		Hydraulic Boom placer pump	hour	2.600	2.600	2.600	3769.00	9799.40	9799.40	9799.40	PM36001
		Water tanker (Speed @ 20km /hour and return speed @ 30 km /hr.and 30 mins for unloading)									
		(i)12KL capacity.	hour	0.583xL1 +3.5	0.583xL1 +3.5	0.583xL1 +3.5	997.00	4070.75	4070.75	4070.75	PM11002
							a+b+c=	633238.56	633238.56	633238.56	
		d) Formwork and staging 40 percent of (a+b+c)						253295.42	253295.42	253295.42	
		Total cost Without O.H.&C.P.						886533.98	886533.98	886533.98	
		e) Overhead charges on (a+b+c+d)		(@ 25%)	(@ 25%)	(@ 25%)		221633.49	221633.49	221633.49	
		f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		110816.75	110816.75	110816.75	
		Cost for 120 cum =(a+b+c+d+e+f)						**1218984.22**	**1218984.22**	**1218984.22**	
		Rate per cum = (a+b+c+d+e+f) /120						10158.20	10158.20	10158.20	
							Say	**10158.20**	**10158.20**	**10158.20**	

Analysis of Rate

TUNNEL WORK

Sr. No	Ref.to M	Description	Unit	Quantity as per Project Category			Rate	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
18.13	1600	**Supplying, Fitting and placing HYSD bar reinforcement in Tunnel Work complete as per drawing and technical specifications.**									
		Unit=MT									
		Taking out put =8 MT									
		a) Material									
		HYSD bars including 5 % overlaps and Wastage	Tonne	8.400	8.400	8.400	58030.0	487452.0	487452.0	487452.0	M-083
		Binding wire	Kg	48.000	48.000	48.000	46.0	2208.0	2208.0	2208.0	M-072
		b) Labour for straightening,cutting,bending, shifting to site ,tying and placing in position.									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Blacksmith	day	1.000	1.000	1.000	449.00	449.00	449.00	449.00	L-25
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Cutting Machine	hour	8.000	8.000	8.000	358.00	2864.00	2864.00	2864.00	PM43001
		Bending Machine	hour	8.000	8.000	8.000	358.00	2864.00	2864.00	2864.00	PM43001
		Electric Generator 15 KVA	hour	8.000	8.000	8.000	292.00	2336.00	2336.00	2336.00	PM22009
		Tipper									
		Tipper forTtransportation									
		(i) 14 cum capacity	t.km	8xL	8xL	8xL	5.67	45.36	45.36	45.36	PM73001
		Loading and Unloading Time									
		(i) 14 cum capacity	hour	2.000	2.000	2.000	2065.00	4130.00	4130.00	4130.00	PM6002
		Light weight Crane									
		At cutting bending yard	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		At site	hour	2.000	2.000	2.000	794.00	1588.00	1588.00	1588.00	PM63001
		Total cost Without O.H.&C.P.						506706.88	506706.88	506706.88	
		d) Overhead charges on (a+b+c)		(@ 25%)	(@ 25%)	(@ 25%)		126676.72	126676.72	126676.72	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		63338.36	63338.36	63338.36	
		Cost for 8MT =(a+b+c+d+e)						696721.96	696721.96	696721.96	
		Rate per MT = (a+b+c+d+e) / 8						87090.25	87090.25	87090.25	
							Say	**87090.20**	**87090.20**	**87090.20**	

CHAPTER - 19

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

CHAPTER-19
ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

PREAMBLES :

1 The items of Bio-Engineering comprising Bamboo crib wall, Fascines, Brush Layers, Palisades in Rills & Slopes, Seeding and Mulching have been included in the chapter to stabilize hill slopes.

2 Seeding and mulching has been included as earth work to stabilize the cut and fill slope in plane.

3 To attenuate the environmental pollution generated during construction and operation stage, three type of preventive measures have been provided.

a) Dust suppression

b) Noise Barrier

c) Silt fencing

The selection of the attenuation factor will be based on site situation and the sensitive receptors.

4 The analysis of rates for Environmental Monitoring-Air, Water, Noise & Soil has been included to cater with the compliance submission to SPCB & MoEF&CC.

5 The rates for consent approval from SPCB &CPCB for Consent to Establish (CtE) and Consent to Operate (CtO) for setting of Plant has been estimate and considered.

6 The cost of Environment and Social Workshops to create awareness to the locals, NGOs, etc. has been evaluated.

7 The estimates for compensatory afforestation though proposed by the forest authority and those planted in the median by contractor has been analysed and included in rate list.

8 The overhead charges will be applicable of Road Works for this chapter.

9 The cost of maintenance for plantation has been considered and included for the purpose of estimation.

CHAPTER - 19
ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
19.01 Suggestive	Noise Barriers				
(i)	Masonry wall	Cum	6231.40	6351.00	6486.10
(ii)	Galvanized steel plain sheet	Sqm	132.30	134.70	137.20
(iii)	Acrylic noise barrier sheet	Sqm	802.10	817.00	831.80
19.02 Suggestive	Construction of bamboo crib wall complete as per drawing and additional Technical specification.	RM	#VALUE!	#VALUE!	#VALUE!
19.03 Suggestive	Construction of Fascines with a bundle of sticks complete as per drawing and additional Technical specification.	RM	#VALUE!	#VALUE!	#VALUE!
19.04 Suggestive	Contraction and laying of brush layers across the slope complete as per drawing and additional Technical specification.	Sqm	#VALUE!	#VALUE!	#VALUE!
19.05 Suggestive	Construction of vegetative Palisades in Rills using hard wood cutting complete as per drawing and additional Technical specification.	RM	#VALUE!	#VALUE!	#VALUE!
19.06 Suggestive	Laying of Palisades in Slopes complete as per drawing and additional Technical specification.	Sqm	#VALUE!	#VALUE!	#VALUE!
19.07 Suggestive	Dust suppression (Sprinkling of water in the settlement and working area as per instruction of Engineer.)	6 KL	1192.20	1214.30	1236.40
19.08 Suggestive	Water Quality Monitoring (Grab Sample as per the monitoring locations mention in the EIA/EMP report or one sample/ 10km length)	No.	#VALUE!	#VALUE!	#VALUE!
19.09 Suggestive	Soil Quality Monitoring (Grab Sample as per the monitoring locations mention in the EIA/EMP report or one sample/10 km length	No.	#VALUE!	#VALUE!	#VALUE!
19.10 Suggestive	Ambient Air Quality Monitoring 24 hrs continuous for location as mention in the EIA/EMP report or one monitoring location within 10 km radius	No.	#VALUE!	#VALUE!	#VALUE!
19.11 Suggestive	Ambient Noise Monitoring 24 hour continuous (To be carried out as per the location mention in the EIA/EMP report	No.	#VALUE!	#VALUE!	#VALUE!
19.12 Suggestive	Consent Approvals (Once)				
	(i)	No.	#VALUE!	#VALUE!	#VALUE!
	(ii)	No.	#VALUE!	#VALUE!	#VALUE!

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Item No.	Description	Unit	Rate as per project category		
			Large	Medium	Small
19.13 Suggestive	Compliance submission for Consent Approvals (Half Yearly)				
	(i)	No.	#VALUE!	#VALUE!	#VALUE!
	(ii)	No.	#VALUE!	#VALUE!	#VALUE!
19.14 Suggestive	Environmental Clearance Compliance (Half Yearly)	No.	#VALUE!	#VALUE!	#VALUE!
19.15 Suggestive	Environmental Workshops (Half Yearly)	No.	#VALUE!	#VALUE!	#VALUE!
19.16 Suggestive	Pollution prevention (Silt fencing on either side of the streams and rivers including erection and maintenance for entire construction phase.)	RM	#VALUE!	#VALUE!	#VALUE!
19.17	Road Safety Audit during Construction Period & Maintenance Period (Road Safety Audit during Construction Period & Maintenance Period including collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification report, submission of GAP report, Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter report, Submission of audit report of work zone safety, workshop report and Final Safety report complete as per IRC-SP-88 and directed by engineer)				
A	Upto 50.00 Kilometer	Km	#VALUE!	#VALUE!	#VALUE!
B	Between 50.00 Km. to 100.00 Km.	Km	#VALUE!	#VALUE!	#VALUE!
C	More than 100 Km.	Km	#VALUE!	#VALUE!	#VALUE!
19.18	Road Safety Audit during Maintenance Period (Road Safety Audit during Maintenance Period including collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification report, submission of GAP report, Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter report, Submission of audit report of work zone safety (Maintenance work), workshop report and Final Safety report complete as per IRC-SP-88 and directed by engineer)				
A	Upto 50.00 Kilometer	Km	#VALUE!	#VALUE!	#VALUE!
B	Between 50.00 Km. to 100 Km.	Km	#VALUE!	#VALUE!	#VALUE!
C	More than 100 Km.	Km	#VALUE!	#VALUE!	#VALUE!

CHAPTER:19

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
19.01	Suggestive		**Noise Barriers**									
		(i)	**Masonry wall**									
			Unit = cum									
			Taking output= 5 cum									
			a) Material									
			Brick 1st class	each	2500.000	2500.000	2500.000	6.364	15910.00	15910.00	15910.00	M-079
			Cement mortar 1:3 (Rate as sub analysis)	cum	1.200	1.200	1.200	4218.30	5061.96	5061.96	5061.96	21.01(A)
			water for curing	KL	2.415	2.415	2.415	60.30	145.62	145.62	145.62	M-191
			b) Labour									
			Mate	day	0.480	0.480	0.480	397.00	190.56	190.56	190.56	L-12
			Mason	day	4.000	4.000	4.000	449.00	1796.00	1796.00	1796.00	L-10
			Mazdoor	day	8.000	8.000	8.000	373.00	2984.00	2984.00	2984.00	L-13
			c) Machinery									
			Water tanker (speed @ 20km/hr and return speed @ 30km/hr and 30 mins for unloading)									
			(i) 16KL capacity	hour	0.017xL1 +0.101			1171.00	138.18			PM11001
			(ii) 12 KL capacity	hour		0.022xL1 +0.134		997.00		155.53		PM11002
			(iii) 6 KL capacity	hour			0.045xL1 +0.268	752.00			235.38	PM11003
			Total cost without OH & CP						26226.32	26243.68	26323.52	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		2098.11	2624.37	3158.82	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2832.44	2886.80	2948.23	
			Cost for 5 Cum=a+b+c+d+e						31156.87	31754.85	32430.58	

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per Cum= (a+b+c+d+e)/5						6231.37	6350.97	6486.12	
								Say	**6231.40**	**6351.00**	**6486.10**	
		(ii)	**Galvanized steel plain sheet**									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Blacksmith	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-25
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Material									
			Galvanized steel plain sheet (5 mm) including 5% wastage	kg	3.150	3.150	3.150	60.26	189.80	189.80	189.80	M181 /1000
			MS Angle	kg	154.500	154.500	154.500	60.26	9309.40	9309.40	9309.40	M181/1000
			Add 10 percent of cost of (a+b) towards of drilling, nut & bolt etc.						1012.05	1012.05	1012.05	
			Total cost without OH & CP						11132.57	11132.57	11132.57	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		890.61	1113.26	1335.91	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1202.32	1224.58	1246.85	
			Cost for 100 sqm=a+b+c+d						13225.50	13470.41	13715.33	
			Rate per sqm= (a+b+c+d)/100						132.25	134.70	137.15	
								Say	**132.30**	**134.70**	**137.20**	
		Note:	Rate for excavation, cement concrete M-25 and painting may be taken from respective chapters.									
		(iii)	**Acrylic noise barrier sheet**									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	397.00	23.82	23.82	23.82	L-12
			Blacksmith	day	0.500	0.500	0.500	449.00	224.50	224.50	224.50	L-25
			Mazdoor	day	1.000	1.000	1.000	373.00	373.00	373.00	373.00	L-13
			b) Material									

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Acrylic noise barrier sheet (3 mm) including 5% wastage	sqm	105.000	105.000	105.000	490.00	51450.00	51450.00	51450.00	M-294
			MS Angle	kg	154.500	154.500	154.500	60.26	9309.40	9309.40	9309.40	M181/1000
			Add 10 percent of cost of (a+b) towards of drilling, nut & bolt etc.						6138.07	6138.07	6138.07	
			Total cost without OH & CP						67518.79	67518.79	67518.79	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5401.50	6751.88	8102.25	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7292.03	7427.07	7562.10	
			Cost for 100 sqm=a+b+c+d						80212.32	81697.73	83183.15	
			Rate per sqm= (a+b+c+d)/100						802.12	816.98	831.83	
		Note:	Rate for excavation, cement concrete M-25 and painting may be taken from respective chapters.						802.10	817.00	831.80	
19.02	Suggestive		**Construction of bamboo crib wall complete as per drawing and additional Technical specification.**									
			Unit= Rm									
			Taking output= 1 Rm									
			a) Labour									
			Mate	day	0.016	0.016	0.016	397.00	6.35	6.35	6.35	L-12
			Mazdoor skilled	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			Mazdoor	day	0.300	0.300	0.300	373.00	111.90	111.90	111.90	L-13
			b) Machinery						0.00	0.00	0.00	
			Water tanker 6 KL capacity	hour	0.008	0.008	0.008	752.00	6.02	6.02	6.02	PM11003
			c) Materials									
			Bamboos (For Horizontal Beam)	Rm	4.000	4.000	4.000	11.85	47.40	47.40	47.40	M-229
			Live stake stump/ Bamboos (vertical)	Rm	1.500	1.500	1.500	INPUT	#VALUE!	#VALUE!	#VALUE!	M-230

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Live Stake Stump/ Bamboos (Horizontal)	Rm	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-230
			Binding Material	Rm	2.000	2.000	2.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-235
			Cost of water	KL	0.050	0.050	0.050	60.30	3.02	3.02	3.02	M-191
			Grass	Kg	1.500	1.500	1.500	5.56	8.34	8.34	8.34	M-112
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 1 Rm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per Rm= (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.03	Suggestive		**Construction of Fascines with a bundle of sticks complete as per drawing and additional Technical specification.**									
			Unit= Rm									
			Taking output= 10 Rm									
			a) Labour									
			Mate	day	0.100	0.100	0.100	397.00	39.70	39.70	39.70	L-12
			Mazdoor skilled	day	0.500	0.500	0.500	472.00	236.00	236.00	236.00	L-15
			Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
			b) Machinery									
			Tractor-trolley	hour	1.000	1.000	1.000	676.00	676.00	676.00	676.00	PM12001
			c) Material									
			Hard wood sticks	Nos	8.000	8.000	8.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-231
			Binding Material	Rm	5.000	5.000	5.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-235
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 10 Rm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per Rm= (a+b+c+d+e)/10						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
19.04	Suggestive		**Contraction and laying of brush layers across the slope complete as per drawing and additional Technical specification.**									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor for preparation of ground	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
			b) Machinery									
			Water tanker 6KL capacity including watering for 3 months	hour	2.000	2.000	2.000	752.00	1504.00	1504.00	1504.00	PM11003
			Tractor-trolley	hour	0.500	0.500	0.500	676.00	338.00	338.00	338.00	PM12001
			c) Material									
			Live Sods (0.6m length)	Nos.	1000.000	1000.000	1000.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-232
			Farm yard manure @ 0.18 cum per 100 sqm at site of work	cum	0.180	0.180	0.180	646.00	116.28	116.28	116.28	M-168
			Cost of water	KL	12.000	12.000	12.000	60.30	723.60	723.60	723.60	M-191
			Grass	kg	100.000	100.000	100.000	5.56	556.00	556.00	556.00	M-111
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 100 sqm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per sqm = (a+b+c+d+e)/100						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
19.05	Suggestive		**Construction of vegetative Palisades in Rills using hard wood cutting complete as per drawing and additional Technical specification.**									
			Unit= Rm									
			Taking output= 2 Rm									
			a) Labour									
			Mate	day	0.012	0.012	0.012	397.00	4.76	4.76	4.76	L-12
			Mazdoor skilled	day	0.100	0.100	0.100	472.00	47.20	47.20	47.20	L-15
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			b) Machinery									
			Tractor-trolley	hour	0.250	0.250	0.250	676.00	169.00	169.00	169.00	PM12001
			c) Material									
			Horizontal Live Sods (2M Length)	Nos.	2.000	2.000	2.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-233
			Vertical Live Sods (2M Length)	Nos.	40.000	40.000	40.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-233
			Cost of water	KL	0.100	0.100	0.100	60.30	6.03	6.03	6.03	M-191
			Binding Material	Rm	5.000	5.000	5.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-235
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 2 Rm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per Rm= (a+b+c+d+e)/2						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
19.06	Suggestive		**Laying of Palisades in Slopes complete as per drawing and additional Technical specification.**									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	397.00	47.64	47.64	47.64	L-12
			Mazdoor for preparation of ground	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Water tanker 6KL including watering for 3 months	hour	2.000	2.000	2.000	752.00	1504.00	1504.00	1504.00	PM11003
			Tractor-trolley	hour	0.500	0.500	0.500	676.00	338.00	338.00	338.00	PM12001
			c) Material									
			Live Sods (0.6m length)	Nos.	1000.000	1000.000	1000.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-232
			Farm yard manure @ 0.18 cum per 100 sqm at site of work	cum	0.180	0.180	0.180	646.00	116.28	116.28	116.28	M-168
			Cost of water	KL	12.000	12.000	12.000	60.30	723.60	723.60	723.60	M-191
			Grass	kg	100.000	100.000	100.000	5.56	556.00	556.00	556.00	M-111
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 100 sqm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per sqm = (a+b+c+d+e)/100						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
19.07	Suggestive		**Dust suppression**									
			Sprinkling of water in the settlement and working area as per instruction of Engineer.									
			Unit= 6 KL									
			Taking output= 6 KL									
			a) Labour									
			Mate	day	0.008	0.008	0.008	397.00	3.18	3.18	3.18	L-12
			Mazdoor	day	0.200	0.200	0.200	373.00	74.60	74.60	74.60	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.750	0.750	0.750	752.00	564.00	564.00	564.00	PM11003
			c) Materials									
			Cost of Water	KL	6.000	6.000	6.000	60.30	361.80	361.80	361.80	M-191
			Total cost without OH & CP						1003.58	1003.58	1003.58	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		80.29	100.36	120.43	

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		108.39	110.39	112.40	
			Cost for 6 KL =a+b+c+d+e						1192.25	1214.33	1236.41	
								Say	**1192.20**	**1214.30**	**1236.40**	
19.08	Suggestive		**Water Quality Monitoring**									
			(Grab Sample as per the monitoring locations mention in the EIA/EMP report or one sample/ 10km length)									
			Unit=Number									
			Taking output= One Number									
			a) Cost of Water Quality monitoring	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR46
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.09	Suggestive		**Soil Quality Monitoring (Grab Sample as per the monitoring locations mention in the EIA/EMP report or one sample/10 km length**									
			Unit=Number									
			Taking output= One Number									
			a) Cost of Soil Quality monitoring	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR47
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.10	Suggestive		**Ambient Air Quality Monitoring 24 hrs continuous for location as mention in the EIA/EMP report or one monitoring location within 10 km radius**									

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit=Number									
			Taking output= One Number									
			a) Cost of Ambient Air Quality	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR48
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.11	Suggestive		**Ambient Noise Monitoring 24 hour continuous (To be carried out as per the location mention in the EIA/EMP report**									
			Unit=Number									
			Taking output= One Number									
			a) Cost of Ambient Noise Monitoring 24	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR49
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.12	Suggestive		**Consent Approvals (Once)**									
			Unit=Number									
			Taking output= One Number									
19.12		**(i)**	a) Consent to Establish (CTE)	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR50
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.12		**(ii)**	a) Consent to Operate (CTO)	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR51
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
19.13	Suggestive		**Compliance submission for Consent Approvals (Half Yearly)**									
			Unit=Number									
			Taking output= One Number									
19.13		**(i)**	**a)** compliance submission for Consent to Establish (CTE)	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR52
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.13		**(ii)**	**a)** compliance submission for Consent to Operate (CTO)	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR53
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.14	Suggestive		**Environmental Clearance Compliance (Half Yearly)**									
			Unit=Number									
			Taking output= One Number									
			a) Cost of Workshop	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR54
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.15	Suggestive		**Environmental Workshops (Half Yearly)**									
			Unit=Number									
			Taking output= One Number									
			a) Cost of Workshop	Nos.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	MR54

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate per number = a+b+c						#VALUE!	#VALUE!	#VALUE!	
19.16	Suggestive		**Pollution prevention**									
			Silt fencing on either side of the streams and rivers including erection and maintenance for entire construction phase.									
			Unit= Rm									
			Taking output= 100 Rm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	397.00	31.76	31.76	31.76	L-12
			Mazdoor	day	2.000	2.000	2.000	373.00	746.00	746.00	746.00	L-13
			b) Machinery									
			Tractor-trolley	hour	2.000	2.000	2.000	676.00	1352.00	1352.00	1352.00	PM12001
			c) Materials									
			Silt Fence Sheet	Sqm	100.000	100.000	100.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-295
			Hard wood sticks	Nos	34.000	34.000	34.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-231
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 100 Rm=a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per Rm= (a+b+c+d+e)/100						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
19.17	IRC-SP-88		**Road Safety Audit during Construction Period & Maintenance Period**									

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Road Safety Audit during Construction Period & Maintenance Period including collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification report, submission of GAP report, Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter report, Submission of audit report of work zone safety, workshop report and Final Safety report complete as per IRC-SP-88 and directed by engineer									
			Unit= Kilometer									
19.17		**A**	**Upto 50.00 Kilometer**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	4	4	4	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312
			Traffic Planner	Month	6	6	6	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	90.000	90.000	90.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	90.000	90.000	90.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
			Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
			Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319
			Submission of audit report of work zone safely	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320
			workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
			Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322
			Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate for upto 50.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.17		**B**	**Between 50.00 Km. to 100.00 Km.**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	6	6	6	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Traffic Planner	Month	8	8	8	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	126.000	126.000	126.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	126.000	126.000	126.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									
			Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
			Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
			Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319
			Submission of audit report of work zone safely	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320
			workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
			Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322
			Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate for 50.00 to 100.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.17		**C**	**More than 100 Km.**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	8	8	8	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312
			Traffic Planner	Month	10	10	10	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	162.000	162.000	162.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	162.000	162.000	162.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									
			Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
			Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
			Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319
			Submission of audit report of work zone safely	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
			Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322
			Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate for more than 100.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.18	IRC-SP-88		**Road Safety Audit during Maintenance Period**									
			Road Safety Audit during Maintenance Period including collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification report, submission of GAP report, Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter report, Submission of audit report of work zone safety (Maintenance work), workshop report and Final Safety report complete as per IRC-SP-88 and directed by engineer								
			Unit= Kilometer									

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
19.18		A	**Upto 50.00 Kilometer**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	2	2	2	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312
			Traffic Planner	Month	3	3	3	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									
			Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
			Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
			Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319
			Submission of audit report of work zone safely	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320
			workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
			Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate for upto 50.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.18		**B**	**Between 50.00 Km. to 100 Km.**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	3	3	3	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312
			Traffic Planner	Month	4	4	4	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									
			Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
			Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
			Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Submission of audit report of work zone safety (Maintenance Work)	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320
			workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
			Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322
			Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Rate for 50.00 to 100.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	
19.18		**C**	**More than 100 Km.**									
			a) Experts/ key Personnel									
			Sr. Road Safety/ Auditor / Team Leader	Month	4	4	4	INPUT	#VALUE!	#VALUE!	#VALUE!	M-312
			Traffic Planner	Month	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-313
			b) Boarding & Loading									
			Boarding & Loading and Per Diem for Site Visits	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-314
			Transportation at site and Head Office	No. of Trip	20.000	20.000	20.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-315
			Duty travel to Site	Days	45.000	45.000	45.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-316
			c) Reports and Documents Cost									

Analysis of Rate

ENVIRONMENTAL & SAFETY MANAGEMENT AND BIO ENGINEERING

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate	Amount			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-317
		Submission of GAP report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-318
		Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-319
		Submission of audit report of work zone safety (Maintenance Work)	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-320
		workshop report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-321
		Final safety report	No. of Copies	5	5	5	INPUT	#VALUE!	#VALUE!	#VALUE!	M-322
		Add 10 percent of cost of a+b+c as Miscellaneous work						#VALUE!	#VALUE!	#VALUE!	
		Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
		Rate for more than 100.00 kilometer = (a+b+c+d+e)						#VALUE!	#VALUE!	#VALUE!	

SUB-ANALYSIS OF CONCRETE/MORTAR RATE (Excluding O.H&C.P)

CHAPTER-21

SUB-ANALYSIS OF CONCRTE/MORTAR RATE(Excluding O.H&C.P)

Sl No.	Ref.to M.	Description	Unit	Rate as per Projet Category		
				Large	Medium	Small
21.01		(A) Cement Mortar 1:3 (1 cement: 3 sand)	cum	4218.30	4218.30	4218.30
21.01		(B) Cement Mortar 1:2 (1 cement: 2 sand)	cum	5184.90	5184.90	5184.90
21.01		(C) Cement Mortar 1:4 (1 cement: 4 sand)	cum	3574.40	3574.40	3574.40
21.01		(D) Cement Mortar 1:6 (1 cement: 6 sand)	cum	2964.60	2964.60	2964.60
21.02		PCC 1:3:6 using batching plant				
		Plain Cement concrete 1:3:6 nominal mix with crushed stone aggregate 40 mm nominal size mechanically mixed	cum	3010.00	3010.00	3010.00
21.03		Plain/Reinforced cement concrete complete as per Drawing gand Technical specefication.				
		PCC Grade M15 Using Batching Plant	cum	3108.60	3108.60	3108.60
21.04		PCC Grade M20 Using Batching Plant	cum	3530.50	3530.50	3530.50
21.05		RCC Grade M20 Using Batching Plant	cum	3517.90	3517.90	3517.90
21.06		PCC Grade M25 Using Batching Plant	cum	3883.60	3883.60	3883.60
21.07		RCC Grade M25 Using Batching Plant	cum	3897.00	3897.00	3897.00
21.08		PCC Grade M30 Using Batching Plant	cum	3918.00	3918.00	3918.00
21.09		RCC Grade M30 Using Batching Plant	cum	3931.20	3931.20	3931.20
21.10		PCC Grade M35 Using Batching Plant	cum	4010.60	4010.60	4010.60
21.11		RCC GradeM35 Using Batching plant	cum	4042.20	4042.20	4042.20
21.12		RCC Grade M40 Using Batching Plant	cum	4143.80	4143.80	4143.80
21.13		RCC Grade M45 Using Batching Plant	cum	4168.80	4168.80	4168.80
21.14		RCC Grade M50 Using Batching Plant	cum	4753.60	4753.60	4753.60
21.15		RCC Grade M55 Using Batching Plant	cum	4833.60	4833.60	4833.60
21.16		RCC Grade M60 Using Batching Plant	cum	4999.80	4999.80	4999.80
21.17		RCC Grade M65 Using Batching Plant	cum	5041.20	5041.20	5041.20
21.18	601	A DLC Using Batching Plant -240 cum capacity Plant	cum	2161.60	2161.60	2161.60
21.18	601	B Dry Lean Concrete Sub -base Fly ash (Using Batching Plant) -240 cum capacity Plant	cum	2025.50	2025.50	2025.50
21.18	601	C DLC Using Batching Plant -120 cum capacity Plant	cum	2187.90	2187.90	2187.90
21.18	601	D Dry Lean Concrete Sub -base Fly ash (Using Batching Plant) -120 cum capacity Plant	cum	2051.80	2051.80	2051.80
21.19	602	A PQC M 35 grade Using Batching Plant-240 cum capacity plant	cum	3816.50	3816.50	3816.50
21.19	602	B PQC M 35 grade Using Batching Plant-240 cum capacity(Cement-Fly ash)	cum	3397.90	3397.90	3397.90
21.19	602	C PQC M 35 grade Using Batching Plant-120 cum capacity	cum	3853.60	3853.60	3853.60
21.19	602	D PQC M 35 grade Using Batching Plant-120 cum capacity(Cement-Fly ash)	cum	3425.10	3425.10	3425.10
21.20	409	PCC Grade M15 grade Using Batching Plant for Kerb	cum	3108.60	3108.60	3108.60
21.21	409	PCC Grade M20 grade Using Batching Plant for Kerb	cum	3530.50	3530.50	3530.50
21.22		Cost of water	KL	60.30	60.30	60.30

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
21.01		**(A) Cement Mortar 1:3 (1 cement: 3 sand)**									
		Unit =cum									
		Taking output =1 cum									
		a) Materials									
		Cement	tonne	0.510	0.510	0.510	6328.00	3227.28	3227.28	3227.28	M-081
		Coarse sand	cum	1.050	1.050	1.050	577.80	606.69	606.69	606.69	M-004*
		Cost of water	KL	0.255	0.255	0.255	60.30	15.38	15.38	15.38	M-191
		b) Labour									
		Mate	day	0.036	0.036	0.036	397.00	14.292	14.292	14.292	L-12
		Mazdoor	day	0.900	0.900	0.900	373.00	335.7	335.7	335.7	L-13
		c)Machinery									
		Water tanker 12 KL capacity (speed @20 km /hr and return speed @ 30 km / hr and 30 mins for unloading)	hour	0.019	0.019	0.019	997.00	18.94	18.94	18.94	PM11002
		Rate per cum= (a+b+c)						4218.28	4218.28	4218.28	
								4218.30	**4218.30**	**4218.30**	
21.01		**(B) Cement Mortar 1:2 (1 cement: 2 sand)**									
		Unit =cum									
		Taking output =1 cum									
		a) Materials									
		Cement	tonne	0.672	0.672	0.672	6328.00	4252.416	4252.416	4252.416	M-081
		Coarse sand	cum	0.930	0.930	0.930	577.80	537.354	537.354	537.354	M-004*
		Cost of water	KL	0.336	0.336	0.336	60.30	20.26	20.26	20.26	M-191
		b) Labour									
		Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
		Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13
		c) Machinery									
		Water tanker 12 KL capacity (speed @20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)	hour	0.025	0.025	0.025	997.00	24.93	24.93	24.93	PM11002
		Rate per cum= (a+b+c)						5184.95	5184.95	5184.95	
							say	**5184.90**	**5184.90**	**5184.90**	
21.01		**(C) Cement Mortar 1:4 (1 cement: 4 sand)**									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Unit =cum									
		Taking output =1 cum									
		a) Materials									
		Cement	tonne	0.403	0.403	0.403	6328.00	2550.184	2550.184	2550.184	M-081
		Coarse sand	cum	1.120	1.120	1.120	577.80	647.136	647.136	647.136	M-004*
		Cost of water	KL	0.202	0.202	0.202	60.30	12.18	12.18	12.18	M-191
		b) Labour									
		Mate	day	0.036	0.036	0.036	397.00	14.292	14.292	14.292	L-12
		Mazdoor	day	0.900	0.900	0.900	373.00	335.7	335.7	335.7	L-13
		c)Machinery									
		Water tanker 12 KL capacity (speed @20 km / hr and return speed @ 30 km /hr and 30 mins for unloading)	hour	0.015	0.015	0.015	997.00	14.96	14.96	14.96	PM11002
		Rate per cum= (a+b+c)						3574.45	3574.45	3574.45	
							say	**3574.40**	**3574.40**	**3574.40**	
21.01		**(D) Cement Mortar 1:6 (1 cement: 6 sand)**									
		Unit =cum									
		Taking output =1 cum									
		a) Materials									
		Cement	tonne	0.288	0.288	0.288	6328.00	1822.464	1822.464	1822.464	M-081
		Coarse sand	cum	1.337	1.337	1.337	577.80	772.5186	772.5186	772.5186	M-004*
		Cost of water	KL	0.144	0.144	0.144	60.30	8.68	8.68	8.68	M-191
		b) Labour									
		Mate	day	0.036	0.036	0.036	397.00	14.29	14.29	14.29	L-12
		Mazdoor	day	0.900	0.900	0.900	373.00	335.70	335.70	335.70	L-13
		c)Machinery									
		Water tanker 12 KL capacity (speed @20 km / hr and return speed @ 30 km /hr and 30 mins for unloading)	hour	0.011	0.011	0.011	997.00	10.97	10.97	10.97	PM11002
		Rate per cum= (a+b+c)						**2964.62**	**2964.62**	**2964.62**	
							Say.	**2964.60**	**2964.60**	**2964.60**	
21.02		**PCC 1:3:6 using batching plant**									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Plain Cement concrete 1:3:6 nominal mix with crushed stone aggregate 40 mm nominal size mechanically mixed									
		Unit =cum									
		Taking output =15 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	397.00	127.04	127.04	127.04	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	7.000	7.000	7.000	373.00	2611.00	2611.00	2611.00	L-13
		b) Materials									
		40 mm Aggregate	cum	13.500	13.500	13.500	992.33	13396.46	13396.46	13396.46	M-054
		Coarse sand	cum	6.750	6.750	6.750	577.80	3900.15	3900.15	3900.15	M-004*
		Cement	tonne	3.450	3.450	3.450	6328.00	21831.6	21831.6	21831.6	M-081
		Cost of water	KL	1.380	1.380	1.380	60.30	83.21	83.21	83.21	M-191
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	0.167	0.167	0.167	3672.00	613.22	613.22	613.22	PM19002
		Generator 250 KVA	hour	0.167	0.167	0.167	3130.00	522.71	522.71	522.71	PM22004
		Loader 3.1cum capacity	hour	0.362	0.362	0.362	3506.00	1269.17	1269.17	1269.17	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	0.167	0.167	0.167	1935.00	323.15	323.15	323.15	PM34001
								45149.71	45149.71	45149.71	
		Rate per cum= (a+b+c) /15						3009.98	3009.98	3009.98	
							say	**3010.00**	**3010.00**	**3010.00**	
	Note	Vibrator is part of minorT& P which is already included in overhead charges of the contractor.									
21.03		**Plain/Reinforced cement concrete complete as per Drawingand Technical specefication.**									
		PCC Grade M15Using Batching Plant									
		Unit= cum									
		Taking output= 360 cum									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		a) Materials									
		Cement	tonne	99.000	99.000	99.000	6328.00	626472	626472	626472	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	194.400	194.400	194.400	992.33	192908.952	192908.952	192908.952	M-054
		20 mm Aggregate	cum	97.200	97.200	97.200	1207.76	117394.272	117394.272	117394.272	M-052
		10 mm Aggregate	cum	32.400	32.400	32.400	595.16	19283.184	19283.184	19283.184	M-050
		Cost of water (Water /cement Ratio-0.4)	KL	39.600	39.600	39.600	60.30	2387.88	2387.88	2387.88	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1119080.982	1119080.982	1119080.982	
		Per cum Basic cost of Labour, Material &						3108.56	3108.56	3108.56	
		Machinery (a+b+c)/360					say	**3108.60**	**3108.60**	**3108.60**	
21.04		**PCC Grade M20 Using Batching Plant**									
		Unit = cum									
		Taking output = 360 cum									
		a) Materials									
		Cement	tonne	123.840	123.840	123.840	6328.00	783659.52	783659.52	783659.52	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	129.600	129.600	129.600	992.33	128605.968	128605.968	128605.968	M-054
		20 mm Aggregate	cum	129.600	129.600	129.600	1207.76	156525.696	156525.696	156525.696	M-052
		10 mm Aggregate	cum	64.800	64.800	64.800	595.16	38566.368	38566.368	38566.368	M-050
		Cost of water (Water /cement Ratio-0.4)	KL	49.536	49.536	49.536	60.30	2987.0208	2987.0208	2987.0208	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1270979.267	1270979.27	1270979.267	
		Per cum Basic cost of Labour, Material & Machinery (a+b+c)/360						**3530.50**	**3530.50**	**3530.50**	
21.05		**RCC Grade M20 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	124.980	124.980	124.980	6328.00	790873.44	790873.44	790873.44	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Cost of water	KL	49.952	49.952	49.952	60.30	3012.1056	3012.1056	3012.1056	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.0	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1266441.52	1266441.52	1266441.52	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360						3517.89	3517.89	3517.89	
							say	**3517.90**	**3517.90**	**3517.90**	

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
21.06		**PCC Grade M25 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	143.850	143.850	143.850	6328.00	910282.8	910282.8	910282.8	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	129.600	129.600	129.600	992.33	128605.968	128605.968	128605.968	M-054
		20 mm Aggregate	cum	129.600	129.600	129.600	1207.76	156525.696	156525.696	156525.696	M-052
		10 mm Aggregate	cum	64.800	64.800	64.800	595.16	38566.368	38566.368	38566.368	M-050
		Cost of water	KL	57.540	57.540	57.540	60.30	3469.662	3469.662	3469.662	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1398085.188	1398085.188	1398085.188	
								3883.57	3883.57	3883.57	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360					**say**	**3883.60**	**3883.60**	**3883.60**	
21.07		**RCC Grade M25 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	145.140	145.140	145.140	6328.00	918445.92	918445.92	918445.92	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 0.2**% of cement	kg	290.280	290.280	290.280	29.00	8418.12	8418.12	8418.12	M-182
		Cost of water	KL	58.056	58.056	58.056	60.30	3500.7768	3500.7768	3500.7768	M-191

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1402920.79	1402920.79	1402920.79	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360						3897.00	3897.00	3897.00	
							say	**3897.00**	**3897.00**	**3897.00**	
21.08		**PCC Grade M30 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	145.800	145.800	145.800	6328.00	922622.4	922622.4	922622.4	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	129.600	129.600	129.600	992.33	128605.968	128605.968	128605.968	M-054
		20 mm Aggregate	cum	129.600	129.600	129.600	1207.76	156525.696	156525.696	156525.696	M-052
		10 mm Aggregate	cum	64.800	64.800	64.800	595.16	38566.368	38566.368	38566.368	M-050
		Cost of water	KL	58.320	58.320	58.320	60.30	3516.696	3516.696	3516.696	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
								1410471.82	1410471.82	1410471.82	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360						3917.98	3917.98	3917.98	
							say	**3918.00**	**3918.00**	**3918.00**	
21.09		**RCC Grade M30 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	146.400	146.400	146.400	6328.00	926419.2	926419.2	926419.2	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 0.3**% of cement	kg	439.200	439.200	439.200	29.00	12736.8	12736.8	12736.8	M-182
		Cost of water	KL	58.560	58.560	58.560	60.30	3531.168	3531.168	3531.168	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1415243.14	1415243.14	1415243.14	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360						3931.23	3931.23	3931.23	
							say	**3931.20**	**3931.20**	**3931.20**	
21.10		**PCC Grade M35 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		a) Materials									
		Cement	tonne	150.840	150.840	150.840	6328.00	954515.52	954515.52	954515.52	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 0.3**% of cement	kg	452.520	452.520	452.520	29.00	13123.08	13123.08	13123.08	M-182
		Cost of water	KL	60.336	60.336	60.336	60.30	3638.2608	3638.2608	3638.2608	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1443832.83	1443832.83	1443832.83	
		Per cum Basic cost of Labour,Material&						4010.65	4010.65	4010.65	
		Machinery(a+b+c)/360					**say**	**4010.60**	**4010.60**	**4010.60**	
21.11		**RCC GradeM35 Using Batching plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	151.920	151.920	151.920	6328.00	961349.76	961349.76	961349.76	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 0.4**% of cement	kg	607.680	607.680	607.680	29.00	17622.72	17622.72	17622.72	M-182
		Cost of water	KL	60.768	60.768	60.768	60.30	3664.3104	3664.3104	3664.3104	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1455192.76	1455192.76	1455192.76	
		Per cum Basic cost of Labour,Material&						4042.20	4042.20	4042.20	
		Machinery(a+b+c)/360					**say**	**4042.20**	**4042.20**	**4042.20**	
21.12		**RCC Grade M40 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	154.800	154.800	154.800	6328.00	979574.4	979574.4	979574.4	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture @ **0.8**% of cement	kg	1238.400	1238.400	1238.400	29.00	35913.6	35913.6	35913.6	M-182
		Cost of water	KL	61.920	61.920	61.920	60.30	3733.776	3733.776	3733.776	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1491777.75	1491777.75	1491777.75	
		Per cum Basic cost of Labour,Material&						4143.83	4143.83	4143.83	
		Machinery(a+b+c)/360					**say**	**4143.80**	**4143.80**	**4143.80**	

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
21.13		**RCC Grade M45 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	154.800	154.800	154.800	6328.00	979574.4	979574.4	979574.4	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 1** % of cement	kg	1548.000	1548.000	1548.000	29.00	44892	44892	44892	M-182
		Cost of water	KL	61.920	61.920	61.920	60.30	3733.776	3733.776	3733.776	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1500756.15	1500756.15	1500756.15	
		Per cum Basic cost of Labour,Material&						4168.77	4168.77	4168.77	
		Machinery(a+b+c)/360					**say**	**4168.80**	**4168.80**	**4168.80**	
21.14		**RCC Grade M50 Using Batching Plant**									
		Unit= cum									
		Taking output=360 cum.									
		a) Materials									
		Cement	tonne	154.800	154.800	154.800	6328.00	979574.4	979574.4	979574.4	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 0.8** % of cement	kg	1238.400	1238.400	1238.400	29.00	35913.6	35913.6	35913.6	M-182

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Silica Fume @ 5% of cement	kg	7740.000	7740.000	7740.000	28.36	219506.4	219506.4	219506.4	M-199
		Cost of water	KL	61.920	61.920	61.920	60.30	3733.776	3733.776	3733.776	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1711284.15	1711284.15	1711284.15	
		Per cum Basic cost of Labour,Material&						4753.57	4753.57	4753.57	
		Machinery(a+b+c)/360					**say**	**4753.60**	**4753.60**	**4753.60**	
21.15		**RCC Grade M55 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	158.400	158.400	158.400	6328.00	1002355.2	1002355.2	1002355.2	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 1** % of cement	kg	1267.200	1267.200	1267.200	29.00	36748.8	36748.8	36748.8	M-182
		Silica Fume @ 5% of cement	kg	7920.000	7920.000	7920.000	28.36	224611.2	224611.2	224611.2	M-199
		Cost of water	KL	63.360	63.360	63.360	60.30	3820.608	3820.608	3820.608	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1740091.78	1740091.78	1740091.78	
								4833.59	4833.59	4833.59	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360					**say**	**4833.60**	**4833.60**	**4833.60**	
21.16		**RCC Grade M60 Using Batching Plant**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	160.200	160.200	160.200	6328.00	1013745.6	1013745.6	1013745.6	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 1** % of cement	kg	1281.600	1281.600	1281.600	29.00	37166.4	37166.4	37166.4	M-182
		Silica Fume @ 5% of cement	kg	9612.000	9612.000	9612.000	28.36	272596.32	272596.32	272596.32	M-199
		Cost of water	KL	64.080	64.080	64.080	60.30	3864.024	3864.024	3864.024	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1799928.32	1799928.32	1799928.32	
								4999.80	4999.80	4999.80	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360					**say**	**4999.80**	**4999.80**	**4999.80**	
21.17		**RCC Grade M65 Using Batching Plant**									
		Unit= cum									

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	162.000	162.000	162.000	6328.00	1025136	1025136	1025136	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		20 mm Aggregate	cum	194.400	194.400	194.400	1207.76	234788.544	234788.544	234788.544	M-052
		10 mm Aggregate	cum	129.600	129.600	129.600	595.16	77132.736	77132.736	77132.736	M-050
		Admixture **@ 1** % of cement	kg	1296.000	1296.000	1296.000	29.00	37584	37584	37584	M-182
		Silica Fume @ 5% of cement	kg	9720.000	9720.000	9720.000	28.36	275659.2	275659.2	275659.2	M-199
		Cost of water	KL	64.800	64.800	64.800	60.30	3907.44	3907.44	3907.44	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1814842.61	1814842.61	1814842.61	
								5041.23	5041.23	5041.23	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360					**say**	**5041.20**	**5041.20**	**5041.20**	
21.18	**601**	**A DLC Using Batching Plant -240 cum capacity Plant.**									
		Unit= cum									
		Taking output= 450 cum									
		a) Materials									
		Cement @150 kg /cum of concrete	tonne	67.500	67.500	67.500	6328.00	427140	427140	427140	M-081
		Coarse sand as per IS: 383 @0.45 cum /cum of concrete	cum	202.500	202.500	202.500	577.80	117004.5	117004.5	117004.5	M-004*

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table600-1@0.90cum/cum of concrete confirming to clause602.2.6	cum	405.000	405.000	405.000	901.46	365091.3	365091.3	365091.3	M-045
		Cost of water(Water /cement Ratio -0.4)	KL	27.000	27.000	27.000	60.30	1628.1	1628.1	1628.1	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 240 cum /hour	hour	2.500	2.500	2.500	5733.00	14332.50	14332.50	14332.50	PM19001
		Generator 250 KVA	hour	2.500	2.500	2.500	3130.00	7825.00	7825.00	7825.00	PM22004
		Loader 3.1cum capacity	hour	10.848	10.848	10.848	3506.00	38033.09	38033.09	38033.09	PM5001
								972709.008	972709.008	972709.008	
								2161.58	2161.58	2161.58	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/450					**say**	**2161.60**	**2161.60**	**2161.60**	
21.18	**601**	**B Dry Lean Concrete Sub -base Fly ash (Using Batching Plant) -240 cum capacity Plant**									
		Unit= cum									
		Taking output= 450 cum									
		a) Materials									
		Cement @129 kg /cum of concrete	tonne	57.860	57.860	57.860	6328.00	366138.08	366138.08	366138.08	M-081
		Coarse sand as per IS: 383 @0.45 cum /cum of concrete	cum	202.500	202.500	202.500	577.80	117004.5	117004.5	117004.5	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table600-1@0.90cum/cum of concrete confirming to clause602.2.6	cum	405.000	405.000	405.000	901.46	365091.3	365091.3	365091.3	M-045
		Fly ash conforming to IS:3812-1966 (Part -I)	cum	9.640	9.640	9.640	0.00	0	0	0	M-010
		Cost of water(Water /cement Ratio -0.4)	KL	23.144	23.144	23.144	60.30	1395.5832	1395.5832	1395.5832	M-191

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 240 cum /hour	hour	2.500	2.500	2.500	5733.00	14332.50	14332.50	14332.50	PM19001
		Generator 250 KVA	hour	2.500	2.500	2.500	3130.00	7825.00	7825.00	7825.00	PM22004
		Loader 3.1cum capacity	hour	10.848	10.848	10.848	3506.00	38033.09	38033.09	38033.09	PM5001
								911474.571	911474.571	911474.5712	
								2025.50	2025.50	2025.50	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/450					**say**	**2025.50**	**2025.50**	**2025.50**	
	Note	Quantity provided for aggregate is for estimating purpose. Exact quantity shall be as per mix design.									
		***Calculation of cement and fly ash**									
		Cement @ 150 kg/cum= 450x150 =67.500 tonnes									
		20 percent of cement to be replaced by fly ash =13.50 tonnes									
		Balance cement =54.0 tonnes									
		Quantity of fly ash =13.50x specific gravity of fly ash /specific gravity of cement =13.50x 2.25/3.15 =9.64 tonnes									
21.18	**601**	**C DLC Using Batching Plant -120 cum capacity Plant**									
		Unit= cum									
		Taking output= 450 cum									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		a) Materials									
		Cement @150 kg /cum of concrete	tonne	67.500	67.500	67.500	6328.00	427140	427140	427140	M-081
		Coarse sand as per IS: 383 @0.45 cum /cum of concrete	cum	202.500	202.500	202.500	577.80	117004.5	117004.5	117004.5	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table600-1@0.90 cum/cum of concrete confirming to clause602.2.6	cum	405.000	405.000	405.000	901.46	365091.3	365091.3	365091.3	M-045
		Cost of water(Water /cement Ratio -0.4)	KL	27.000	27.000	27.000	60.30	1628.1	1628.1	1628.1	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	5.000	5.000	5.000	3672.00	18360.00	18360.00	18360.00	PM19002
		Generator 250 KVA	hour	5.000	5.000	5.000	3130.00	15650.00	15650.00	15650.00	PM22004
		Loader 3.1cum capacity	hour	10.848	10.848	10.848	3506.00	38033.09	38033.09	38033.09	PM5001
								984561.508	984561.508	984561.508	
								2187.91	2187.91	2187.91	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/450					**say**	**2187.90**	**2187.90**	**2187.90**	
21.18	**601**	**D Dry Lean Concrete Sub -base Fly ash (Using Batching Plant) -120 cum capacity Plant**									
		Unit= cum									
		Taking output= 450 cum									
		a) Materials									
		Cement @129 kg/cum of concrete	tonne	57.860	57.860	57.860	6328.00	366138.08	366138.08	366138.08	M-081

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Coarse sand as per IS: 383 @0.45 cum /cum of concrete	cum	202.500	202.500	202.500	577.80	117004.5	117004.5	117004.5	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table600-1@0.90 cum/cum of concrete confirming to clause602.2.6	cum	405.000	405.000	405.000	901.46	365091.3	365091.3	365091.3	M-045
		Fly ash conforming to IS:3812-1966 (Part -I)	tonne	9.640	9.640	9.640	0.00	0	0	0	M-010
		Cost of water(Water /cement Ratio -0.4)	KL	23.144	23.144	23.144	60.30	1395.58	1395.58	1395.58	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	5.000	5.000	5.000	3672.00	18360.00	18360.00	18360.00	PM19002
		Generator 250 KVA	hour	5.000	5.000	5.000	3130.00	15650.00	15650.00	15650.00	PM22004
		Loader 3.1cum capacity	hour	10.848	10.848	10.848	3506.00	38033.09	38033.09	38033.09	PM5001
								923327.071	923327.071	923327.071	
								2051.84	2051.84	2051.84	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/450					**say**	**2051.80**	**2051.80**	**2051.80**	
	Note	Quantity provided for aggregate is for estimating purpose. Exact quantity shall be as per mix design.									
		***Calculation of cement and fly ash**									
		Cement @ 150 /kg cum 450x150 =67.500 tonnes									
		20 percent of cement to be replaced by fly ash =13.50 tonnes									
		Balance cement =54.0 tonnes									

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Quantity of fly ash =13.50x specific gravity of fly ash /specific gravity of cement =13.50x 2.25/3.15 =9.64 tonnes									
21.19	**602**	**A PQC M 35 grade Using Batching Plant-240 cum capacity plant**									
		Unit= cum									
		Taking output= 900 cum									
		a) Materials									
		Cement @400 kg /cum of concrete	tonne	360.000	360.000	360.000	6328.00	2278080	2278080	2278080	M-081
		Coarse sand as per IS: 383 and confirming to clause 602.2.6. @0.45 cum /cum of concrete	cum	405.000	405.000	405.000	577.80	234009	234009	234009	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal size @0.90 cum/cum of concrete confirming to clause 602.2.6	cum	810.000	810.000	810.000	901.46	730182.6	730182.6	730182.6	M-045
		Admixture @ 0.5% of cement	kg	1800.000	1800.000	1800.000	29.00	52200	52200	52200	M-182
		Cost of water	KL	144.000	144.000	144.000	60.30	8683.2	8683.2	8683.2	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 240 cum /hour	hour	5.000	5.000	5.000	5733.00	28665.00	28665.00	28665.00	PM19001
		Generator 250 KVA	hour	5.000	5.000	5.000	3130.00	15650.00	15650.00	15650.00	PM22004
		Loader 3.1cum capacity	hour	21.696	21.696	21.696	3506.00	76066.18	76066.18	76066.18	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	5.000	5.000	5.000	1935.00	9675.00	9675.00	9675.00	PM34001
								3434865.50	3434865.50	3434865.50	
								3816.52	3816.52	3816.52	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/900					**say**	**3816.50**	**3816.50**	**3816.50**	

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
21.19	602	**B PQC M 35 grade Using Batching Plant-240 cum capacity(Cement-Fly ash)**									
		Unit= cum									
		Taking output= 900 cum									
		a) Material									
		Cement	tonne	306.000	306.000	306.000	6328.00	1936368	1936368	1936368	M-081
		Fly ash confirming to IS 3812(Part-I)	tonne	93.000	93.000	93.000	0.00	0	0	0	M-010
		Coarse sand	cum	364.500	364.500	364.500	577.80	210608.1	210608.1	210608.1	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal size @0.90 cum/cum of concrete confirming to clause 602.2.6.	cum	810.000	810.000	810.000	901.46	730182.6	730182.6	730182.6	M-045
		Admixture @ 0.5% of cement	kg	1530.000	1530.000	1530.000	29.00	44370	44370	44370	M-182
		Cost of water	KL	122.400	122.400	122.400	60.30	7380.72	7380.72	7380.72	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 240 cum /hour	hour	5.000	5.000	5.000	5733.00	28665.00	28665.00	28665.00	PM19001
		Generator 250 KVA	hour	5.000	5.000	5.000	3130.00	15650.00	15650.00	15650.00	PM22004
		Loader 3.1cum capacity	hour	20.973	20.973	20.973	3506.00	73531.34	73531.34	73531.34	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	5.000	5.000	5.000	1935.00	9675.00	9675.00	9675.00	PM34001
								3058085.28	3058085.28	3058085.28	
								3397.87	3397.87	3397.87	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/900					**say**	**3397.90**	**3397.90**	**3397.90**	
	Note	1.The quantities for cement ,Coarse aggregate and fine aggregates are for estimating only. The exact quantities will be as per mix design.									

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		2.IRC: 68 may be refferred for guidelines on the design of cement-fly ash concrete rigid pavement construction.									
		***Calculation of cement and fly ash**									
		Cement @ 400 kg /cum= 900x 400=360 tonnes.									
		15 percent of cement to be replaced by fly ash 54.0 tonnes									
		Balance cement =306.00 tonnes.									
		Quantity of fly ash =54.000x specific gravity of fly ash /specificgravity of cement =54.00x 2.25/3.15 =38.571 tonnes.									
		Sand @0.45 cum /of concrete =900x0.45 =405x1.6 =648 tonnes.10 percent to be replaced by Fly ash									
		Balanced sand = 648x0.9=583.2 tonnes=583.2/1.6=364.5cum									
		Quantity of fly ash =(648-583.2) x specific gravity of fly ash /specificgravity of sand=64.8 x 2.25 / 2.687 = 54.26 tonnes.									
		Fly ashTotal fly ash=38.571+54.26=92.831 tonnes.(Say 93 tonnes)									
21.19	**602**	**C PQC M 35 grade Using Batching Plant-120 cum capacity**									
		Unit= cum									
		Taking output= 900 cum									
		a) Materials									

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Cement @400 kg /cum of concrete	tonne	360.000	360.000	360.000	6328.00	2278080	2278080	2278080	M-081
		Coarse sand as per IS:383 and confirming to clause 602.2.6..@0.45cum/cum of concrete.	cum	405.000	405.000	405.000	577.80	234009	234009	234009	M-004*
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal size @0.90 cum/cum of concrete confirming to clause 602.2.6.	cum	810.000	810.000	810.000	901.46	730182.6	730182.6	730182.6	M-045
		Admixture @ 0.5% of cement	kg	1800.000	1800.000	1800.000	29.00	52200	52200	52200	M-182
		Cost of water	KL	144.000	144.000	144.000	60.30	8683.2	8683.2	8683.2	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	10.000	10.000	10.000	3672.00	36720.00	36720.00	36720.00	PM19002
		Generator 250 KVA	hour	10.000	10.000	10.000	3130.00	31300.00	31300.00	31300.00	PM22004
		Loader 3.1cum capacity	hour	21.696	21.696	21.696	3506.00	76066.18	76066.18	76066.18	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	10.000	10.000	10.000	1935.00	19350.00	19350.00	19350.00	PM34001
								3468245.50	3468245.50	3468245.50	
								3853.61	3853.61	3853.61	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/900					**say**	**3853.60**	**3853.60**	**3853.60**	
21.19	**602**	**D PQC M 35 grade Using Batching Plant-120 cum capacity(Cement-Fly ash)**									
		Unit= cum									
		Taking output= 900 cum									
		a) Materials									
		Cement	tonne	306.000	306.000	306.000	6328.00	1936368	1936368	1936368	M-081
		Fly ash confirming to IS :3812(Part-I)	tonne	93.000	93.000	93.000	0.00	0	0	0	M-010
		Coarse sand	cum	364.500	364.500	364.500	577.80	210608.1	210608.1	210608.1	M-004*

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Crushed stone Coarse aggregate of 25 mm and 12.5 mm nominal size @0.90 cum/cum of concrete confirming to clause 602.2.6.	cum	810.000	810.000	810.000	901.46	730182.6	730182.6	730182.6	M-045
		Admixture @ 0.4% of cement	kg	1224.000	1224.000	1224.000	29.00	35496	35496	35496	M-182
		Cost of water	KL	122.400	122.400	122.400	60.30	7380.72	7380.72	7380.72	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	10.000	10.000	10.000	3672.00	36720.00	36720.00	36720.00	PM19002
		Generator 250 KVA	hour	10.000	10.000	10.000	3130.00	31300.00	31300.00	31300.00	PM22004
		Loader 3.1cum capacity	hour	20.973	20.973	20.973	3506.00	73531.34	73531.34	73531.34	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	10.000	10.000	10.000	1935.00	19350.00	19350.00	19350.00	PM34001
								3082591.28	3082591.28	3082591.28	
								3425.10	3425.10	3425.10	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/900					**say**	**3425.10**	**3425.10**	**3425.10**	
	Note	1.The quantities for cement ,Coarse aggregate and fine aggregate are for estimating only. The exact quantities will be as per mix design.									
		2.IRC: 68 may be refferred for guidelines on the design of cement -fly ash concrete for rigid pavement construction.									
		***Calculation of cement and fly ash**									
		Cement @ 400 kg /cum= 900x 400 =360 tonnes.									

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		15 percent of cement to be replaced by fly ash =54.0 tonnes									
		Balance cement =306.00 tonnes.									
		Quantity of fly ash =54.000x specific gravity of fly ash /specific gravity of cement =54.000x 2.25/3.15 =38.571 tonnes.									
		Sand @0.45 cum /cum of concrete =900x0.45 =405x1.6 =648 tonnes.									
		10 percent to be replaced by Fly ash.									
		Balance sand = 648x0.9=583.2. tonnes =583.2/1.6 =364.5 cum.									
		Quantity of fly ash =(648-583.2)x specific gravity of fly ash /specfic gravity of sand =64.8x2.25/2.687=54.26 tonnes									
		Total fly ash =38.571+54.26= 92.831 tonnes.(Say93tonnes)									
21.20	**409**	**PCC Grade M15 grade Using Batching Plant for Kerb**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	99.000	99.000	99.000	6328.00	626472	626472	626472	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	194.400	194.400	194.400	992.33	192908.952	192908.952	192908.952	M-054
		20 mm Aggregate	cum	97.200	97.200	97.200	1207.76	117394.272	117394.272	117394.272	M-052
		10 mm Aggregate	cum	32.400	32.400	32.400	595.16	19283.184	19283.184	19283.184	M-050
		Cost of water (Water /cement Ratio-0.4)	KL	39.600	39.600	39.600	60.30	2387.88	2387.88	2387.88	M-191

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /hour	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1119080.98	1119080.98	1119080.98	
								3108.56	3108.56	3108.56	
		Per cum Basic cost of Labour,Material& Machinery(a+b+c)/360					**say**	**3108.60**	**3108.60**	**3108.60**	
21.21	**409**	**PCC Grade M20 grade Using Batching Plant for Kerb**									
		Unit= cum									
		Taking output= 360 cum									
		a) Materials									
		Cement	tonne	123.840	123.840	123.840	6328.00	783659.52	783659.52	783659.52	M-081
		Coarse sand	cum	162.000	162.000	162.000	577.80	93603.6	93603.6	93603.6	M-004*
		40 mm Aggregate	cum	129.600	129.600	129.600	992.33	128605.968	128605.968	128605.968	M-054
		20 mm Aggregate	cum	129.600	129.600	129.600	1207.76	156525.696	156525.696	156525.696	M-052
		10 mm Aggregate	cum	64.800	64.800	64.800	595.16	38566.368	38566.368	38566.368	M-050
		Cost of water (Water /cement Ratio-0.4)	KL	49.536	49.536	49.536	60.30	2987.0208	2987.0208	2987.0208	M-191
		b) Labour									
		Mate	day	0.160	0.160	0.160	397.00	63.52	63.52	63.52	L-12
		Skilled Mazdoor	day	1.000	1.000	1.000	472.00	472.00	472.00	472.00	L-15
		Mazdoor	day	3.000	3.000	3.000	373.00	1119.00	1119.00	1119.00	L-13
		c) Machinery									
		Batching plant of capacity 120 cum /cum	hour	4.000	4.000	4.000	3672.00	14688.00	14688.00	14688.00	PM19002
		Generator 250 KVA	hour	4.000	4.000	4.000	3130.00	12520.00	12520.00	12520.00	PM22004
		Loader 3.1cum capacity	hour	8.679	8.679	8.679	3506.00	30428.57	30428.57	30428.57	PM5001

Analysis of Rate

SUB-ANALYSIS OF CONCERTE /MORTAR RATE

Sr. No	Ref. To M.	Description	Unit	Quantity as per project category			Rate (Rs.)	Amount			Remarks
				Large	Medium	Small		Large	Medium	Small	
		Transit truck agitator									
		For loading & unloading time	hour	4.000	4.000	4.000	1935.00	7740.00	7740.00	7740.00	PM34001
								1270979.27	1270979.27	1270979.27	
		Per cum Basic cost of Labour,Material&						3530.50	3530.50	3530.50	
		Machinery(a+b+c)/360					**say**	**3530.50**	**3530.50**	**3530.50**	
21.22		**Cost of water**									
		Unit =KL									
		Taking output= 12 KL									
		a) Labour									
		Mate	day	0.005	0.005	0.005	397.00	1.99	1.99	1.99	L-12
		Mazdoor	day	0.133	0.133	0.133	373.00	49.61	49.61	49.61	L-13
		b) Machinery									
		Centrifugal water pump (600LMP)	hour	0.533	0.533	0.533	263.00	140.18	140.18	140.18	PM78001
		Water tanker 12 KL	hour	0.533	0.533	0.533	997.00	531.40	531.40	531.40	PM11002
		Cost for 12 KL =a+b						723.17	723.17	723.17	
		Rate per KL= (a+b) /12						60.26	60.26	60.26	
							say	**60.30**	**60.30**	**60.30**	

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
भवन निर्माण विभाग,
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
ग्रामीण कार्य विभाग,
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लघु जल संसाधन विभाग,
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह– मुख्य अभियंता (असै॰)
बिहार स्टेट पावर होल्डिंग कम्पनी लि॰
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता(विधुत)
भवन निर्माण
विभाग,बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
तकनीकी परीक्षक कोषांग निगरानी विभाग,
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार,पटना।

सदस्य,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
(मुख्यालय) जल संसाधन विभाग,
बिहार,पटना।

संयोजक,
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख,(मुख्यालय)
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Printed by : Kishori Enterprises, Patna # 9431003479, 9431623376