



# **BHOPAL SMART CITY DEVELOPMENT CORPORATION LIMITED**



## **REQUEST FOR PROPOSAL**

**2017**

### **“Construction of Boulevard Street Road & Utility tunnel under Area Based Development”**

**Prepared by**

**Approved by**

**Recommended by**

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# SECTION-1

## NOTICE INVITING TENDER

**Bhopal Smart City Development Corporation Limited**  
**NOTICE INVITING e-TENDER (NIT)**

BSCDCL invites online percentage rate /item rate tender as per schedule as under:

Tendering Document No.	:	MPBSCDCL/TENDER NO -22
Name of the Work	:	Construction of Boulevard Street Road & Utility tunnel under Area Based Development
Brief Scope of Work	:	Design ,Engineering ,Procurement and Construction of Boulevard Street with Utility Tunnel under Smart city Area Based Development
Estimated Cost	:	45,85,27,735( Forty Five Crore Eighty Five Lakhs twenty seven thousand seven hundred thirty five Rupees)
Period of Completion	:	11 Months including raining season
Earnest Money Deposit	:	22,92,638/- (Rs. Twenty Two Lakhs Ninety two thousand six hundred thirty eight rupees)
Non-refundable cost of e- Tender Document	:	50,000/-(Rs. Fifty thousand only)
Purchase of Tender Start Date	:	25/04/2017 by 18.00 Hrs
Purchase of Tender End Date	:	30/05/2017 by 15.00 Hrs
Last date & time of submission of Online Tender( Bid Submission)	:	31/05/2017 by 17.30 Hrs
Period during which hard copy of the documents as per NIT shall be submitted.(With all technical credentials)	:	01/06/2017 by 15.00 Hrs
Date & Time of Opening of technical Tender	:	02/06/2017 by 11.00 Hrs
Date & Time of Opening of Financial Tender	:	Will be intimated later to successful Bidder
Validity of offer	:	90 days from the date of opening of price bid.
Pre-Tender Meeting & Venue	:	08/05/2017 at 12.00 Hrs. At BSCDCL, Bhopal Office

The tender document can be downloaded from [www.mpeproc.gov.in](http://www.mpeproc.gov.in) “**Corrigendum, if any, would appear only on the [www.mpeproc.gov.in](http://www.mpeproc.gov.in) web site and not to be published in any News Paper**”.

The tenderer if required may submit queries in writing on E-mail Id. [smartcitycell@bmconline.gov.in](mailto:smartcitycell@bmconline.gov.in) before **08.05.2017 up to 12.00 Noon**.

**ELIGIBILITY CRITERIA FOR BIDDER:**

- 1 Firm should be primarily engaged in construction activities including civil works and registered/ impaneled with MP govt. / GOI undertaking authorities.
- 2 The bidder shall have successfully completed similar works during the last seven years in Government departments/Government U/T's as mentioned below:

Three similar works each costing not less than 40% of the estimated cost put to tender

OR

Two similar works each costing not less than 50% of the estimated cost put to tender

OR

One similar work costing not less than 80% of the estimated cost. .

The contractor / firm shall submit Client certificate(s) in support of work experience which should show the nature of work done, the value of work, date of start, date of completion as per agreement, actual date of completion and satisfactory completion of work similar work means construction, structural (RCC & Steel) work and Road (Bitumen work).

Should have in-house capability for specified jobs and satisfactorily completed (Phase/Part completion of the scope of work in a contract shall not be considered.

3. The Average annual financial turnover for last 3 years(2013-14,2014-15,2015-16) shall be at least 30% of the estimated cost put to tender, Copies of balance sheets of last three financial years OR duly certified by a Chartered Accountant shall be submitted in support of the requisite financial Turnover.
4. Net worth should be positive in last three years.
5. Valid registration in Service Tax, VAT Registration, EPF Registration Certificate & PAN Card, TAN No.
6. Applications from Joint venture and Consortium members are not allowed Information regarding the constitution of the applicant/firm e.g. Proprietary, Partnership, Private Ltd. etc. along with proof of the same such as copies of registration/ partnership deed etc.

**MEMORANDUM**

Sl. No.	Description	Cl. No. of NIT/ITT/Clauses of Contract (CC)	Values/Description to be Applicable for Relevant Clause (S)	
1)	Name of Work		Construction of Boulevard Street Road & Utility tunnel under Area Based Development.	
2)	Client/Owner		Bhopal Smart City Development Corporation Ltd.	
3)	Type of Tender		Online percentage rate /Item rate	
4)	Earnest Money Deposit		22,92,484/- (Rs. Twenty Two Lakhs Ninety two thousand four hundred eighty four rupees)	
5)	Estimated Cost		45,84,96,690( Rs. Forty Five Crore Eighty Four Lakhs Ninety Six thousand six hundred ninety Rupees)	
6)	Time allowed for Completion of Work		11 Months including raining season.	
7)	Mobilization Advance		<b>10%</b> of contract value	
8)	Interest Rate of Mobilization Advance		Simple Interest Rate of 10 % Percent only) (Per Annum)	
9)	Schedule of rates applicable		Civil Works: UADD( Road and Bridges) UADD (Building Works) DSR 2016 (CPWD) , NONSOR	
10)	Validity of Tender		90 (Ninety) Days	
11)	Performance Guarantee		5.00 % (Five Percent Only) of contract value within 30 days from the issue of Letter of Award	
12)	Security Deposit/Retention Money		5.00% (Five Percent Only) of the gross value of each running bill.	
13)	Time allowed for starting the work		The date of start of contract shall be reckoned from 10 days after the date of agreement.	
14)	Deviation limit beyond as per tender document except foundation.		Building work as per requirement.	Annual repair & maintenance of buildings As per requirement.
			Note:-The Deviation Limit of Building Work shall also apply for combined works(Building).	
15)	Deviation limit beyond as per tender document shall apply for		Building work as per requirement	Annual repair & maintenance of buildings as per requirement



	Foundation		Note:-The Deviation Limit of Building Work shall also apply for combined works
16)	Escalation		All rates as per Bill of Quantities (BOQ) quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation shall be applicable on this contract
17)	Defects Liability Period		3 Years from the date of completion.

The intending tenderer must read the terms and conditions of BSCDCL carefully. He should only submit his tender if he considers himself eligible and he is in possession of all the documents required.

Information and Instructions for Tenderers posted on Website(s) shall form part of tender Document.

The Tender Document as uploaded can be viewed and downloaded free of cost by anyone including intending tenderer. But the tender can only be submitted after uploading the mandatory scanned documents such as:-

1. a) Proof of e-payment towards cost of tender document,
- b) Proof of online payment through e-portal [www.mpeproc.gov.in/](http://www.mpeproc.gov.in/) Bank Guarantee of any Nationalized or Commercial Scheduled Bank against in favor CEO, BSCDCL of EMD & All other documents shall be as per Notice Inviting e-tender.

List of Documents to be scanned and uploaded within the period of tender submission:

- a. Proof of online payment / Bank Guarantee of any Nationalized or all Commercial Scheduled Bank against EMD in favor of CEO, BSCDCL.
- b. Copy of documents related to qualifying requirement of bidders as per NIT clause.
- c. Letter of Acceptance of tender condition unconditional as per format enclosed in Annexure-II.
- d. Certificate of Financial Turnover duly certified by CA as indicated above.
- e. Valid service tax registration, EPF registration, VAT registration, Sales Tax registration, PAN No, TAN No
- f. Acknowledgement towards cost of tender fee submission
- g. All pages of all the Corrigendum (if any) duly signed by the authorized person.
- h. Affidavit as per "Appendix-O" of tender document.
- i. Acceptance letter and Affidavit/Undertaking for Blacklisting/ Debar.
- j. Should submit the list of tools plant and machinery.

If any condition or conditional rebate is offered by the tenderer, their tender shall summarily be rejected.

The tenderers are required to quote strictly as per terms and conditions, specifications, standards given in the tender documents and not to stipulate any deviations.

After submission of the tender the tenderer can re-submit revised tender any number of times but before last time and date of submission of tender as notified.

When it is desired by BSCDCL to submit revised financial tender then it shall be mandatory to submit revised financial tender. If not submitted then the tender submitted earlier shall become invalid. On opening date, the tenderer can login and see the tender opening process. Contractor can upload documents in the form of JPG format and PDF format.

Contractor to upload scanned copies of all the documents including valid service tax registration/EPF registration/VAT registration/Sales Tax registration, PAN NO. As stipulated in the tender document.

If the contractor is found ineligible after opening of tenders, his tender shall become invalid and cost of tender document and processing fee shall not be refunded.

If any discrepancy is noticed between the documents as uploaded at the time of submission of tender and hard copies as submitted physically by the contractor the tender shall become invalid and cost of tender document and processing fee shall not be refunded.

Notwithstanding anything stated above, BSCDCL reserves the right to assess the capabilities and capacity of the tenderer to perform the contract, in the overall interest of BSCDCL. In case, tenderer's capabilities and capacities are not found satisfactory, BSCDCL reserves the right to reject the tender.

#### **Instructions for financial bid submission-**

In case of Percentage Rate Tender, Contractor must ensure to quote single percentage rate in attached financial bid format. Quote should be in percentage higher or below on the SOR Rates the same is to quoted in the form of decimal only. For example if contractor wants to quote 5 percent higher then he have to quote 1.05 and if he wants to quote 5 [percent below he have to quote 0.95 in given column of financial bid sheet.

In case of Item Rate Tender, price shall be entered against each item in the Bill of Quantities / Schedule of Quantities. The cost of item against which the contractor has failed to enter a rate or price shall be deemed to be covered by rates and prices of other items in Bill of Quantities / Schedule of Quantities and no payment shall be made for the quantities executed for items against which rate has not been quoted by the contractor.

In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the tenderer, rate of such item shall be treated as "0" (ZERO).

- i. Financial Bid format is uploaded in Excel Format in [www.mpeproc.gov.in](http://www.mpeproc.gov.in). At the time of financial bidding, bidder is requested to download the file, and update the same.
- ii. For Non SOR items bidder can quote for individual item rates in respective financial bid sheet.
- iii. Bidders are requested to check final figure in all the totals of all sheets. BSCDCL is not responsible for errors in the financial bid document.
- iv. Bidders are required to upload the updated financial bid in the prescribed excel format in the [www.mpeproc.gov.in](http://www.mpeproc.gov.in) at the time of final financial bid submission.

# SECTION-2

## INSTRUCTIONS TO TENDERER

# Instruction to Tenderer (ITT)

## **A. GENERAL INSTRUCTIONS:**

### 2.1. General terms of Bidding-

2.1.1 No Bidder shall submit more than one BID for the Project.

2.1.2 The Feasibility Report / Preliminary Project Report of the Project has been assessed however the Bidders are expected to carry out their own surveys, investigations and other Preliminary examination of the Project before submitting their Bids. Nothing contained in the attached drawings/BOQ shall be binding on the BSCDCL nor confer any right on the Bidders, and the BSCDCL shall have no liability whatsoever in relation to or arising out of any or all contents of TENDER.

2.1.3 Notwithstanding anything to the contrary contained in this RFP, the Preliminary terms specified in the draft Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement.

2.1.4 The BID shall be furnished in the format exactly as per financial bid format. Technical Bid and Financial Bid. BID amount shall be indicated clearly in both figures and words, in Indian Rupees in prescribed format of Financial Bid and it will be signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

2.1.5 The Bidder shall deposit a BID Security (EMD) of 22,92,638/- (Rs. Twenty Two Lakhs Ninety two thousand six hundred thirty eight rupees) in accordance with the provisions of this RFP. The Bidder has to provide the BID Security (EMD) through online payment or in the form of a Bank Guarantee acceptable to the BSCDCL, as per format.

2.1.6 The validity period of the Bank Guarantee, shall not be less than 180 (one hundred and eighty) days from the BID Due Date, inclusive of a claim period of 60 (Sixty) days, and may be extended as may be mutually agreed between the BSCDCL and the Bidder.

2.1.7 The BID shall be summarily rejected if it is not accompanied by the BID Security. The BID Security shall be refundable no later than 150 (one hundred and fifty) days from the BID Due Date except in the case of the Selected Bidder whose BID Security shall be retained till it has provided a Performance Security under the Agreement.

2.1.8 The Bidder should submit a Power of Attorney as per the format, authorizing the signatory of the BID to commit the Bidder.

2.1.9 Any condition or qualification or any other stipulation contained in the BID shall render the BID liable to rejection as a non-responsive BID.

2.1.10 The BID and all communications in relation to or concerning the Bidding Documents and the BID shall be in English language.

2.1.11 The documents including this RFP and all attached documents, provided by the BSCDCL are and shall remain or become the property of the BSCDCL and are Transmitted to the Bidders solely for the purpose of preparation and the submission of a BID in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their BID.

2.1.12 The provisions of this Clause shall also apply mutatis mutandis to BIDs and all other documents submitted by the Bidders, and the BSCDCL will not return to the Bidders any BID, document or any information provided along therewith.

2.1.13 This RFP is not transferable.

2.1.14 Any award of Project pursuant to this RFP shall be subject to the terms of Bidding Documents and also fulfilling the criterion as mentioned in tender document.

2.1.15 While bidding is open to persons from any country, the following provisions shall apply then the Eligibility of such Bidder shall be subject to approval of the BSCDCL from national security and public interest perspective. The decision of the BSCDCL in this behalf shall be final and conclusive and binding on the Bidder. The holding or acquisition of equity or control, as above, shall include direct or indirect holding/acquisition, including by transfer, of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, the BSCDCL shall be guided by the principles, precedents and definitions contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 1997, or any substitute thereof, as in force on the date of such acquisition. The Bidder shall promptly inform the BSCDCL of any change in the shareholding, as above, and failure to do so shall render the Bidder liable for disqualification from the Bidding Process.

2.1.17 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the Purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.1.18 Any entity which has been barred by GOI or Govt. of Madhya Pradesh for the works of expressways, National highways, and the bar subsists as on the Bid Due Date, would not be eligible to submit the BID, bidder need to submit Affidavit regarding the same.

2.1.19 The BSCDCL reserves the right to reject an otherwise eligible bidder on the basis of the information provided in tender document. The decision of the BSCDCL in this case shall be final.

## **2.2 Eligibility and qualification requirements of Bidder**

### **2.2.1 For determining the eligibility of Bidder the following shall apply:**

(a) The Bidder may be a single entity or Consortium, coming together to implement the Project. However, no Bidder applying individually or as a member of a Consortium, as the case may be, can be member of another Bidder. The term Bidder used herein would apply to both a single entity and a Consortium.

(b) Bidder may be a natural person, private entity, or any combination of them with a formal intent to enter into a Consortium agreement or under an existing agreement to form a Consortium. A Consortium shall be eligible for consideration subject to the conditions.

(c) An Bidder shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified and liable for forfeiture of the BID Security or Performance Security as

the case may be. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:

(d) A Bidder shall be liable for disqualification and forfeiture of BID Security, if any legal, financial or technical adviser of the BSCDCL in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner formatters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the Agreement. In the even though such adviser is engaged by the selected Bidder or Contractor, as the case may be, after issue of the LOA or execution of the Agreement for matters related or incident alto the project, then notwithstanding anything to the contrary contained herein or in the LOA or the Agreement and without Prejudice to any other right or remedy or the BSCDCL, including the forfeiture and appropriation of the BID Security or Performance Security, as the case may be, which the BSCDCL may have there under or otherwise, the LOA or the Agreement, as the case may be, shall be liable to be terminated without the BSCDCL being liable in any manner whatsoever to the Selected Bidder or Contractor for the same. For the avoidance or doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this RFP. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.

#### Other Instructions-

	On line percentage rate tenders on behalf of Owner/Client are invited for the work of Construction of Boulevard Street Road with Utility Tunnel under Area Based Development.. for BSCDCL at Bhopal city. The pre-qualification / enlistment of the contractors should be valid on the last date of submission of tenders. In case the last date of submission of tender is extended, the pre-qualification of contractor should be valid on the original date of submission of tenders.
	The work is estimated to 45,84,96,690( Forty Five Crore Eighty Four Lakhs Ninety Six thousand six hundred ninety Rupees)however, is given merely as a rough guide.
	The tender document as uploaded can be seen on website <a href="http://www.mpeproc.gov.in">www.mpeproc.gov.in</a> and can be downloaded free of cost.
	<b>Mode of Submission:</b> <b>Earnest Money Deposit</b> Earnest Money Deposit of amount as mentioned in "NIT/ Memorandum (Annexure-I)" required to be submitted along with the tender shall be payable online through E-tendering portal <a href="http://www.mpeproc.gov.in">www.mpeproc.gov.in</a> through NEFT/RTGS. The EMD shall be valid for minimum period of 150 (One Hundred Fifty) days from last day of submission of Tender.
	The EMD of all unsuccessful tenderers will be returned within thirty (30) days of the Award of the contract to successful tenderer through online portal.
	Financial Bidding can be done through the excel sheet uploaded on <a href="http://www.mpeproc.gov.in">www.mpeproc.gov.in</a> , which contains four sheets: 1. UADD Road & Bridges 2012 2. UADD Building Works 2012 3. DSR 2016 4. NON SOR *BID to be quote 1 plus % above or below (for Example. If want to quote 5% above then write 1.05 and if want to quote 5% below then write 0.95) for SOR items. *Rates for NON SOR item can be filled in the NON SOR sheet

	<p>*Rates can be quoted in the yellow highlighted cell of the financial bid</p> <p>* Bidder should fill there company/organization name in the space provided (yellow section)</p>
	<p>Interested Bidder who wish to participate in the tender has also to make following payments through online payment e-proc portal only.</p> <p>Cost of Tender Document –<b>Rs. 50,000/-</b> To be submit online only/-</p> <p>e-Tender Processing Fee – As applicable for MPEPROC portal, Cost of Tender Document and, e-Tender Processing Fee online payment shall be payee online Copy of pre-qualification/enlistment letter and certificate of work experience (if required) and other documents as specified in the tender shall be scanned and uploaded to the e-Tendering website within the period of tender submission.</p>
	<p>Online technical tender documents submitted by intending tenderers shall be opened only of those tenderers, whose Earnest Money Deposit, Cost of Tender Document and e-Tender Processing Fee and other.</p>
	<p>The tender submitted shall become invalid if: The tenderer is found ineligible. The tenderer does not upload all the documents (including service tax registration/VAT registration/Sales Tax Registration) as stipulated in the tender document. If any discrepancy is noticed between the documents as uploaded at the time of submission of tender and hard copies as submitted physically in the office of tender opening authority.</p>
	<p><b>VALIDITY OF TENDER</b></p> <p>The tender for the works shall remain open for acceptance for a period of Ninety (90) days from the date of opening of financial tender. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the BSCDCL, then the BSCDCL shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money as aforesaid. Further the tenderers shall not be allowed to participate in the retendering process of work.</p>
	<p><b>ACCEPTANCE OF TENDER</b></p> <p>BSCDCL reserves the right to reject any or all the tenders in part or full without assigning any reason whatsoever. BSCDCL does not bind itself to accept the lowest tender. The BSCDCL reserves the right to award the work to a single party or split the work amongst two or more parties as deemed necessary without assigning any reason thereof. The Contractor is bound to accept the part work as offered by BSCDCL after split up at the quoted/negotiated rates.</p>
	<p>The tenders shall be strictly as per the conditions of contract. Tenders with any additional condition(s)/modifications shall be rejected.</p>
	<p>The witnesses to the Tender/Contract Agreement shall be other than the tenderer/ tenderers competing for this work and must indicate full name, address, and status/occupation with dated signatures.</p>
	<p>The acceptance of tender will rest with the BSCDCL who does not bind itself to accept the lowest tender and reserves to itself the right to reject any or all the tenders received without assigning any reason thereof. Tenders in which, any of the prescribed conditions are not fulfilled or found incomplete in any respect are liable to be rejected.</p>

	On acceptance of tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from Engineer-in-Charge or its authorized representative shall be intimated by the contractor within 07 days of issue date of letter of Awards by BSCDCL.
	The tenderer shall not be permitted to tender for works if his near relative is posted in the project office or concerned Office of the BSCDCL. The contractor shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any of the officers in BSCDCL. Any breach of this condition by the tenderer would render him liable to the withdrawal of the work awarded to him and forfeiture of Earnest Money and Security Deposit. This may also debar the contractor from tendering for future works under BSCDCL.
	For the purpose of operation of this clause a near relative shall mean wife, husband, parents, grandparents, children, grandchildren, brothers, sisters, uncles, aunts, cousins and their corresponding in-laws.
	The time of completion of the entire work, as contained in contract shall be as mentioned in "Memorandum - Annexure-I", which shall be reckoned from the 10th day after issue of the letter of Award by the BSCDCL.
	Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.
	The tender award, execution and completion of work shall be governed by tender documents consisting of (but not limited to) Letter of Award/Letter of work order, Bill of Quantities, Special Conditions of Contract, General Conditions of Contract, Specifications, Drawings. The tenderers shall be deemed to have gone through the various conditions including sub-soil water conditions, topography of the land, drainage and accessibility etc. or any other condition which in the opinion of contractor will affect his price/rates before quoting their rates. No claim whatsoever against the foregoing shall be entertained.
	The drawings with the tender documents are Tender Drawing and are indicative only.
	<b>ADDENDA/CORRIGENDA</b> Addenda/Corrigenda to the tender documents may be issued prior to the date of submission of the tender to clarify or effect modification in specification and/or contract terms included in various tender documents. The tenderer shall suitably take into consideration such Addenda/Corrigenda while submitting his tender. The tenderer shall return such Addenda/ Corrigenda duly signed and stamped as confirmation of its receipt & acceptance and submit along with the tender document. All addenda/ Corrigenda shall be signed and stamped on each page by the tenderer and shall become part of the tender and contract documents.
	<b>SITE VISIT AND COLLECTING LOCAL INFORMATION</b> Before tendering, the tenderers are advised to visit the site, its surroundings to assess and satisfy themselves about the local conditions such as the working and other constraints at site, approach roads to the site, availability of water & power supply, application of taxes, duties and levies as applicable & any other relevant information required by them to execute complete scope of work. The tenderer may obtain all necessary information as to risks, weather conditions, contingencies & other circumstances (insurgencies etc.) which may influence or affect their tender prices. Tenderer shall be deemed to have considered site conditions whether he has inspected it or not and to have satisfied himself in all respect



	before quoting his rates and no claim or extra charges whatsoever in this regard shall be entertained / payable by the BSCDCL at a later date.
	<p><b>ACCESS BY ROAD</b></p> <p>Contractor, if necessary, shall build temporary access roads to the actual site of construction for the works at his own cost to make the site accessible. The Contractor shall maintain the same in motorable condition at all the times as directed by Engineer-in-Charge at his own cost. The contractor shall be required to permit the use of any roads so constructed by him for vehicles of BSCDCL or any other agencies/ contractors who may be engaged on the project site, free of cost. Non-availability of access roads or approach to site, for the use of the contractor shall in no case condone any delay in the execution of work nor be the cause for any claim for compensation.</p>
	<p><b>HANDING OVER &amp; CLEARING OF SITE</b></p> <p>The Contractor should note that area for construction may be made available in phases as per availability and in conjunction with pace of actual progress of work at site. The work may be required to be carried out in constrained situations. The work is to be carried out in such a way that the traffic, people movement, if any, is kept operative and nothing extra shall be payable to the contractor due to this phasing / sequencing of the work. The contractor is required to arrange the resources to complete the entire project within total stipulated time. Traffic diversion, if required, is to be done and maintained as per requirement of local traffic police or/and as per specification, by the contractor at his own cost and the contractor shall not be entitled for any extra payment, whatsoever, in this regard.</p> <p>The efforts will be made by the BSCDCL to handover the site to the Contractor free of encumbrances. However, in case of any delay in handing over of the site to the Contractor, the BSCDCL shall only consider suitable extension of time for the execution of the work. It should be clearly understood that the BSCDCL shall not consider any revision in contract price or any other compensation whatsoever viz. towards idleness of contractor's labour, equipment etc. Old structures on the proposed site, if required, shall be demolished by the contractor properly at his own cost unless and otherwise mentioned elsewhere in the tender document. The useful material obtained from demolition of structures &amp; services shall be the property of the owner/BSCDCL and these materials shall be stacked in workmanship like at the place specified by the Engineer-in-charge.</p> <p>Necessary arrangement including its maintenance is to be made by the contractor for temporary diversion of flow of existing drain and road, as the case may be. The existing drain, road would be demolished, wherever required, with the progress of work under the scope of proposed project. The existing Road and Drain which are not in the alignment of the said project but are affected and/ or need to be demolished during execution for smooth progress of the project, shall be rehabilitated to its original status and condition (including black topping) by the contractor at his own cost. The cost to be incurred by contractor in this regard shall be deemed to be included in the quoted rates of the bill of quantity items and contractor shall not be entitled for any extra payment whatsoever in this regard.</p> <p>The information about the public utilities (whether over ground or underground) like electrical/ telephone/ water supply lines, OFC Cables, open drain etc. is the responsibility of contractor to ascertain the utilities that are to be affected by the works through the site investigation.</p>

	<p>The contractor shall be responsible to obtain necessary approval from the respective authorities for shifting/ re-alignment of existing public utilities. BSCDCL shall only assist the contractor for visioning in obtaining the approval from the concerned authorities.</p> <p>Any services affected by the works must be temporarily supported by the contractor who must also take all measures reasonably required by the various bodies to protect their services and property during the progress of works. It shall be deemed to be the part of the contract and no extra payment shall be made to the contractor for the same.</p>
	<p><b>SCOPE OF WORK</b></p> <p>The scope of work covered in this tender shall be as per the Bill of Quantities, specifications, drawings, instructions, orders issued to the contractor from time to time during the pendency of work. The drawings for this work, which may be referred for tendering, provide general idea only about the work to be performed under the scope of this contract. These may not be the final drawings and may not indicate the full range of the work under the scope of this contract. The work will be executed according to the drawings to be released as “GOOD FOR CONSTRUCTION” from time to time by the Engineer- in-charge of BSCDCL and according to any additions/ modifications/alterations/ deletions made from time to time, as required by any other drawings that would be issued to the contractor progressively during execution of work. It shall be the responsibility of the contractor to incorporate the changes that may be in this scope of work, envisaged at the time of tendering and as actually required to be executed.</p> <p>The quantities of various items as entered in the “BILL OF QUANTITIES” are indicative only and may vary depending upon the actual requirement. The contractor shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items specified in the bill of quantities. The variation of quantities will be governed as per conditions of contract.</p>
	<p><b>APPROVAL OF TEMPORARY / ENABLING WORKS</b></p> <p>The setting and nature of all offices, huts, access road to the work areas and all other temporary works as may be required for the proper execution of the works shall be subject to the approval of the Engineer- in-charge. All the equipment’s, labour, material including cement, reinforcement and the structural steel required for the enabling/ temporary works associated with the entire Contract-shall have to be arranged by the Contractor only. Nothing extra shall be paid to the Contractor on this account.</p>
	<p><b>CLARIFICATION AFTER TENDER SUBMISSION</b></p> <p>Tenderer’s attention is drawn to the fact that during the period, the tenders are under consideration, the tenderers are advised to refrain from contacting by any means, the BSCDCL and/or his employees/ representatives on matters related to the tender under consideration and that if necessary, BSCDCL will obtain clarifications in writing or as may be necessary. The tender evaluation and process of award of works is done by duly authorized Tender Scrutiny Committee and this committee is authorized to discuss and get clarification from the tenderers.</p>

**ORDER OF PRECEDENCE OF DOCUMENTS**

In case of difference, contradiction, discrepancy, with regard to conditions of contract, Specifications, Drawings, Bill of quantities etc. forming part of the contract, the following shall prevail in order of precedence.

Letter of Award, along with statement of agreed variations and its enclosures, if any.

Description of Bill of Quantity / Schedule of Quantities.

Special Condition of Contract.

Technical specifications (General, Additional and Technical Specification) as given in Tender documents.

General Conditions of Contract.

Drawings

CPWD/ MORTH specifications (as specified in Technical Specification of the Tender) update with correction slips issued up to last date of receipt of tenders.

Relevant B.I.S. Codes

## **ACCEPTANCE OF TENDER CONDITIONS**

From: (On the letter head of the company by the authorized officer having power of attorney)  
BSCDCL Limited,

\_\_\_\_\_

**Sub: Name of the work & NIT No.:**

Sir,

This has reference to above referred tender. I/We are pleased to submit our tender for the above work and I/We hereby unconditionally accept the tender conditions and tender documents in its entirety for the above work. I/we are eligible to submit the tender for the subject tender and I/We are in possession of all the documents required. I/We have viewed and read the terms and conditions of this GCC/SCC carefully. I/We have downloaded the following documents forming part of the tender document:

- a) Notice Inviting e-Tender. (pg- to pg- )
- b) Quoting Sheet for Tenderer (pg- to pg- )
- c) Instructions to Tenderers & General Conditions of Contract (Vol- I/2013) :(pg- to pg- )
- d) Technical Specifications (Vol-II) (pg- to pg- )
- e) Bill of Quantities (Vol-III) (pg- to pg- )
- f) Tender Drawing (pg- to pg- )
- g) Corrigendum, if any (pg- to pg- )

I/we have uploaded the mandatory scanned documents such as cost of tender document, EMD, e-Tender Processing Fee and other documents as per Notice Inviting e-tender AND I/We agree to pay the cost of tender document, EMD, e-Tender Processing Fee (only receipt/proof of online payment) and other documents in the form and manner as described in NIT/ITT .Should this tender be accepted, I/We agree to abide by and fulfill all terms and conditions referred to above and as contained in tender documents elsewhere and in default thereof, to forfeit and pay BSCDCL, or its successors or its authorized nominees such sums of money as are stipulated in the notice inviting tenders and tender documents. If I/we fail to commence the work within 10 days of the date of issue of Letter of Award and/or I/we fail to sign the agreement as per Clauses of Contract and/or I/we fail to submit performance guarantee as per Clauses of Contract, I/we agree that BSCDCL shall, without prejudice to any other right or remedy, be at liberty to cancel the Letter of Award and to forfeit the said earnest money as specified above.

Dated: \_\_\_\_\_

Yours faithfully,  
(Signature of the tenderer with rubber  
stamp)

## SECTION-3

# GENERAL CONDITIONS OF CONTRACT (GCC)

## CLAUSES OF CONTRACT (CC)

### DEFINITIONS

The Contract means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of BSCDCL and the contractor, together with the documents referred to therein including these conditions, the specifications,

Designs, drawings and instructions issued from time to time by the Engineer-in-Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

Bhopal Smart City Development Corporation Limited, hereinafter called 'BSCDCL' proposes to get the works executed as mentioned in the Contract on behalf of Owner/ Client as Implementing agency/Executing Agency.

- 3.1 In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:-

**APPROVAL** means approved in writing including subsequent written confirmation of previous verbal approval.

**BILL OF QUANTITIES or SCHEDULE OF QUANTITIES** means the priced and completed Bill of Quantities or Schedule of Quantities forming part of the tender.

**CONTRACTOR** shall mean the individual, firm, LLP or company, whether in corporate or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or LLP or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

**CONTRACT VALUE** means the sum for which the tender is accepted as per the letter of Award.

**DRAWINGS** mean the drawings referred to in the contract document including modifications if any and such other drawings as may from time to time be furnished and/ or approved by BSCDCL.

**DATE OF COMMENCEMENT OF WORK:** The date of start of contract shall be reckoned from 10 days after the date of issue of letter of Award.

**ENGINEER-IN-CHARGE** means the Engineer of BSCDCL who shall supervise and be in-charge of the work.

**LANGUAGE:** All documents and correspondence in respect of this contract shall be in English Language.

**“LETTER OF AWARD”** shall mean BSCDCL's letter or notification conveying its acceptance of the tender subject to such conditions as may have been stated There in.

**MONTH** means English Calendar month 'Day' means a Calendar day of 24 Hr  
**BSCDCL** shall means Bhopal Smart City Development Corporation Limited, a company registered under the Indian Company Act, with its registered office at Near

Tatpar Petrol Pump, Sector A, Berkheda, Bhopal, Madhya Pradesh 462023 or its Administrative officers or its engineer or other employees authorized to deal with any matter with which these persons are concerned on its behalf.

**OWNER/ CLIENT** means the Government, Organization, Ministry, Department, Society, Cooperative, etc. who has awarded the work/ project to BSCDCL and/ or appointed BSCDCL as Implementing / Executing Agency/ Project Manager and/ or for whom BSCDCL is acting as an agent and on whose behalf BSCDCL is entering into the contract and getting the work executed.

**SCHEDULE(s)** referred to in these conditions shall mean the standard schedule of rates of the government mentioned in the Memorandum (Annexure-I) with the amendments thereto issued up to the date of receipt of the tender.

**SITE** means the lands and other places on, under, in or through Which the works are to be executed or carried out and any other lands or places provided by BSCDCL/client/owner or used for the purpose of the contract.

**TENDER** means the Contractor's priced offer to BSCDCL for the execution and completion of the work and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Award or Award letter. The word TENDER is synonymous with Tender and the Word TENDER DOCUMENTS with "Tendering Documents" or "offer documents".

**WRITING** means any manuscript typed written or printed statement under or over signature and/or seal as the case may be.

**Works or Work** shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

The headings in the clauses/ conditions of tender documents are for convenience only and shall not be used for interpretation of the clause/ condition.

Words imparting the singular meaning only also include the plurals and vice versa where the context requires. Words importing persons or parties shall include firms and corporations and organizations having legal capacities.

**Excepted Risk** are risks due to riots (other than those on account of contractor's employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the BSCDCL or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to BSCDCL's faulty design of works.

**Market Rate** shall be the rate as decided by the Engineer-in-Charge on the basis of the prevailing cost of materials and labour at the site where the work is to be executed plus the percentage mentioned elsewhere in the tender document to cover, all overheads and profits.

#### **PERFORMANCE GUARANTEE:**

“Within 30 (Thirty) days from the date of issue of letter of Award or within such extended time as may be granted by BSCDCL in writing, the contractor shall submit to BSCDCL an irrevocable performance bank guarantee in the form appended, from any Nationalized Bank or all Commercial schedule bank equivalent to 5% (five per cent only) of the contract value for the due and proper execution of the Contract. The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of works gets extended, the contractor shall get the validity of Performance Guarantee extended to cover such extended time for completion of work.

BSCDCL reserve the right of forfeiture of the performance guarantee in the event of the contractor’s failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract.

Performance guarantee shall be returned after successful completion / testing / commissioning and handing over the project to the client up to the entire satisfaction of BSCDCL / Client.

In case the contractor fails to submit the performance guarantee of the requisite amount within the stipulated period or extended period, letter of Award automatically will stand withdrawn and EMD of the contractor shall be forfeited.

### **SECURITY DEPOSIT/ RETENTION MONEY**

The Security deposit or the retention money shall be deducted from each running bill of the contractor @ 5% (five per cent only) of the gross value of the Running Account bill. Earnest money shall be adjusted first in the security deposit and further recovery of security deposit shall commence only when the upto date amount of security deposit exceeds the earnest money deductible under this clause. No Interest shall be paid on amount so deducted.

Security deposit will be released after completion of defect liability period.

The release/refund of security deposit of the contractor shall be subject to the observance/compliance of the conditions as under and whichever is later:

- a) Expiry of the defect liability period in conformity with provisions contained in clause (Defect liability clause). The expiry of defect liability period shall be extended from time to time depending upon extension of time granted by BSCDCL.

The contractor produces a clearance certificate from the labour office. As soon as the work is virtually completed, the contractor shall apply for the labour clearance certificate to the Labour Officer under intimation to the Engineer-in-Charge. The Engineer-in-Charge, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending, on record till after 3 months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate.

- 3.2 BSCDCL reserves the right of part or full forfeiture of security deposit in addition to other claims in the event of contractor’s failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract.

### **MOBILIZATION ADVANCE**

Mobilization advance up to maximum of amount as mentioned in the

“Memorandum (Annexure-I)” shall be paid to the contractor, if requested by him, on submission of irrevocable Bank Guarantee valid for contract period of an amount 1.2 times of the mobilization advance to take care of advance and interest at prescribed



rate from a nationalized bank or all Commercial scheduled bank in the enclosed Performa. The Mobilization advance shall be interest bearing @ as mentioned in the "Memorandum (Annexure-I)".

This advance shall be paid in three installments as follows:

First Installment of fifty percent of total mobilization advance shall be paid after the agreement is signed and upon submission of performance guarantee for full amount as specified.

2nd installment of twenty five percent of total mobilization advance will be paid after the setting up of site office and site laboratory, complete mobilization of plant and machinery, scaffolding & shuttering materials etc.

The Balance twenty five percent of total mobilization advance shall be paid on completion of 10% of work in terms of cost and after the contractor has fully mobilized the work at site.

The mobilization advance bear simple interest at the rate as mentioned in the Memorandum (Annexure-I) and shall be calculated from the date of payment to the date of recovery (365 days in a year) both days inclusive, on the outstanding amount of advance. Recovery of such mobilization advanced including interest shall be made by the deduction from the contractor's bills commencing after first ten percent of the gross value of the work is executed and paid, on pro-rata percentage basis to the gross value of the work billed beyond 10% in such a way that the entire advance is recovered either by the time eighty percent of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of recovery of the installment or on expiry of eighty percent of contract period (i.e. time allowed for completion of work in terms of Memorandum-Annexure-I) whichever is earlier.

The bank guarantee submitted by contractor against mobilization advance shall initially be made for the full amount as mentioned in para 4.1 above

and valid for the contract period, and be kept renewed from time to time to cover the balance amount and likely period of completion of recovery together with interest. However, the contractor can submit part bank guarantees against the mobilization advance in as many numbers as per proposed number of recovery installments equivalent to the amount of each installment.

Notwithstanding what is contained above, no mobilization advance whatsoever shall be payable, if payment of mobilization advance is not mentioned in the Memorandum (Annexure-I).

### **SECURED ADVANCE AGAINST NON-PERISHABLE MATERIALS**

Interest free secured advance up-to a maximum of 75 % (seventy five percent) of the Market Value of the Materials or the 75 % (seventy five percent) cost of materials as derived from the tendered item rate of the contractor, whichever is less, required for incorporation in the permanent works and brought to site and duly certified by BSCDCL site Engineer shall be paid to the Contractor for all non-perishable items as per UADD/MPPWD/CPWD norms. The advance will be paid only on submission of Indemnity Bond in the prescribed pro-forma. The advance shall be recovered in full from next Running Account bill and fresh advance shall be paid for the balance quantities of materials. The contractor shall construct suitable go-down at the site of work for safe storage of the materials against any possible damages due to sun, rain, dampness, fire, theft etc. at his own cost. He shall also employ necessary watch & ward establishment for the purpose at his costs and risks.

Such secured advance shall also be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-in-Charge provided the contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-in-Charge shall be final and binding on the contractor in this matter. No secured advance shall however, be paid on high risk materials such as ordinary glass, sand, petrol, diesel etc.

## **DEVIATIONS / VARIATIONS EXTENT AND PRICING**

The Engineer-in-Charge shall have power (i) to make any alterations in, omissions from, additions to or substitutions for, the original specifications, drawings, designs and instructions that may appear to him to be necessary during the progress of the work, (ii) to omit part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions, or substitutions shall form part of the contract as if originally provided therein and any altered, additions or substituted works which the contractor may be directed to do in the manner specified above as part of the work, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereunder provided:

The time for the completion of the work shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered be extended, if requested by the contractor, as follows:

in the proportion which the additional cost of the altered, additional or substituted work bears to the original tendered value plus

25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

If the extra items includes any work for which no rate is specified in the contract, then such work shall be carried out at the rates entered in the

schedule of rates (as mentioned in Memorandum (Annexure-I)) for Civil Works minus/plus the percentage which the tendered amount of scheduled items bears with the estimated amount of schedule items based on the Schedule of Rates (as mentioned in Memorandum (Annexure-I) for Civil/ Sanitary Works). The scheduled item means the items appearing in the Schedule of Rates (as mentioned in Memorandum (Annexure-I)for Civil/ Sanitary Works) which shall be applicable in this clause. This clause will apply mutates mutandis to electrical work except that Electrical Schedule of Rates as mentioned in Memorandum (Annexure-I) will be considered in place of Civil works Schedule of rates as mentioned in Memorandum (Annexure-I)

However, In the case of extra item(s), (items that are completely new, and are in addition to the items contained in the contract, and not included in the schedule of rates (as mentioned in Memorandum (Annexure-I)), the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, for the work and the engineer-in-charge shall within one month of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para:

If the market rate for the substituted item so determined is more than the market rate of agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

If the market rate for the substituted item so determined is less than the market rate of the agreement (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)

In the case of contract item(s), substituted item(s), contract cum substituted items, which exceed the limits laid down in Memorandum (Annexure-I), the contractor shall within fifteen days of receipt of order of occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the scheduled of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the Contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Memorandum (Annexure-I), and the Engineer-in-charge shall after giving notice of the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

**3.3** The contractor shall send to the Engineer-in-Charge once every three months, an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right. However, the Engineer-in-charge may authorize consideration of such claims on merits.

For the purpose of operation of Memorandum (Annexure-I), the following works shall be treated as works relating to foundation unless and otherwise defined in the Contract:

For Buildings: All works up to 1.2 meters above ground level or up to floor 1 level whichever is lower.

For abutments, piers and well staining: All works upto 1.2m above the bed level.

For walls, compound walls, , and other elevated structures: All works upto 1.2 metres above the ground level.all items of excavation and filling including treatment of sub base.

Any operation incidental to or necessarily has to be in contemplation of tenderer while filling, tender or necessary for proper execution of the item

included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not specifically indicated in the description of the item and the relevant specifications shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule or rates as the case may be Nothing extra shall be admissible for such operations.

Market Rates to be determined as per various sub-clauses given in tender document shall be on the basis of Prevailing rates of Material (unless mentioned otherwise), Relevant Labour authority rate for Labour, market rates of T&P etc. plus 15% towards Contractors' Profits and Overheads.

The following factors may be considered in the justification of rates on which

Contractor's overhead & profit shall not be applicable:

Buildings and Other Construction Worker Cess as applicable in the state of work place

EPF (Employer Contribution) component, as per EPF act on the portion of labour's wages

VAT on works contract / WCT, as per composite scheme in the State of work place, if applicable Service Tax

## **ESCALATION**

No claim on account of any escalation on whatsoever ground shall be entertained at any stage of works. All rates as per Bill of Quantities (BOQ) quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation shall be applicable on this contract.

## **COMPENSATION FOR DELAY**

If the contractor fails to maintain the required progress in terms of clause or relevant clause of GCC & Special Conditions of Contract, to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the BSCDCL on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Engineer in charge (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day / week (as applicable) that the progress remains below that specified in Clause or the relevant clause in GCC & Special Conditions of Contract or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified

- i) Compensation for delay of work @ 1.5% per month delay to be computed on daily basis.

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the Tendered Value of work or of the Tendered Value of the item or group of items of work for which a separate period of completion is originally given. The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with BSCDCL.

In case, the contractor does not achieve a particular milestone mentioned elsewhere in the tender document, or the re-scheduled milestone(s) the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of Extension of Time. With-holding of this amount or failure to achieve a milestone, shall be automatic without any notice to the Contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

## **ACTION IN CASE WORK NOT DONE AS PER SPECIFICATIONS**

All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in-charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Assurance Unit of the BSCDCL or any organization engaged by the BSCDCL for Quality Assurance and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself. If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the officer of Quality Assurance or his subordinate officers or the officers of the organization engaged by the BSCDCL for Quality Assurance or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or articles provided by him for the execution

of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract, the contractor shall, on demand in writing which shall be made within twelve months of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as per conditions of contract (for non-completion of the work in time) for this default. In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the Engineer in charge may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

#### **ACTION IN CASE OF BAD WORK**

If it shall appear to the Engineer-in-Charge or his authorized representative in charge of the work or to the Chief Technical Examiner or to any other inspecting agency of Government/ State Government/ Owner where the work is being executed, that any work has been executed with unsound, imperfect, or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall on demand in writing which shall be made within twelve months of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, Certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid while the contractor failure to do so shall continue, the Engineer-in-Charge may rectify or remove and re-execute the work or remove and replace with others, the material or articles complained of as the case may be at the risk and expense in all respects of the contractor.

#### **CANCELLATION/DETERMINATION OF CONTRACT IN FULL OR PART**

Subject to other provisions contained in this clause the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, inferior workmanship, any claims for damages and / or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workmanlike manner shall omit to comply with the requirement of such notice for a period of seven days thereafter; or

If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure

completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge; or

If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge; or

If the contractor persistently neglects to carry out his obligations under the contract and / or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or

If the contractor shall offer or give or agree to give to any person in BSCDCL service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action relation to the obtaining or execution of this or any other contract for BSCDCL; or

If the contractor shall enter into a contract with BSCDCL in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Engineer-in-Charge; or

If the contractor shall obtain a contract with BSCDCL as a result of wrong tendering or other non-bona-fide methods of competitive tendering or commits breach of Integrity Pact; or If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or If the contractor being a company, shall pass a resolution or the Court shall make an order for the winding up of the company, or a receiver or manager on behalf of the debenture holders or otherwise shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days, or. If the contractor assigns, transfers, sublets (engagement of labour on a piece-work basis or of the labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer sublet or otherwise parts with the entire works or any portion thereof without and prior written approval of the Engineer-in-Charge.

When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge may without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to BSCDCL, by a notice in writing to cancel the contract as whole or only such items of work in default from the Contract, the Engineer-in-charge shall have powers:

Take possession of site and any materials, constructional plant, implements, stores, etc. thereon; and/ or Carry out the incomplete work by any means at the risk and cost of the contractor; and/ or

The Engineer-in-charge shall determine the amount, if any, is recoverable from the contractor for completion of the part work/part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by BSCDCL because of action under this clause shall not exceed 10% of the tendered value of the work.

To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the contractor under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination or rescission the full security deposit

recoverable under the contract and performance guarantee shall be liable to be forfeited and un-used materials, construction plants, implements, temporary buildings, etc. shall be taken over and shall be absolutely at the disposal of the BSCDCL. If any portion of the Security Deposit has not been paid or received it would be called for and forfeited; and/ or

To employ labour paid by the BSCDCL and to supply materials to carry out the work or any part of the work debiting the contractor with the cost of the labour and the price of the materials of the amount of which cost and price certified by the Engineer-in-Charge shall be final and conclusive) against the contractor and crediting him with the value of the work done in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Engineer-in- Charge as to the value of the work done shall be final and conclusive against the contractor provided always that action under the sub-clause shall only be taken after giving notice in writing to the contractor. If the expenses incurred by the BSCDCL are less than the amount payable to the contractor at his agreement rates, the difference shall not be paid to the contractor; and/ or

After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof as shall be un-executed or delayed with reference to the General Conditions of Contract / or relevant clause of Condition Special of Contract, out of his hands and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the Engineer-in-Charge shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by BSCDCL under his contract or on any other account whatsoever or from his security deposit or the proceeds of sales of unused materials, construction plants, implements temporary buildings etc. thereof or a sufficient part thereof as the case may be. If the expenses incurred by the BSCDCL are less than the amount payable to the contractor at his agreement rates, the difference shall not be paid to the contractor; and/or

By a notice in writing to withdraw from the contractor any items or items of work as the Engineer-in-charge may determine in his absolute discretion and get the same executed at the risk and cost of the contractor.

Any excess expenditure incurred or to be incurred by BSCDCL in completing the works or part of the works or the excess loss or damages suffered or may be suffered by BSCDCL as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to BSCDCL in law be recovered from any moneys due to the contractor on any account, and if such moneys are not sufficient the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the contractor shall fail to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the contractor under the contract and if thereafter there be any balance outstanding from the contractor, it shall be recovered in accordance with the provisions of the contract and law.

Any sums in excess of the amounts due to BSCDCL and unsold materials, constructional plant etc. shall be returned to the contractor, provided always that if cost or anticipated cost of completion by BSCDCL of the works or part of the works is less than the amount which the contractor would have been paid had he completed the works or part of the works, such benefit shall not accrue to the contractor.

In the event of anyone or more of the above courses being adopted by the Engineer-in-Charge the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution

of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

Provided further that if any of the recoveries to be made, while taking action as above, are in excess of the security deposit forfeited, these shall be

Limited to the amount by which the excess cost incurred by the BSCDCL exceeds the security deposit so forfeited.

### **CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOT TAKEN**

In any case in which any of the powers conferred upon the Engineer-in-Charge by relevant clause thereof, shall have become exercisable and the same are not exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under any clause he may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work/or any part thereof, paying or allowing for the same in account at the contract rates, or in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final and binding on the contractor and/or direct the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

### **CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR**

If contractor:

At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 days in this respect from the Engineer-in-Charge;

or

Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 days even after a notice in writing is given in that behalf by the Engineer-in-Charge;

or

Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge.

The Engineer-in-Charge without invoking action under conditions of contract may, without prejudice to any other right or remedy against the contractor which have



either accrued or accrue thereafter to BSCDCL, by a notice in writing to take the part work/part incomplete work of any item(s) out of his hands and shall have powers to:

Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or Carry out the part work / part incomplete work of any item(s) by any means at the risk and cost of the contractor.

The Engineer-in-Charge shall determine the amount, if any, is recoverable from the contractor for completion of the part work/ part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by BSCDCL because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Engineer-in-Charge as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the department are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.

Any excess expenditure incurred or to be incurred by BSCDCL in completing the part work/ part incomplete work of any item(s) or the excess loss of damages suffered or may be suffered by BSCDCL as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to BSCDCL in law or per as agreement be recovered from any money due to the contractor on any account, and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract. In the event of above course being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

### **SUSPENSION OF WORKS**

The contractor shall, on receipt of the order in writing of the Engineer-in-charge, suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-charge may consider necessary for any of the following reasons:

On account of any default on part of the contractor, or For proper execution of the works or part thereof for reason other than the default of the contractor, or For safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-charge.

(b) If the suspension is ordered for reasons (ii) and (iii) in sub-para (a) above.

i) The contractor shall be entitled to an extension of the time equal to the period of every such suspension plus 25% for completion period. No adjustment in contract price will be allowed for reasons of such suspension.

ii) In the event of the Contractor treating the suspension as an abandonment of the Contract by BSCDCL, he shall have no claim to payment of any compensation on

account of any profit or advantage which he may have derived from the execution of the work in full.

### **TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR**

Without prejudice to any of the right or remedies under this contract if the contractor dies, the Engineer in-charge shall have the option of terminating the contract without compensation to the contractor.

### **TIME ESSENCE OF CONTRACT & EXTENSION FOR DELAY**

The time allowed for execution of the Works as specified in the Memorandum (Annexure-I) or the extended time in accordance with these conditions shall be the essence of the contract. The execution of the works shall commence from such time period as mentioned in MEMORANDUM (ANNEXURE – I) or the date on which the Engineer-in-Charge issues written orders to commence the work. If the Contractor commits default in commencing the execution of the work as aforesaid, the BSCDCL shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money & performance guarantee absolutely.

- 3.4** Within 10 (Ten) days of Letter of Award, the Contractor shall submit a time and Progress Chart (CPM/ PERT/ Quantified Bar Chart) and get it approved by the Engineer-in-Charge. The Chart shall be prepared in direct relation to the time stated in the contract documents for completion of items of the works. It shall indicate the forecast (mile-stones) of the dates of commencement and completion of various items, trades, sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time stipulated in the Contract documents and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work exceeds one month (save for special jobs for which a separate program has been agreed upon) complete 1/8th of the whole of work before 1/4th of the whole time allowed in the contract has elapsed, 3/8th of the work before one half of such time has elapsed and 3/4th of the work before 3/4th of such time has elapsed. The physical progress report including photographs shall be submitted by the contractor on the prescribed format & the intervals (not exceeding one month) as decided by the Engineer in Charge. The compensation for delay as per tender document shall be eniable at intermediate stages also, in case the required progress is not achieved to meet the above time deadlines of the completion period and/ or milestones of time and progress chart, provided always that the total amount of Compensation for delay to be paid under this condition shall not exceed 10% of the tendered value of work".  
If the work(s) be delayed by:

1. force-majeure or
2. Abnormally bad weather, or
3. Serious loss or damage by fire, or
4. Civil commotion, local commotion of workmen, strike or lockout, affecting any or the trades employed on the work, or
5. Delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in Executing work not forming part of the Contract, or
6. Non-availability of stores, which are responsibility of the BSCDCL or,
7. Non-availability or break down of tools and plant to be supplied or supplied by BSCDCL or,
8. Any other cause which, in the absolute discretion of the BSCDCL, is beyond the Contractor's control, then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge within

07 days but shall nevertheless use constantly his best endeavor to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

- 3.5** Request for extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay in the prescribed form. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired. In any such case BSCDCL may give a fair and reasonable extension of time for completion of work. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing within a reasonable time from the receipt of such request. Non application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and the extension of time so given by the Engineer-in-Charge shall be binding on the contractor.

### **TIME SCHEDULE & PROGRESS**

- 3.6** Time allowed for carrying out all the works as entered in the tender shall be as mentioned in the "Memorandum (Annexure-I)" which shall be reckoned from the 10th day from the date on which the letter of Award is issued to the Contractor. Time shall be the essence of the contract and contractor shall ensure the completion of the entire work within the stipulated time of completion. The contractor shall also furnish within 10 days of date of issue of letter of Award a CPM network/ PERT chart/ Bar Chart for completion of work within stipulated time. This will be duly got approved from BSCDCL. This approved Network/ PERT Chart shall form a part of the agreement. Achievement of milestones as well as total completion has to be within the time period allowed.

Contractor shall mobilize and employ sufficient resources for completion of all the works as indicated in the agreed BAR CHART/PERT Network. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the Engineer-in-Charge.

During the currency of the work the contractor is expected to adhere to the time schedule on mile stone and total completion and this adherence will be a part of Contractor's performance under the contract. During the time schedule on mile stone and total completion and this adherence will be a part of Contractor's performance under the contract. During the execution of the work contractor is expected to participate in the review and updating of the Network/BAR CHART undertaken by the BSCDCL. These reviews may be undertaken at the discretion of Engineer-in-charge either as a periodical appraisal measure or when the quantum of work order on the contractor is substantially changed through deviation orders or amendments. The review shall be held at site or any of the offices of BSCDCL/owner /consultant at the sole discretion of BSCDCL. The contractor will adhere to the revised schedule thereafter. The approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time to the contractor.

Contractor shall submit (as directed by Engineer-in-Charge) progress reports on a computer based program (program and software to be approved by Engineer-in-Charge) highlighting status of various activities and physical completion of work. The contractor shall send completion report with as built drawings to the office of Engineer-in-Charge, of BSCDCL in writing within a period of 30 days of completion of work.

The photographs of the project taken on last day of every month indicating progress of work (in soft copies) shall be attached along with the physical progress reports to be submitted to Engineer-in-charge.

### **TAXES AND DUTIES**

**3.7** Except as otherwise specifically provided in the contract, the contractor shall be liable and responsible for the payment, of all taxes, such as excise duty, custom duty, sales tax, Value Added Tax including the purchase tax, consignment tax, work contract tax, service tax, entry tax or any other similar tax in the state concerned, turnover tax, toll tax, octroi charges, royalty, labour cess, levy and other tax(es) or duty(ies) which may be specified by local/state/ central government from time to time on all material articles which may be used for this work. The rates quoted by him in the tender in bill of quantities shall be inclusive of all taxes, duties, levies etc.

The imposition of any new and/or increase in the aforesaid taxes, duties levies (including fresh imposition of any other Tax) is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies/cess, the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of Engineering-in charge attributable to delay in execution of work within the control of contractor. The contractor shall, within a period of 30 days of the imposition of any such further tax or levy or cess, give a written notice thereof to the Engineering-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

In the event of nonpayment/default in payment of any of the above taxes, BSCDCL reserves the right to with-hold the dues/payments of contractor and make payment to local/state/Central Government authorities or to labourers as may be applicable.

The rate quoted by the contractor shall be deemed to be inclusive of all taxes as given in tender document Tax deductions at source shall be made as per laws prevalent in the State as applicable for the work.

The stamp duty and registration charges, if any, on the contract agreement levied by the Government or any other statutory body, shall be paid by the contractor as applicable in the state of work.

It will be incumbent upon the Contractor to obtain a registration certificate as a dealer under the Local Sales Tax Act / VAT and the Central Sales Tax Act and necessary evidence to this effect shall be furnished by the Contractor to BSCDCL.

The tenderer shall quote his rates inclusive of Service Tax, Turnover Tax / Sales Tax on Works Contract / VAT payable to State Govt. along-with other taxes, duties, levies etc. in conjunction with other terms and conditions. In case, the Turnover Tax/ Sales Tax on Works contract on execution of works is waived off by the State Govt. at later stage for this project, the equivalent amount from the date of waiver of such tax (as per prevailing rate as on the date of waiver of Turnover Tax/ Sales Tax on Works Contract/ VAT) shall be deducted from the amount payable to the contractor from subsequent RA bills.

In the event of decrease / relaxation and / or waiver of any of the existing / prevailing tax(es), duties, levies, cess by Central / state Govt. Or any other statutory body (ies), after the last stipulated date for the receipt of tender including extension (if any), and the contractor thereupon has been paid or has raised claims of such tax(es), duties, levies, cess; such sums shall be recovered / deducted (from claims raised but which has not been paid) effective from the date as reckoned in the relevant statutory order / law / ordnance etc. The contractor, shall, within a period of 30 days of any such waiver/relaxation/decrease in tax(es), duties, levies, cess, give a written notice thereof to Engineer-in-charge stating the statutory change with Documentary proof thereto. Provided always that Engineer-in-charge shall have full powers to effect

recovery/deduction on account of any such statutory change even if contractor has not intimated in the event when any such statutory action comes to his notice.

### **INCOME TAX DEDUCTION (TDS)**

Income tax deductions shall be made from all payments made to the contractor including advances against work done, as per the rules and regulations in force, in accordance with the Income Tax act prevailing from time to time.

### **VALUE ADDED TAX (VAT) / SALES TAX**

The contractor shall comply with all the provisions of VAT / SALES TAX Act applicable in the respective state. The contractor shall be registered with the applicable sales tax authority of the state / Union territory as applicable for the works. The contractor shall be responsible for submission of appropriate sales tax / VAT to the authority and BSCDCL shall all times be kept indemnified for non-fulfil -ment of the sales tax / VAT obligations by the contractor including but not limited to registration, submission of tax & its returns at appropriate times and any other statutory obligation(s) in this regard as applicable. However, contractor is bound to submit the proof of deposit of Sales Tax / VAT to the BSCDCL failing which the Engineer-in-charge shall have, without prejudice to any other rights or remedy available under any of the clauses of contract, full powers to deduct / recover the sum(s) he deems fit from any amount due / payable or any security deposit available at his disposal.

### **SERVICE TAX**

The tenderer shall quote his rates exclusive of Service Tax. The service tax shall be reimbursed on the produce of documentary evidence. The contractor must have registration No. with Service Tax Authorities and will provide copy of Registration to BSCDCL before release of any payment by the Corporation. The contractor will submit regular Invoice / Bill fulfilling 'all conditions of Service Tax Rules 1994 amended from time to time and shall produce proof of deposit of Service Tax to the Corporation as and when demanded failing which the Engineer-in-charge shall have without prejudice to any other rights or remedy available under any of the clauses of contract, full powers to deduct / recover the sum(s) he deems fit from any amount due / payable or any security deposit available at his disposal.

### **ROYALTY ON MATERIALS:**

The contractor shall deposit royalty and obtain necessary permit for supply of bajri, stone, kankar, sand and other materials etc. from the local authorities and quoted rates shall be inclusive of royalty.

The contractor shall be deemed to have inspected the site, its surrounding and acquainted itself with the nature of the ground, accessibility of the site and full extent and nature of all operations necessary for the full and proper execution of the contract, space for storage of materials, constructional plant, temporary works, restrictions on the plying of heavy vehicles in area, supply and use of labour materials, plant, equipment and laws, rules and regulations, if any, imposed by the local authorities.

The rates and prices to be tendered in the bill of quantities are for completed and finished items of works and complete in all respects. It will be deemed to include all constructional plant, labour, supervision materials, transport, all temporary works, erection, maintenance, contractor's profit and establishment/overheads, together with preparation of designs & drawings pertaining to casting yard, shop drawing, fabrication drawing (if required), staging form work, stacking yard, etc. all general risk, all taxes, royalty, duties, cess, octroi and other levies, insurance liabilities and obligations set out or implied in the tender documents and contract .

If any temporary/ permanent structure is encountered or safety of such structure in the vicinity is endangered due to execution of the project, the contractor has to protect the structures by any means as per direction of Engineer-in-Charge. If any damage is caused to any temporary or permanent structure(s) in the vicinity due to

execution of the project, the contractor has to make good the same by any means as per direction of Engineer-in-Charge. The contractor should inspect the site of work from this point of view. The cost to be incurred in this regard shall be deemed to be included in his quoted rates of BOQ items and the contractor shall not be entitled for any extra payment in this regard.

### **INSURANCE OF WORKS ETC**

Contractor is required to take contractor's all risk policy or erection all risk policy (as the case may be) from an approved insurance company in the joint name with BSCDCL and bear all costs towards the same for the full period of execution of works including the defect liability period for the full amount of contract against all loss of damage from whatever cause arising other than **excepted risks** for which he is responsible under the terms of the contract and in such manner that the BSCDCL and the contractor are covered during the period of construction of works and/or also covered during the period of defect liability for loss or damage  
The work and the temporary works to the full value of such works.

The materials, constructional plant, centering, shuttering and scaffolding materials and other things brought to the site for their full value. Whenever required by BSCDCL, the contractor shall produce the policy or the policies of insurance and the receipts for payment of the current premium.

### **INSURANCE UNDER WORKMEN COMPENSATION ACT**

Contractor is required to take insurance cover under the Workman Compensation Act, 1923 amended from time to time from an approved insurance company and pay premium charges thereof. Wherever required by BSCDCL the contractor shall produce the policy or the policies of Insurance and the receipt of payment of the current premiums.

### **THIRD PARTY INSURANCE**

Contractor is required to take third party insurance cover for an amount of 5%(five percent) of contract value from an approved insurance company for insurance against any damage, injury or loss which may occur to any person or property including that of BSCDCL / owner / client, arising out of the execution of the works or temporary works. Wherever required by BSCDCL the contractor shall produce the policy or the policies of Insurance and the receipt of payment of the current premiums.

In case of failure of the contractor to obtain contractors all risk policy, insurance under workman compensation act and third party insurance as described above within one month from the date of commencement of work, running account payments of the contractor shall be withheld till such time the aforesaid insurance covers are obtained by the contractor.

If the Contractor could not effect a comprehensive insurance cover against risks which he may be required to effect under the terms of the contract, then he shall give his attention to get the best insurance cover available and even in case of effecting a wider insurance cover than the one which the subsidiary of the General Insurance Company could offer, such an insurance is ought to be done after the BSCDCL's approval, by or through the subsidiary of the General Insurance Company.

The contractor shall at all times indemnify BSCDCL and Owner against all claims, damages or compensation under the provision of Payment of wages act-1936, Minimum Wages Act-1948, Employer's liability Act-1938, the workmen's compensation Act-1947, Industrial Disputes Act-1947 and Maternity Benefit Act-1961 or any modifications thereof or any other law in force or as consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the contractor or not, against all costs, charges and expenses of any suit, action or proceedings arising out of such incident or injury and against all sum or sums which may with the consent of the contractor be paid to compromise or compound any such claim. Without limiting his obligations and liabilities as above

provided, the contractor shall insure against all claims, damages or compensation payable under the Workmen's Compensation Act 1923 or any modification thereof or any other law relating thereto.

## **PAYMENTS**

All running payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and/or accepted by BSCDCL and shall not preclude the recovery for bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the Contract, or any part thereof, in this respect, or the accruing of any claim, nor shall it conclude, determine or affect in any way the powers of the BSCDCL under these conditions or any of them as to the final settlement and adjustments of the accounts or otherwise, or in any other way vary/ affect the contract. The final bill shall be submitted by the contractor within three months of the completion of work, otherwise BSCDCL's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on contractor. Each Running Bills should be accompanied by two sets of at-least 20 (twenty) photographs as per direction of Engineer-in-charge taken from various points depicting status of work as on Report/ Bill date and Monthly Progress Report for the concerned month in the pro-forma to be given/ approved by Engineer-in-Charge. Intermittent progress Photographs as and when required shall also be provided by the Contractor at his own cost as per direction of Engineer-in-Charge. No payment of running account bill shall be released unless it is accompanied by photographs and Monthly Progress Report as above.

It is clearly agreed and understood by the Contractor that notwithstanding anything to the contrary that may be stated in the agreement between BSCDCL and the contractor; the contractor shall become entitled to payment only after BSCDCL has received the corresponding payment(s) from the client/ Owner for the work done by the contractor. Any delay in the release of payment by the client/ Owner to BSCDCL leading to a delay in the release the corresponding payment by BSCDCL to the contractor shall not entitle the Contractor to any compensation/ interest from BSCDCL.

All payments shall be released by way of e-transfer through RTGS/NEFT in India directly at their Bank account by BSCDCL.

## **MEASUREMENTS OF WORKS**

Engineer-in-charge shall, except as otherwise provided, ascertain and determine by measurement, the value of work done in accordance with the contract.

Except where any general or detailed description of the work expressly shows to the contrary, measurement shall be taken in accordance with the

Procedure set forth in the UADD Specification. In the case of items which are not covered by specifications, mode of measurement as specified in the Technical Specifications of the contract and if for any item no such technical specification is available, then a relevant standard method of measurement issued by the Bureau of Indian Standard shall be followed.

Provided further that, In case of Cancellation/Determination of Contract in Full or in Part in accordance with clause of tender document (and its sub-clauses), following methodology shall be adopted in respect of measurements in addition to what has been mentioned in foregoing:-

All measurements and levels shall be taken jointly by the Engineer-in-Charge or his authorized representative and by the contractor or his authorized representative from time to time during the progress of the work and such measurements shall be signed and dated by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance. If the contractor objects to any of the measurements

recorded, a note shall be made to that effect with reason and signed by both the parties.

If for any reason the contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and BSCDCL shall not entertain any claim from contractor for any loss or damages on this account. If the contractor or his authorized representative does not remain present at the time of such measurements after the contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor. The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for measurements and recording levels.

### **COMPUTERISED MEASUREMENT BOOKS**

Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract. All measurements of all items having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measurement Book as per the format of BSCDCL so that a complete record is obtained of all the items of works performed under the contract. All such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative.

After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in-Charge for the dated signatures by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/test checked from the Engineer-in-Charge and/or his authorized representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft computerized measurements, and submit to BSCDCL a computerized measurement book, duly bound, and with its pages machine numbered. The Engineer-in-Charge and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks.

The final, fair, computerized measurement book given by the contractor, duly bound, with its pages numbered, should be 100% correct, and no cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly numbered and bound, after getting the earlier MB cancelled by the BSCDCL. The contractor shall submit two spare copies of such computerized MB's for the purpose of reference and record by the various officers of the BSCDCL.

The contractor shall also submit to the department separately his computerized Abstract of Cost and the bill based on these measurements, duly bound, and its pages numbered along with two spare copies of the "bill.

The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements /levels by the Engineer-in-Charge or his representative.

The contractor shall give not less than seven days' notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work in order that the same may be checked and/or test checked and correct



dimensions thereof be taken before the same is covered up or placed beyond the reach of checking and/or test checking measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of checking and/or test checking measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the BSCDCL to check the measurements recorded by contractor and all provisions stipulated herein above or anywhere in the tender document shall be applicable to such checking of measurements or levels.

It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and/or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

#### **WITHHOLDING AND LIEN IN RESPECT OF SUMS DUE FROM CONTRACTOR**

Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, BSCDCL shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the contractor and for the purpose aforesaid, BSCDCL shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, BSCDCL shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract pending finalization of adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or BSCDCL will be kept withheld or retained as such by the Engineer-in-Charge or BSCDCL till the claim arising out of or under the contract is

determined by the competent court and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge or the BSCDCL shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company, as the case may whether in his individual capacity or otherwise. BSCDCL shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc, to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of overpayment and it shall be lawful for BSCDCL to recover the same from him in the manner prescribed in tender document of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to

him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by BSCDCL to the contractor, without any interest thereon whatsoever.

### **LIEN IN RESPECT OF CLAIMS IN OTHER CONTRACTS**

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or by BSCDCL against any claim of the Engineer-in-Charge or BSCDCL in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer-in-Charge or the BSCDCL. It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or the BSCDCL will be kept withheld or retained as such by the Engineer-in-Charge

or the BSCDCL or till his claim arising out of the same contract or any other contract is either mutually settled or determined by the competent court, as the case may be, and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

### **WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS AND ORDERS ETC.**

All items of work in the bill of quantities/ schedule of quantities shall be carried out as per the UADD (as the case may be) specifications, drawings and instructions of the Engineer-in-Charge of BSCDCL and the rates shall include for supply of required materials including proper storage, consumables, skilled & unskilled labour, supervision and tools, tackles, plant & machinery complete as called for in the detailed specifications and conditions of the contract. Latest updated UADD specification shall be followed for execution of work.

The contractor shall execute the whole and every part of the work in the most substantial and workman like manner both as regards materials and otherwise in every respect in strict accordance with the specifications.

The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work assigned by the Engineer-in-Charge.

The contractor shall comply with the provisions of the contract and execute the works with care and diligence and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

### **MATERIALS TO BE PROVIDED BY THE CONTRACTOR**

The contractor shall, at his own expense, provide all materials, required including Cement & Steel for the works. The contractor shall at his own expense and without delay; supply to the Engineer-in-Charge samples of materials to be used on the work and shall get the same approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract.

The contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply.

The contractor shall at his risk and cost, submit the samples of materials to be tested or analyzed and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all times have access to the works and to all

workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance and cost in obtaining the right and visit to such access. The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full power to require other proper materials to be substituted thereof and in case of default, the Engineer-in-Charge may cause the same to be supplied and all costs which may require such removal and substitution shall be borne by the contractor

## **MATERIALS AND SAMPLES**

The materials/products used on the works shall be one of the approved make/ brands out of list of manufacturers / brands /makes given in the tender documents. The contractor shall submit samples/ specimens out of approved makes of materials/ products to the Engineer-in-Charge for prior approval. In exceptional circumstances Engineer-in-Charge may allow alternate equivalent makes/brands of products/ materials at his sole discretion. The final choice of brand / make shall remain with the Engineer-in-Charge, whose decision in this matter shall be final and binding and nothing extra on this account shall be payable to the Contractor. In case single brand/ make are mentioned, other equivalent makes/ brands may be considered by the Engineer-in-Charge. In case of variance in UADD Specifications from approved products/makes specification, the specification of approved product/make shall prevail for which nothing shall be paid extra to the Contractor. In case no make or brand of any materials, articles, fittings and accessories etc. is specified, the same shall comply with the relevant Indian Standard Specifications and shall bear the ISI/BIS mark. The Engineer of BSCDCL and the owner shall have the discretion to check quality of materials and equipment's to be incorporated in the work, at source of supply or site of work and even after incorporation in the work. They shall also have the discretion to check the workmanship of various items of work to be executed in this work. The contractor shall provide the necessary facilities and assistance for this purpose.

The above provisions shall not absolve the contractor from the quality of final product and in getting the material and workmanship quality checked and approved from the Engineer-in-Charge of BSCDCL.

The contractor shall well in advance, produce samples of all materials, articles, fittings, accessories etc. that he proposes to use and get them approved in writing by BSCDCL. The materials articles etc. as approved shall be *LABELLED* as such and shall be signed by BSCDCL and the Contractor's representative.

The approved samples shall be kept in the custody of the Engineer-in-Charge of BSCDCL till completion of the work. Thereafter the samples except those destroyed during testing shall be returned to the contractor. No payment will be made to the contractor for the samples or samples destroyed in testing.

The brands of all materials, articles fittings etc. approved together with the names of the manufacturers and firms from which supplies have been arranged shall be recorded in the site order book.

The contractor shall set up and maintain at his cost, a field testing laboratory for all day to day tests at his own cost to the satisfaction of the Engineer-in-Charge. This field testing laboratory shall be provided with equipment and facilities to carry out all mandatory field tests as per UADD (as the case may be) specifications. The laboratory building shall be constructed and installed with the appropriate facilities, Temperature and humidity controls shall be available wherever necessary during testing of samples. All equipment's shall be provided by the Contractor so as to be

compatible with the testing requirements specified. The Contractor shall maintain all the equipment's in good working condition for the duration of the contract. The Contractor shall provide approved qualified personnel to run the laboratory for the duration of the Contract. The number of staff and equipment available must at all times be sufficient to keep pace with the sampling and testing programmer as required by the Engineer-in-charge. The Contractor shall fully service the site laboratory and shall supply everything necessary for its proper functioning, including all transport needed to move equipment and samples to and from sampling points on the site, etc. The Contractor shall re-calibrate all measuring devices whenever so required by the Engineer-in-charge and shall submit the results of such calibration without delay. All field test shall be carried out in the presence of BSCDCL's representative. All costs towards samples, materials, collection, transport, manpower, testing etc. shall be borne by the Contractor and are deemed to be included in the rates quoted by him in the bill of quantities.

The contractor(s) shall display the calibration certificate of each equipment at the location of equipment & shall get recalibrated at least one week before its expiry date.

### **MATERIALS PROCURED WITH THE ASSISTANCE OF BSCDCL**

If any material for the execution of this contract is procured with the assistance of BSCDCL either by issue from its stores or purchase made under orders or permits or licenses obtained by BSCDCL, the contractor shall hold and use the said materials economically and solely for the purpose of this contract and shall not dispose them without the permission of Engineer-in-charge. The contractor, if required by the BSCDCL, shall return all such surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination on whatsoever reason, on being paid or credited such price as the Engineer-in-charge shall determine having due regard to the conditions of materials. The price allowed to the contractor, however, shall not exceed the amount charged to him excluding the element of storage charges which shall be 10% of the cost charged to contractor. The decision of the Engineer-in-charge shall be final and conclusive.

Contractor(s) has / have to deploy security personnel for safeguarding of materials procured at site.

### **CONTRACTOR TO SUPPLY TOOLS & PLANTS**

The contractor shall provide at his own cost all materials, machinery, tools & plants as require for completion of work. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement or examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer-in-Charge at the expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portions thereof.

### **MOBILIZATION OF MEN, MATERIALS AND MACHINERY:**

All expenses towards mobilization at site and de-mobilization including bringing in equipment, work force, materials, dismantling the equipment's, clearing the site etc.

shall be deemed to be included in prices quoted and no separate payment on account of such expenses shall be entertained.

It shall be entirely the Contractor's responsibility to provide, operate and maintain all necessary construction equipment's, scaffoldings and safety, gadget, lifting tackles, tools and appliances to perform the work in a workman like and efficient manner and complete all jobs as per the specifications and within the schedule time of completion of work. Further, contractor shall also be responsible for obtaining temporary electric and water connection for all purposes. The contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply. It shall be the responsibility of the contractor to obtain the approval for any revision and/or modification desired by him from BSCDCL before implementation.

The procurement and supply in sequence and at the appropriate time of all materials and consumable shall be entirely the contractor's responsibilities and his rates for execution of work shall be inclusive of supply of all these items.

It is mandatory for the contractor to provide safety equipment's and gadgets to his all workers, supervisory and Technical staff engaged in the execution of the work while working. The minimum requirement (but not limited to) shall be gum boots, safety helmets, Rubber hand gloves, face masks, safety nets, safety belts, goggles etc. as per work requirements. Sufficient nos. of these equipment's and gadgets shall also be provided to BSCDCL by the contractor at his own cost for use of BSCDCL Officials and/ or workforce while working/supervision of work at site. No staff/ worker shall be allowed to enter the site without these equipment's/ gadgets.

The cost of the above equipment's/ gadgets are deemed to be included in the rates quoted by the contractor for the items & works as per Bill of Quantities and contractor shall not be entitled for any extra payment in these regard. The above norm is to be strictly complied with at site. In case the contractor is found to be deficient in providing Safety Equipment's/ Gadgets in the opinion of Engineer-in-charge, the Engineer-in-charge at his option can procure the same at the risk & cost of contractor and provide the same for the use of worksite and shall make the recoveries from the bills of the contractor for the same. The contractor shall abide by all rules & regulations pertaining to Health, Safety and Environment.

All designs, drawings, bill of quantities, etc., except Bar Bending Schedule, Shop & Fabrication drawings, for all works shall be supplied to the contractor for their scope of work all buildings services and development works by BSCDCL in phased manner as the works progress. However it shall be the duty and responsibility of the contractor to bring to the notice of the BSCDCL in writing as to any variation, discrepancy or any other changes required and to obtain revised drawings and designs and / or approval of the BSCDCL in writing for the same.

One copy of contract documents including drawings furnished to the contractor shall be kept at the site and the same shall at all reasonable times be available for inspection.

All materials, construction plants and equipment's etc. once brought by the contractor within the project area, will not be allowed to be removed from the premises without the written permission of the Engineer-in-charge. Similarly all enabling works built by the contractor for the main construction undertaken by him, shall not be dismantled and removed without the written authority of the BSCDCL.

Contractor shall have to prepare the Bar Bending Schedule, shop and fabrication drawings free of cost, if required for any of the items of work.

Five copies of these drawings each including for revision will be submitted to BSCDCL for approval. Before executing the item, shop drawings and bar bending schedule should be approved by BSCDCL.

BSCDCL shall supply Work Force in the various categories to assist the contractor in execution of the works on recoverable basis as per provision mentioned elsewhere in the contract.

All contractors' plant, machinery and equipment shall be kept in perfect condition during currency of the contract.

### **QUALITY ASSURANCE PROGRAMME**

To ensure that the services under the scope of this contract are in accordance with the specifications, the Contractor shall adopt Quality Assurance Programme to control such activities at the necessary points:

The contractor shall prepare and finalize such Quality Assurance Programme within 15 days from date of issue Letter of Award. BSCDCL shall also carryout quality audit and quality surveillance of systems and procedures of Contractor's quality control activities. A Quality Assurance Programmer of Contractor shall generally cover the following:

His organization structure for the management and implementation of the proposed Quality Assurance Program.

Documentation control system.

The procedure for purpose of materials and source inspection.

System for site controls including process controls.

Control of non-conforming items and systems for corrective actions.

Inspection and test procedure for site activities.

System for indication and appraisal of inspection status.

System for maintenance of records.

System for handling, storage and delivery.

A quality plan detailing out quality practices and procedures, relevant standards and acceptance levels for all types of work under the scope of this contract.

All the quality reports shall be submitted by the Contractors in the formats appended hereto. Checklist enclosed here in this document shall be followed while carrying out Construction activities (items). If any item is not covered by the Checklist/ Formats appended hereto, the Format for the same may be developed and submitted to Engineer-in-Charge for approval and the same shall be adopted. These filled in formats shall be prepared in two copies and duly signed by representatives of contractor and BSCDCL. All the costs associate with Printing of Formats and testing of materials required as per technical specifications or by Engineer-in-charge shall be included in the Contractor's quoted rates in the Schedule/ Bill of quantities.

### **CONTRACT COORDINATION PROCEDURES, COORDINATION MEETINGS AND PROGRESS REPORTING**

The Contractor shall prepare and finalize in consultation with BSCDCL, a detailed contract coordination procedure within 15 days from the date of issue of Letter of Award for the purpose of execution of the Contract. The Contractor shall have to attend all the meetings at any place in India at his own cost with BSCDCL, Owners/ Clients or Consultants of BSCDCL/ Owner/ Client during the currency of the Contract, as and when required and fully cooperate with such personal and agencies involved during these discussions. The Contractor shall not deal in any way directly with the Clients/ Owners or Consultants of BSCDCL/Owner/ Clients and any dealing/correspondence if required at any time with Clients/ Owners/ Consultants shall be through BSCDCL only. During the execution of the work, Contractor shall submit at his own cost a detailed Monthly progress & programme report to the Engineer-in-charge of BSCDCL by 5th of every month. The format of monthly progress & programme report shall be as approved by Engineer-in-Charge of BSCDCL.

## **COMPLETION CERTIFICATE AND COMPLETION PLANS**

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within thirty days of the receipt of such notice, the Engineer-in-Charge shall inspect the work and if there is no defect in the work, shall furnish the contractor with a final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of the execution; thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expense of the contractor remove such scaffolding, surplus materials and rubbish etc., and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof less actual cost incurred on removal of materials / debris / malba etc.

The contractor shall submit completion plan as required vide General Specifications for Electrical works as applicable within thirty days of the completion of the work. In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs.5,00,000 (Rs. Five Lakhs only) as may be fixed by the Engineer-in-charge concerned and in this respect the decision of the Engineer-in-charge shall be final and binding on the contractor.

## **PROHIBITION OF UNAUTHORISED CONSTRUCTION & OCCUPATION**

No unauthorized buildings, construction of structures should be put up by the contractor anywhere on the project site, neither any building built by him shall be occupied in un-authorized manner by him or his staff.

It shall be the responsibility of the contractor to see that the building under construction is not occupied by anybody in un-authorized manner during construction, and is handed over to the Engineer-in-Charge with vacant possession of complete building. If such building though completed is occupied illegally, then the Engineer-in-Charge shall have the option to refuse to accept the said building/buildings in that position. Any delay in acceptance on this account will be treated as the delay in completion and for such delay, a levy of compensation upto 5% of tendered value of work may be imposed by the Engineer-in-Charge whose decision shall be final both with regard to the justification and quantum and shall be binding on the contractor.

However, the Engineer-in-Charge, through a notice, may require the contractor to remove the illegal occupation any time on or before construction and delivery.

## **FORECLOSURE OF CONTRACT BY BSCDCL/OWNER**

If at any time after the commencement of the work the BSCDCL shall for any reason whatsoever is required to abandon the work or is not require the whole work thereof as specified in the tender to be carried out, the Engineer-in-Charge shall give notice in writing of the fact to the contractor, who shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have

derived from the execution of the work in full, but which he did not derive in consequence of the foreclosure of the whole or part of the works.

### **DEFECTS LIABILITY PERIOD**

The contractor shall be responsible for the rectification of defects in the works for a period twelve months from the date of taking over of the works by the BSCDCL or clients whichever is later. Any defects discovered and brought to the notice of the contractor forthwith shall be attended to and rectified by him at his own cost and expense. In case the contractor fails to carry out these rectifications, the same may without prejudice to any other right or remedy available, be got rectified by BSCDCL at the cost and expense of the contractor.

### **RESTRICTION ON SUBLETTING**

The contractor shall not sublet or assign the whole or part of the works except where otherwise provided, by the contract. The provision of labour on piece work basis shall not be deemed to be a subletting under this clause.

The contractor may entrust specialist items of works like MEP services, HVAC, Lifts, Building Management System, Water Proofing, and Data & Communication networking, interiors, landscaping etc. to the agencies specialized in the specific trade. The contractor shall give the names and details of such firm whom it is going to employ for approval of BSCDCL. These details shall include the expertise, financial status, technical manpower, equipment, resources and list of works executed and on hand of the specialist agency. Further, prior written approval is required from BSCDCL to deploy such agency / sub-contractor.

### **FORCE MAJEURE**

Any delay in or failure to perform of either party, shall not constitute default so as to give rise to any claim for damages, to the extent such delay or failure to perform is caused by an act of God, or by fire, explosion, flood or other natural catastrophe, governmental legislation, orders or regulation etc. Failure of the client / owner to hand over the entire site and / or release funds for the project, to BSCDCL, shall also constitute force majeure. The time for performance of the obligation by the parties shall be deemed to be extended for a period equal to the duration of the force majeure event. Both parties shall make their best efforts to minimize the delay caused by the force majeure event. If the failure / delay of the client /owner in handing over the entire site and / or in releasing the funds continues even on the expiry of the stipulated date of completion, BSCDCL, may, at the request of the contractor, foreclose the contract without any liability to either party. In the event of such foreclosure, the contractor shall not be entitled to any compensation whatsoever. If prior to such foreclosure the contractor has brought any materials to the site, the Engineer-in-Charge shall always have the option of taking over of all such materials at their purchase price or at the local current rates, whichever is lower.

### **NO COMPENSATION CLAUSE**

The contractor shall have no claim whatsoever for compensation or idle charges against BSCDCL on any ground or for any reason, whatsoever.

### **DIRECTION FOR WORKS**

All works under the contract shall be executed under the direction and subject to approval in all respect of the Engineer-in-Charge of BSCDCL who shall be entitled to direct at whatever point or points and in whatever manner works are to be commenced and executed.



The Engineer-in-Charge and his representative shall communicate or confirm their instructions to the contractor in respect of the execution of work during their site inspection in a 'Works Site Order Book' maintained at the site office of Engineer-in-Charge. The contractor or his authorized representative shall confirm receipt of such instructions by signing against the relevant orders in the book.

#### **WORK IN MONSOON AND RAIN**

The execution of the work may entail working in the monsoon also. The contractor must maintain labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No special/ extra rate will be considered for such work in monsoon. The contractors' rate shall be considered inclusive of cost of dewatering due to rains required if any and no extra rate shall be payable on this account. The stipulated period for completion of project includes the monsoon period, holidays & festivals.

#### **WORK ON SUNDAYS, HOLIDAYS AND DURING NIGHT**

For carrying out work on Sunday and Holidays or during night, the contractor will approach the Engineer-in-Charge or his representative at least two days in advance and obtain his permission. The Engineer-in-Charge at his discretion can refuse such permission. The contractor shall have no claim on this account whatsoever. If work demand, the contractor shall make arrangements to carry out the work on Sundays, Holidays and in two, three shifts with the approval of Engineer-in-Charge at no extra cost to BSCDCL.

#### **WATER AND ELECTRICITY**

The contractor shall make his own arrangement for Water & Electrical power for construction and other purposes at his own cost and pay requisite electricity and water charges. The contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply.

#### **LAND FOR LABOUR HUTS/SITE OFFICE & STORAGE ACCOMMODATION**

The contractor shall arrange the land for temporary office, storage accommodation and labour huts at his own cost and get the clearance of local authorities for setting up/construction of labour camp and same is deemed to be included in the rates quoted by the contractor for the works. The contractor shall ensure that the area of labour huts is kept clean and sanitary conditions are maintained as laid down by the local authorities controlling the area. The labour huts shall be so placed that it does not hinder the progress of work or access to the worksite. The vacant possession of the land used, for the purpose shall be given back by contractor after completion of the work.

The security deposit of the contractor shall be released only after contractor demolishes all structures including foundations and gives back clear vacant possession of this land. In the event the contractor has to shift his labour campus at any time during execution of the work on the instructions of local authorities or as per the requirement of the work progress or as may be required by BSCDCL, he shall comply with such instructions at his cost and risk and no claim whatsoever shall be entertained on this account.

#### **WATCH, WARD AND LIGHTING OF WORK PLACE**

The contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, OBSTRUCTIONS, lights, watchmen etc. during the progress of work as directed by Engineer-in-charge.

## **SCHEDULE OF QUANTITIES / BILL OF QUANTITIES**

The quantities shown against the various items of work are only approximate quantities which may vary as per the actual requirement at site. No item which is not covered in the bill of quantities shall be executed by the Contractor without the approval of the BSCDCL. In case any Extra/Substituted item is carried out without specific-approval, the same will not be paid.

### **WATER PROOF TREATMENT**

**3.8** The water proof treatment shall be of type and specifications as given in the schedule of quantities.

The water-proofing of basement, roofs, water retaining areas shall be and remain fully effective for a period of not less than 10(Ten) years to be reckoned from the date of expiring of the Defect Liability period, prescribed in the contract. At any time during the said guarantee period if BSCDCL finds any defects in the said treatment or any evidence of re-infestation, dampness, leakage in any part of buildings or structure and notifies the contractor of the same, the contractor shall be liable to rectify the defect or give re-treatment and shall commence the work or such rectification or re-treatment within seven days from the date of issue of such letter to him. If the contractor fails to commence such work within the stipulated period, the BSCDCL may get the same done by another agency at the Contractor's cost and risk and the decision of the Engineer-in-Charge of BSCDCL for the cost payable by the contractor shall be final and binding upon him.

Re-treatment if required shall be attended to and carried out by the Contractor within seven days of the notice from Engineer-in-Charge of BSCDCL.

The BSCDCL reserves the right to get the quality of treatment checked in accordance with recognized test methods and in case it is found that the chemicals with the required concentration and rate of application have not been applied, or the water proofing treatment is not done as per specifications, the contractor will be required to do the re-treatment in accordance with the required concentration & specifications at no extra cost failing which no payment for such work will be made. The extent of work thus rejected shall be determined by BSCDCL. Water proofing shall be got done through approved / specialized agencies only with prior approval of Engineer-in-Charge.

The contractor shall make such arrangement as may be necessary to safe guard the workers and residents of the building against any poisonous effect of the chemicals used during the execution of the work.

During the execution of work, if any damage shall occur to the treatment already done, either due to rain or any other circumstances, the same shall be rectified and made good to the entire satisfaction of Engineer-In-Charge by the contractor at his cost and risk.

The contractor shall make his own arrangement for all equipment's required for the execution of the job. The contractor whose tender is accepted shall execute Guarantee Bond in the prescribed form as appended for guaranteeing the water proofing treatment.

### **INDIAN STANDARDS**

Wherever any reference is made to any IS in any particular specifications, drawings or bill of quantities, it means the Indian Standards editions with up to date amendments issued till last date of receipt of tender documents.

### **CENTERING & SHUTTERING**

Marine plywood or steel plates or any material mentioned elsewhere in the tender document or as approved by Engineer-in-Charge shall be used for formwork. The

shuttering plates shall be cleaned and oiled before every repetition and shall be used only after obtaining approval of BSCDCL's Engineers at site. The number of repetitions allowed for plywood and steel shuttering shall be at the discretion of Engineer-in-Charge of BSCDCL depending upon the condition of shuttering surface after each use and the decision of Engineer-in-Charge in this regard shall be final and binding on the contractor. No claim whatsoever on this account shall be admissible.

### **RECORDS OF CONSUMPTION OF CEMENT & STEEL**

For the purpose of keeping a record of cement and steel received at site and consumed in works, the contractor shall maintain a properly bound register in the form approved by the BSCDCL, showing columns like quantity received and used in work and balance in hand etc. This register shall be signed daily by the contractor's representative and BSCDCL's representative.

The register of cement & steel shall be kept at site in the safe custody of BSCDCL's Engineer during progress of the work. This provision will not, however, absolve the contractor from the quality of the final product.

In case cement or steel quantity consumed is lesser as compared to the theoretical requirement of the same as per MORTH/UADD/MPPWD/CPWD (as the case may be) specifications/ norms, the work will be devalued and/ or a penal rate (i.e. double the rate at which cement/ steel purchased last) recovery for lesser consumption of cement/ steel shall be made in the item rates of the work done subject to the condition that the tests results fall within the acceptable criteria as per MORTH/UADD/MPPWD/CPWD (as the case may be) specifications otherwise the work shall have to be dismantled and redone by the contractor at no extra cost. In case of cement, if actual consumption is less than 98% of the theoretical consumption, a recovery shall be effected from the contractors bills at the penal rate for the actual quantity which is lower than 98% of theoretical consumption.

### **TESTS AND INSPECTION**

The contractor shall carry out the various mandatory tests as per specifications and the technical documents that will be furnished to him during the performance of the work. All the tests on materials, as recommended by UADD/MPPWD/CPWD, MORTH and relevant Indian Standard Codes or other standard specifications (including all amendments current at the last date of submission of tender documents) shall be got carried out by the contractor at the field testing laboratory or any other recognized institution/ laboratory, at the direction of the BSCDCL. All testing charges, expenses etc. shall be borne by the contractor. All the tests, either on the field or outside laboratories concerning the execution of the work and supply of materials shall be got carried out by the contractor or BSCDCL at the cost of the Contractor.

### **WORKS TO BE OPEN TO INSPECTION**

All works executed or under the course of execution in pursuance of this contract shall at all times be open to inspection and supervision of the BSCDCL. The work during its progress or after its completion may also be inspected, by Chief Technical Examiner of Government of India (CTE) and/or an inspecting authority of State Government of State in which work is executed and/or by third party checks by owner/lients. The compliance of observations/improvements as suggested by the inspecting officers of BSCDCL/CTE/ State authorities/ Owners shall be obligatory on the part of the Contractor at the cost of contractor.

### **BORROW AREAS**

The contractor shall make his own arrangements for borrow pits and borrow disposal areas including their approaches and space for movement of man, machinery, other equipment's as required for carrying out the works. The contractor shall be responsible for taking all safety measures, getting approval, making payment of royalties, charges etc. and nothing extra shall be paid to the contractor on this

account and unit rates quoted by the contractor for various items of bill of quantities shall be deemed to include the same.

### **3.9 CARE OF WORKS**

From the commencement to the completion of works and handing over, the contractor shall take full responsibility for care thereof all the works and in case of any damage/loss to the works or to any part thereof or to any temporary works due to lack of precautions or due to negligence on part of Contractor, the same shall be made good by the Contractor.

#### **CO-ORDINATION WITH OTHER AGENCIES**

Work shall be carried out in such a manner that the work of other Agencies operating at the site is not hampered due to any action of the Contractor. Proper Co-ordination with other Agencies will be Contractor's responsibility. In case of any dispute, the decision of BSCDCL shall be final and binding on the contractor. No claim whatsoever shall be admissible on this account.

#### **SETTING OUT OF THE WORKS**

The contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works. If at any time during the progress of works, shall any error appear or arise in the position, levels, dimensions or alignment of any part of the works, the contractor shall at his own expenses rectify such error to the satisfaction of Engineer-in-charge. The checking of any setting out or of any line or level by the engineers of BSCDCL shall not in any way relieve the contractor of his responsibility for the correctness.

#### **NOTICE BEFORE COVERING UP THE WORK**

The contractor shall give not less than seven days' notice before covering up or otherwise placing beyond the reach of measurement any work, to the Engineer-in-charge in order that the same may be inspected and measured. If any work is covered up or placed beyond the reach of inspection/measurement without such notice or his consent being obtained the same shall be uncovered at the contractor expenses and he shall have to make it good at his own expenses.

#### **SITE CLEARANCE**

The contractor shall ensure that the working site is kept clean and free of obstructions for easy access to job site and also from safety point of view. Before handing over the work to the BSCDCL the contractor shall remove all temporary structures like the site offices, cement go-down, stores, labour hutments etc., scaffolding rubbish, debris etc. left over materials tools and plants, equipment's etc., clean the site to the entire satisfaction of the Engineer-in-charge. If this is not done the same will be got done by BSCDCL at his risk and cost.

The contractor shall clean all floors, remove cement/ lime/ paint drops and deposits, clean joinery, glass panes etc., touching all painter's works and carry out all other necessary items of works to make the premises clean and tidy before handing over the building, and the rates quoted by the contractor shall be deemed to have included the same.

#### **SET-OFF OF CONTRACTOR'S LIABILITIES**

BSCDCL shall have the right to deduct or set off the expenses incurred or likely to be incurred by it in rectifying the defects and/or any claim under this agreement against the Contractor from any or against any amount payable to the contractor under this agreement including security deposit and proceeds of performance guarantee.

#### **POSSESSION PRIOR TO COMPLETION**

BSCDCL shall have the right to take possession of or use any completed or partially completed work or part of the work. Such possession or use shall not be deemed to be any acceptance of any work not completed in accordance with the contract agreement. If such prior possession or use by BSCDCL delays the progress of work an equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly. The decision of BSCDCL in such case shall be final binding and conclusive.

When the whole of the works or the items or the groups of items of work have been completed the contractor will give a notice to that effect to the Engineer in writing. The Engineer shall within 7 days of the date of receipt of such notice inspect the works and give instructions in writing to the contractor specifying the balance items of work which are required to be done by the contractor and shall also notify the contractor of any defect in the works affecting completion.

- 3.10** The contractor shall during the course of execution prepare and keep updated a complete set of 'as built' drawings to show each and every change from the contract drawings, changes recorded shall be countersigned by the Engineer-in-Charge and the contractor. Four copies of 'as built' drawings shall be supplied to BSCDCL by the contractor within 30 days of the completion. All costs incurred in this respect shall be borne by the contractor.

### **EMPLOYMENT OF PERSONNEL**

The contractor shall employ only Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no personnel of doubtful antecedents and any other nationality in any way is associated with the works.

In case BSCDCL observed misconduct negligence or incompetence etc. on the part of any representative, agent, servant and workmen or employees etc. of the contractor, the BSCDCL shall have full power and without giving any reason to the contractor, instruct the contractor to remove such engineer / staff / worker from site and provide suitable replacements. The decision of the Engineer-in-charge shall be final and binding on the contractor. The contractor shall not be allowed any compensation on this account.

### **TECHNICAL STAFF FOR WORK**

The contractor shall employ at his cost the adequate number of technical staff during the execution of this work depending upon the requirement of work. For this purpose the numbers to be deployed, their qualification, experience as decided by BSCDCL shall be final and binding on contractor. The contractor shall not be entitled for any extra payment in this regard.

The technical staff should be available at site, whenever required by BSCDCL to take instructions.

Within 15 days of Letter of Award, the contractor shall submit a site organizational chart and resume including details of experience of the Project-in-Charge and other staff proposed to be deputed by him and the technical team shall be deputed by them on the Project after getting approval from Engineer-in-Charge. If desired by the contractor at later date, the Project-in-Charge and other staff whose resume is approved by BSCDCL can be replaced with prior written approval of BSCDCL and replacement shall be with equivalent or superior candidate only. Decision of Engineer-in-Charge shall be final and binding on the contractor.

Even after approving the site organizational chart, the Engineer-in-Charge due to technical reasons and exigency of work can direct the contractor to depute such

additional staff as in view of Engineer-in-Charge is necessary and having qualification and experience as approved by the Engineer-in-Charge. The removal of such additional staff from the site shall only be with the prior written approval of Engineer-in-Charge. The contractor shall not be paid anything extra whatsoever on account of deployment of additional staff and decision of the Engineer-in-Charge shall be final and binding on the contractor.

In case the contractor fails to employ the staff as aforesaid he shall be liable to pay a reasonable amount not exceeding a sum of **Rs. 50,000** (Rupees Fifty Thousand only) for each month of default in the case of each person. The decision of the Engineer-in-charge as to number of Technical Staff to be adequate for the project and the period for which the desired strength of technical staff was not employed by the contractor and as to the reasonableness of the amount to be deducted on this account shall be final and binding on the contractor as to the amount and the contractor's liability to pay the said amount.

### **VALUABLE ARTICLES FOUND AT SITE**

All gold, silver and other minerals of any description and all precious stones, coins, treasure, relics, antiques and all other similar things which shall be found in, under or upon the site, shall be the property of the owner/ BSCDCL.

### **MATERIALS OBTAINED FROM DISMANTLEMENT TO BE OWNER'S PROPERTY**

All materials like stone, boulders and other materials obtained during the work of dismantling, excavation etc. will be considered BSCDCL/owner property and such materials shall be disposed off to the best advantage of BSCDCL/owner according to the instructions in writing issued by the Engineer-in-charge.

### **FURNISHED OFFICE ACCOMMODATION & MOBILITY COMMUNICATION TO BE ARRANGED BY CONTRACTOR**

On acceptance of tender, the contractor at his own cost will construct a suitably equipped office at site with basic facilities such as telephone(s), fax, internet, photocopier, computer(s) and printer(s) along with operator(s), regular electric & drinking water supply and staff carrying vehicles for the supervisory staff with driver, fuel and maintenance etc. as per the requirement of the project. The contractor shall maintain the aforesaid facilities

intact/operational during the tenancy of the contract or maximum up to 6 months beyond the stipulated contractual completion date if the work is delayed due to any reasons. Operation and maintenance cost of all such materials, equipment's / services shall be borne by the contractor.

The contractor shall also make sufficient arrangement for photography/video-graphy so that photographs video can be taken of any specific activity at any point of time. The contractor shall also make arrangement of software like MS Project etc. for the purpose of preparing progress report etc.

The contractor shall make all arrangements for ground breaking ceremony/inaugural function etc. for the project as required and the cost towards it deemed to be included in his rates/offer. Any expenditure already incurred/to be incurred by BSCDCL, shall be recovered from the contractor.

## **LABOUR LAWS**

### **LABOUR LAWS TO BE COMPLIED BY THE CONTRACTOR**

The contractor shall obtain a valid license under the contract labour (Regulation & Abolition) Act 1970 and the contract labour Act (Regulation & Abolition) Central Rules 1971 and amended from time to time, and continue to have a valid license until the completion of the work including defect liability period. The contractor shall also adhere by the provision of the child labour (Prohibition and Regulation) Act. 1986 and as amended from time to time.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfill above requirement shall attract the penal provisions of this contract arising out the resultant for non-execution of the work before the commencement of work. No labour below the age of 18 years shall be employed on the work.

#### **Payment of wages:**

The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as defined in the BSCDCL Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the BSCDCL contractor's Labour Regulations in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions unauthorized made, maintenance of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

- (a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfilment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.
- (b) Under the provision of Minimum Wages (Central) Rules, 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned

The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

The contractor shall indemnify and keep indemnified BSCDCL against payments to be made under and for the observance of the laws aforesaid and the BSCDCL

Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-contractors.

The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

### **LABOUR SAFETY PROVISION**

The contractor shall be fully responsible to observe the labour safety provisions: The contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, lights, watchmen etc. during the progress of work as directed by Engineer-in-charge  
In case of all labour directly or indirectly employed in work for the performance on the contractor's part of this contract, the contractor shall comply with all rules framed by Govt. from time to time for the protection of health and sanitary arrangements for workers.

### **OBSERVANCE OF LABOUR LAWS**

The contractor shall be fully responsible for observance of all labour laws applicable including local laws and other laws applicable in this matter and shall indemnify and keep indemnified BSCDCL against effect or non observance of any such laws. The contractor shall be liable to make payment to all its employees, workers and sub-contractors and make compliance with labour laws. If BSCDCL or the client/ owner is held liable as "Principal Employer" to pay contributions etc. under legislation of Government or Court decision in respect of the employees of the contractor, then the contractor would reimburse the amount of such payments, contribution etc. to BSCDCL and/ or same shall be deducted from the payments, security deposit etc. of the contractor.

The Contractor shall submit proof of having valid EPF registration certificate. He shall within 7 days of the close of every month, submit to BSCDCL a statement showing the recoveries of contributions in respect of each employee employed by or through him and shall furnish to BSCDCL such information as the BSCDCL is required to furnish under the provisions of para 36 B of the EPF scheme 1952 to the EPF authorities and other information required by EPFO authorities from time to time. He shall also submit a copy of challan every month in token of proof of having deposited the subscription and contribution of workers engaged on the project.

In case, the contractor is not complying the above provision BSCDCL shall withhold payment to the extent of 4.70% (Four point Seven Zero percent) of the value of the Running Account bill and shall release only after the submission of above mentioned details. If it is incumbent upon BSCDCL to deposit withhold amount with EPF authorities, the withhold amount shall be deposited by BSCDCL with EPF authorities. In such a case BSCDCL shall not refund this withheld amount to the contractor even after the production of EPF registration certificate.

### **MINIMUM WAGES ACT**

The contractor shall comply with all the provisions of the minimum wages Act, 1948, contract labour Act (Regulation & Abolition) 1970, and rules framed there under and other labour laws/local laws affecting contract labour that may be brought into force from time to time.

### **LABOUR CESS**

The rates of the contractor shall be inclusive of labour cess. BSCDCL shall make a recovery @ 1% on account of labour cess from each RA bill of the contractor and labour cess so recovered/deducted shall be deposited with the Labour Board of the



concerned state. In case the Labour Board is not established in the state, recovery made by BSCDCL on account of labour cess shall be retained under suspense account and will be deposited with the Labour Board at later date as & when the Labour Board is constituted in the state.

Every contractor, sub-contractor, affiliates, their legal assigns or heirs as the case may, shall be responsible for registration of every Building worker who has completed eighteen years of age but has not completed sixty years of age and who has been engaged in any Building or Other Construction Work for not less than Ninety Days during the preceding twelve months; with the Board / Funds as applicable under various sections of "THE BUILDINGS AND OTHER Construction workers (regulation of employment and conditions of service) act, 1996 and the building and other Construction workers' welfare cess act, 1996.

The contractor shall also be responsible for maintaining register of beneficiaries i.e. the workers in such form as may be prescribed by the competent authority & the same shall be kept open at all reasonable times for inspection of relevant authority and officials of client / BSCDCL.

The contractor shall be further responsible for maintaining such register & records; giving such particulars of Building workers employed by him, the work performed by them, the number of hours of work which shall constitute a normal working day, the wages paid to them, the receipts given by them and, such other particulars in such form as may be prescribed by the authority or BSCDCL.

In the event of contractor failing to comply with the above clause(s) in part or in full, BSCDCL, without prejudice to any other rights or remedy available under law or any other clause(s) of contract, shall be at absolute liberty to forfeit any sum or sums that are payable or could become payable on account of execution of contract work and decision of Engineer-in-charge shall be final & binding in this regard on the contractor.

### **RECOVERY OF COMPENSATION PAID TO WORKMEN**

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Workmen's Compensation Act, 1923, BSCDCL is obliged to pay compensation to a workman employed by the contractor, in execution of the works, BSCDCL will recover from the contractor, the amount of the compensation so paid; and, without prejudice to the rights of the BSCDCL under sub-section (2) of Section 12, of the said Act, BSCDCL shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due to the contractor whether under this contract or otherwise. BSCDCL shall not be bound to contest any claim made against it under sub-section (1) of Section 12, of the said Act, except on the written request of the contractor and upon his giving to BSCDCL full security for all costs for which BSCDCL might become liable in consequence of contesting such claim.

### **ENSURING PAYMENT AND AMENITIES TO WORKERS IF CONTRACTOR FAILS**

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971, BSCDCL is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act or under the BSCDCL Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by BSCDCL's Contractors, BSCDCL will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to any other right or remedy available under this contract, BSCDCL shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by BSCDCL to the contractor whether under this contract or otherwise BSCDCL shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4)

of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the BSCDCL full security for all costs for which BSCDCL might become liable in contesting such claim.

### **CHANGE IN FIRM'S CONSTITUTION TO BE INTIMATED**

Where the contractor is a partnership firm, the prior approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If prior approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention as per conditions of tender document hereof and the same action may be taken, and the same consequences shall ensue as provided in the said conditions of contract.

### **INDEMNITY AGAINST PATENT RIGHTS**

The contractor shall fully indemnify the BSCDCL from and against all claims and proceedings for or on account of any infringement of any patent rights, design, trademark or name or other protected rights in respect of any construction plant, machine, work or material used for in connection with the works or temporary works.

### **LAW COVERING THE CONTRACT**

This contract shall be governed by the Indian laws for the time being in force.

### **LAWS, BYE-LAWS RELATING TO THE WORK**

The contractor shall strictly adhere by the provisions, for the time being in force, of law relating to works or any regulations and bylaws made by any local authority or any water & lighting agencies or any undertakings within the limits of the jurisdiction of which the work is proposed to be executed. The contractor shall be bound to give to the authorities concerned such notices and take all approvals as may be provided in the law, regulations or bylaws as aforesaid, and to pay all fees and taxes payable to such authorities in respect thereof.

### **CONTRACT AGREEMENT**

The Contractor shall enter into a Contract Agreement with the BSCDCL within 10 (TEN) days from the date of Letter of Award or within such extended time, as may be granted by the BSCDCL failing which no payment shall be released to the contractor. The cost of stamp papers, stamp duty, registration, if applicable on the contract, shall be borne by the Contractor. In case, the contractor does not sign the agreement as above or start the work within 10 (Ten) days of the issue of letter of Award, his earnest money is liable to be forfeited and Letter of award consequently will stand withdrawn.

### **MANNER OF EXECUTION OF AGREEMENT**

The agreement as per prescribed Performa as enclosed shall be signed at the office of the BSCDCL within 10(TEN days) days from the date of issue of Letter of Award. The Contractor shall provide for signing of the Contract, appropriate Power of Attorney and the requisite documents/ materials. Unless and until a formal contract is prepared and executed, the Letter of Award read in conjunction with the Tendering Documents will constitute a binding contract.

The agreement will be signed in five originals and the Contractor shall be provided with one signed original and the other four originals will be retained by the BSCDCL. The Contractor shall provide free of cost to the BSCDCL all the Engineering data, drawings and descriptive materials submitted along with the tender, in at least three (3) copies to form an integral part of the Agreement within seven (7) days after issuing of Letter of Award.

Subsequent to signing of the Agreement, the Contractor at his own cost shall provide to the BSCDCL with at least five (5) true hard bound copies of Agreement within thirty (30) days of its signing.

## **JURISDICTION**

The agreement shall be executed at BHOPAL on non-judicial stamp paper purchased in BHOPAL and the courts in BHOPAL alone will have jurisdiction to deal with matters arising there from, to the exclusion of all other courts.

**SECTION-4**

**LABOUR SAFETY, HEALTH  
AND  
REGULATIONS INCLUDING FORMS**

## **LABOUR SAFETY PROVISIONS**

Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than  $\frac{1}{4}$  to 1 ( $\frac{1}{4}$  horizontal and 1 vertical).

Scaffolding or staging more than 3.6m (12 feet) above the ground or floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3 feet) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

Working platforms, gangways, and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more that 3.6m (12 feet) above ground level or floor level, they should be closely boarded, should have adequate width & should be suitable fastened as described in (2.0) above.

Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3 feet).

Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30 feet) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11.5") for ladder up to and including 3m (10 feet) in length. For longer ladders this width should be increased at least  $\frac{1}{4}$ " for each additional 30 cm (1 ft.) of length. Uniform step spacing shall not exceed 30 cm (12"). Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of the work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceeding at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person or which may, with the consent of the Contractor, be paid to compensate any claim by any such person.

## **EXCAVATION AND TRENCHING**

All trenches, 1.2mts.(four feet) or more in depth, shall at all times be supplied with at least one ladder for each 30m.(100 feet) in length or fraction thereof, ladder shall be extended from bottom of the trench to at least 90cm (3feet) above the surface of the ground. The side of the trenches, which are 1.5 m. (5feet) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger or sides to collapsing. The excavated materials shall not be placed within 1.5m (5 feet) of the edges of the trench or half of the depth of the trench whichever is more.

Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

Demolition - Before any demolition work is commenced and also during the progress of the work following precautions shall be observed:

All roads and open areas adjacent to the work site shall either be closed or suitably protected.

No electric cable or apparatus which is likely to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be overloaded with debris or materials as to render it unsafe.

All necessary personal safety equipment's as considered adequate by the Engineer-in-charge should be kept available for the use of persons employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate step to ensure proper use of equipment by those concerned. The following safety equipment shall be invariably provided.

Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eye shall be provided with protective goggles.

- 4.1 Those engaged in welding works shall be provided with welders protective eye shields.

Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe interval.

When workers are employed for works in sewers and manholes, which are in active use, the Contractors shall ensure that the manhole covers are opened

and ventilated at-least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident the public. In addition, the contractor shall ensure that the following safety measures are adhered to:

Entry for workers into the sewer line shall not be allowed except under supervision of the JE or any other higher officer.

At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manholes for working inside.

Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes color in the presence of such gases and gives indication of their presence.

Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

Safety belt with rope should be provided to the workers. While working inside the manholes such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

No smoking or open flames shall be allowed near the blocked manhole being cleaned.

The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-In-charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air-blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at-least 2 metres away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

The workers engaged for cleaning the manholes / sewers should be properly trained before allowing to work in the manhole.

The workers shall be provided with Gumboots or non sparking shoes, bump helmets and gloves non sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

Workmen descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.

The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-In-charge regarding the steps to be taken in this regard in an individual case will be final.

The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form wherever men above the age of 18 are employed on the work of lead painting the following precautions should be taken.

- 4.1.1 No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
- 4.1.2 Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.
- 4.1.3 Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
- 4.1.4.1 a) White lead, sulphate or lead work products containing those pigments shall not be used in painting operation except in the form of paste or of paints ready for use. Measures shall be taken whenever required in order to prevent danger arising from the application of paint in the form of spray. Measures shall be taken, whenever practicable to prevent danger arising out of dust caused by dry rubbing down and scrapping.
- b) Adequate facilities shall be provided to enable working painter to wash during and on cessation of work.
- c) Suitable arrangements shall be made to prevent clothing put off during working hours being spoiled by painting materials.

4.1.4.2 a) Cases of lead poisoning and of suspected lead poisoning shall be notified and shall be subsequently verified by a medical man appointed by the competent authorities of BSCDCL.

The BSCDCL may require when necessary a medical examination of workers. Instructions with regard to the special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

When the work is done near any place where there is risk of drowning, all necessary equipment's should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.

Use of hoisting machines and tackle including their attachment encourage and supports shall conform to the following standard of conditions.

b) These shall be of good mechanical construction, sound material and adequate strength and free from patent, defects and shall be kept in good working order. Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffolding, winch or giving signals to operator.

In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this clause shall be loaded beyond the safe working load except for the purpose of testing.

In case of BSCDCL machines, the safe working load shall be notified by the Engineer-in-Charge. As regards Contractor's machines the Contractor shall notify the safe working load of the machine to the Engineer-in-charge whenever he brings any machinery to site of work and get verified by the Engineer-in-Charge.

Motors gearing, transmission electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguard. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel, such as gloves sleeves and boots as may be necessary be provided. The worker should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

All scaffold, ladders, and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place of work spot. The person responsible for compliance of the safety codes shall be named therein by the contractor.



To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the Contractor shall be open to inspection by BSCDCL Official or their representatives.

Notwithstanding the above Clauses from (i) to (xiv) there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

# **SECTION-5**

# **FORMS AND FORMATS**

## FORM XXV

**DETAILS OF THE BALANCE WORK IN HAND AS ON \_\_\_\_\_  
(UPTO THE PRECEDING MONTH OF SUBMISSION OF BID) WITH BSCDCL**

**(To be submitted in Envelop-1)**

S. No	Name of the Unit/Zone/SBG/RGB	Contract Value	Date of start as per LOI/Contract	Date of completion as per LOI/Contract	Work done up to the preceding month of submission of bid	Balance value of work

**Note:** The bidder shall also include the value of all such works which are awarded to bidder but yet not started up to the preceding month of submission of bid.

**FORM XXVI  
AFFIDAVIT**

**(To be submitted by bidder on non-judicial stamp paper of Rs. 100/- (Rupees Hundred only) duly attached by Notary Public)**

**(To be submitted in Envelop-1)**

Affidavit of Mr. ....S/o .....  
R/o .....

I, the deponent above named do hereby solemnly affirm and declare as under:

That I am the Proprietor/Authorized signatory of M/s  
.....  
Having its Head Office/Regd. Office at  
.....

That the information/documents/Experience certificates submitted by M/s..... along with the tender for ..... (NAME OF WORK)..... To BSCDCL Ltd. are genuine and true and nothing has been concealed.

I shall have no objection in case BSCDCL verifies them from issuing authority (ies). I shall also have no objection in providing the original copy of the document(s), in case BSCDCL demand so for verification.

I hereby confirm that in case, any document, information & / or certificate submitted by me found to be incorrect / false / fabricated, BSCDCL at its discretion may disqualify / reject / terminate the bid/contract and also forfeit the EMD / All dues.

I shall have no objection in case BSCDCL verifies any or all Bank Guarantee(s) under any of the clause(s) of Contract including those issued towards EMD and Performance Guarantee from the Zonal Branch /office issuing Bank and I/We shall have no right or claim on my submitted EMD before BSCDCL receives said verification.

That the Bank Guarantee issued against the EMD issued by (name and address of the Bank) is genuine and if found at any stage to be incorrect / false / fabricated, BSCDCL shall reject my bid, cancel pre-qualification and debar me from participating in any future tender for three years.

I, ....., the Proprietor / Authorised signatory of M/s..... do hereby confirm that the contents of the above Affidavit are true to my knowledge and nothing has been concealed there from..... and that no part of it is false.

Verified at ..... this..... day of .....

DEPONENT

ATTESTED BY (NOTARY PUBLIC)

**APPLICATION FOR EXTENSION OF TIME**

(To be completed by the Contractor)

**P A R T – I**

Name of Contractor

Name of the work as given in the Agreement

Agreement No.

Estimated amount put to tender

Date of commencement work as per agreement

Period allowed for completion of work as per agreement

Date of completion stipulated as per agreement

Period for which extension of time has been give previously

Extension granted

First extension vide Engineer-in-charge letter No... ..date                      Months              Days

2nd extension vide Engineer-in-charge letter No..... date                      Months              Days

3rd extension vide Engineer-in-

charge letter No..... date                      Months      Days

4th extension vide engineer-in-charge letter No..... date                      Months      Days

Total extension previously given

Reasons for which extension have been previously given (copies of the previous application should be attached)

Period for which extension is applied for:

Hindrances on account of which extension is applied for with dates on which hindrances occurred, and the period for which these are likely to last.

Serial No.

Nature of hindrance

Date of Occurrence

Period for which it is likely to last

Period for which extension required for this particular hindrance.

Over lapping period, if any, with reference to item

Net extension applied for

Remarks, if any

Total period for which extension is now applied for on account of hindrances mentioned above ..... Month/ days.

Extension of time required for extra work.

Details of extra work and on the amount involved:

Total value of extra work

Proportionate period of extension of time based on estimated amount put to tender on account of extra work.

Total extension of time required for 11 & 12

Submitted to the Engineer-in-Charges office.

DATE

SIGNATURE OF CONTRACTOR

## APPLICATION FOR EXTENSION OF TIME

### (PART – II)

Date of receipt of application from Contractor for the work in the Engineer-in-charge office.

Acknowledgement issued by Engineer-in-charge vide his letter No.dated

Engineer-in-charge remarks regarding hindrances mentioned by the Contractor.

Serial No.

Nature of hindrance

Date of occurrence of hindrance

Period for which hindrance, is likely to last

Extension of time period applied for by the contractor

Over lapping period, if any, giving reference to items which over lap

Net period for which extension is recommended.

Remarks as to why the hindrance occurred and justification for extension recommended.

Engineer-in-charge recommendations.

The present progress of the work should be stated and whether the work is likely to be completed by the date up to which extension has been applied for. If extension of time is not recommended, what compensation is proposed to be levied under the agreement.

SIGNATURTE OF ENGINEER-IN-CHARGE

**PROFORMA FOR EXTENSION OF TIME  
P A R T –III**

To

NAME

ADDRESS OF THE CONTRACTOR

SUBJECT:

Dear Sir(s)

Reference your letter No \_\_\_\_\_ dated \_\_\_\_\_ , in connection with the grant of extension of time for completion of the work.....

The date of completion for the above mentioned work, is ..... as stipulated in the agreement, dated .....

Extension of time for completion of the above mentioned work is granted upto\_\_\_\_\_, without prejudice to the right of the BSCDCL to recover compensation for delay in accordance with the provision made in Clause of the said agreement dated the \_\_\_/ \_\_\_/ \_\_\_. It is also clearly understood that the BSCDCL shall not consider any revision in contract price or any other compensation whatsoever due to grant of this extension.

Provided that notwithstanding the extension hereby granted, time is and shall still continue to be the essence of the said agreement.

Yours faithfully,  
FOR Bhopal Smart City Development Corporation Ltd.

**PROFORMA OF BANK GUARANTEE IN LIEU OF E M D (TENDER BOND)**

(Judicial Stamp paper of appropriate value as per stamp Act-of respective state)

Bhopal Smart City Development Corporation Ltd.  
Near Tatpar Petrol Pump, Sector A, Berkheda,  
Bhopal, Madhya Pradesh 462023

In consideration of Bhopal Smart City Development Corporation Limited, having its Registered Office at, Near Tatpar Petrol Pump Sector A, Berkheda (hereinafter called "BSCDCL" which expression shall unless repugnant to the subject or context include its successors and assigns) having issued Notice Inviting Tender No..... and M/s..... having its Registered Head Office at..... (hereinafter called the "TENDERER") is to participate in the said tender for.....

Whereas BSCDCL, as a special case, has agreed to accept an irrevocable and unconditional Tender Bond Guarantee for an amount of Rs..... valid upto.....from

the tenderer in lieu of Cash Deposit of Rs..... required to be made by the tenderer, as a condition precedent for participation in the said tender.

We the ..... (hereinafter called the "BANK") having its Registered, Office at..... and branch office at..... do hereby unconditionally and irrevocably undertake to pay immediately on demand in writing and without demur/protest any amount but not exceeding Rs ..... Any such demand made by BSCDCL shall be conclusive and binding on us irrespective of any dispute or differences that may be raised by the tenderer. Any change in the constitution of the tenderer or the Bank shall not discharge our liability under the guarantee.

We, the..... Bank, lastly undertake not to revoke this guarantee during its currency without the prior consent of BSCDCL in writing and this guarantee shall remain valid upto..... Unless a claim is made within three months from the date of expiry i.e. .... (three months after the date of expiry), we shall be relieved of our liability under this guarantee thereafter.

FOR AND ON BEHALF OF BANK

PLACE :

DATED :

WITNESS.

1.

2



**PROFORMA OF BANK GUARANTEE (PERFORMANCE)**

(Judicial Stamp paper of appropriate value as per stamp Act-of respective state)

Bhopal Smart City Development Corporation Ltd.  
Near Tatpar Petrol Pump, Sector A, Berkheda,  
Bhopal, Madhya Pradesh 462023

Whereas the Bhopal Smart City Development Corporation Limited, having its Registered Office at BSCDCL Near Tatpar Petrol Pump Sector A, Berkheda, Bhopal (hereinafter called "BSCDCL" which expression shall include its successors and assigns) having awarded a work order/contract / supply order No. dated (hereinafter called the contract) to M/s. .... (hereinafter called the contractor / supplier) at a total price of Rs..... subject to the terms and conditions contained in the contract.

WHEREAS, the terms and conditions of the contract require the contractor to furnish a

Rs....  
..... (Rupees.....  
bank guarantee for .. ..... ) being ..... % of the total value of the contract for proper execution and due fulfillment of the terms and conditions contained in the contract.

We, the Bank, (hereinafter called the "Bank") do hereby unconditionally and irrevocably undertake to pay to immediately on demand in writing and without protest/or demur all moneys payable by the contractor/supplier to BSCDCL in connection with the execution/supply of and performance of the works/equipment, inclusive of any loss, damages, charges, expenses and costs caused to or suffered by or which would be caused to or suffered by BSCDCL by reason of any breach by the contractor/supplier of any of the terms and conditions contained in the contract as specified in the notice of demand made by BSCDCL to the bank. Any such demand made by BSCDCL on the bank shall be conclusive evidence of the amount due and payable by the bank under this guarantee. However, the Bank's liability under this guarantee, shall be limited to Rs..... in the aggregate and the bank hereby agrees to the following terms and conditions:-

- (i) This guarantee shall be a continuing guarantee and irrevocable for all claims of BSCDCL as specified above and shall be valid during the period specified for the performance of the contract including the period of maintenance/warranty i.e. up to.....
- (ii) We, the said bank further agree with BSCDCL that BSCDCL shall have the fullest liberty without our consent and without affecting in any manner our obligations and liabilities hereunder to vary any of the terms and conditions of the said contract or to extend time for performance of contract by the contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by BSCDCL against the contractor/supplier under the contract and forbear or enforce any of the terms and conditions relating to the said contract and we shall not be relieved from our liability by reason of any

such variations or extension being granted to the contractor or for any forbearance, act or omission on the part of BSCDCL or any indulgence by BSCDCL to the contractor or by any such matter or thing whatsoever, which under the law relating to the sureties would, but for this provision, have effect of so relieving us.

This guarantee/undertaking shall be in addition to any other guarantee or security whatsoever BSCDCL may now or at any time have in relation to the performance of the works/equipment and the company shall have full re-course to or enforce this security in performance to any other security or guarantee which the BSCDCL may have or obtained and there shall be no forbearance on the part of the company in enforcing or requiring enforcement of any other security which shall have the effect of releasing the Bank from its full liability. It shall not be necessary for BSCDCL to proceed against the said contractor/supplier before proceeding against the Bank.

This guarantee/ undertaking shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier/contractor, but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to BSCDCL in terms thereof are paid by the Bank.

The Bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the bank in terms hereof, shall not be otherwise effected or suspended by reasons of any dispute or disputes having been raised by the supplier/contractor (whether or not pending before any Arbitrator, Tribunal or Court) or any denial of liability by the supplier/contractor stopping or preventing or purporting to stop or prevent any payment by the Bank to BSCDCL in terms hereof.

We, the said Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of BSCDCL in writing. Unless a claim is made in writing

within three months from the date of expiry of this guarantee i.e.....  
(three months after the date of expiry) we shall be relieved from all liabilities under  
this guarantee  
thereafter.

Signed this ..... day of ..... at.....

For and on behalf of Bank

WITNESS.

1. \_\_\_\_\_

—

2. \_\_\_\_\_

**PROFORMA OF BANK GUARANTEE  
(FOR MOBILIZATION ADVANCE)**

(Judicial Stamp paper of appropriate value as per stamp Act-of respective state)

Bhopal Smart City Development Corporation Limited,  
Near Tatpar Petrol Pump, Sector A, Berkheda,  
Bhopal, Madhya Pradesh 462023

1.0 In consideration of the Bhopal Smart City Development Corporation Limited, having its Registered Office at BSCDCL, Near Tatpar Petrol Pump, Sector A, Berkheda, Bhopal (hereinafter called "BSCDCL" which expression shall unless repugnant to the subject or context include his successor and assigns) having agreed under the terms and conditions of Contract No..... dated..... made between..... and BSCDCL in connection with..... (hereinafter called "the said contract") to make at the request of the Contractor a Mobilization Advance of Rs..... for utilizing it for the purpose of the Contract on his furnishing a guarantee acceptable to BSCDCL, we the ..... Bank Ltd., (hereinafter referred to the "the said Bank") and having our registered office at..... do hereby guarantee the due recovery by BSCDCL of the said advance as provided according to the terms and conditions of the Contract. We..... do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from BSCDCL stating that the amount claimed is due to BSCDCL under the said Agreement. Any such demand made on the..... shall be conclusive as regards the amount due and payable by the..... under this guarantee and..... agree that the liability of the ..... to pay BSCDCL the amount so demanded shall be absolute and unconditional notwithstanding any dispute or disputes raised by the Contractor and notwithstanding any legal proceeding pending in any court or Tribunal relating thereto. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs..... We ..... Bank further agree that BSCDCL shall be the sole judge of and as to whether the amount claimed has fallen due to BSCDCL under the said agreement or whether the said Contractor has not utilized the said advance or any part thereof for the purpose of the Contract and the extent of loss or damage caused to or suffered by BSCDCL on account of the said advance together with interest not being recovered in full and the decision of BSCDCL that the amount has fallen due from contractor or the said Contractor has not utilized the said advance or any part thereto for the purpose of the contract and as to the amount or amounts of loss or damage caused to or suffered by BSCDCL shall be final and binding on us. We, the said Bank, further agree that the Guarantee herein contained shall remain in full force and effect till the said advance has been fully recovered and its claims satisfied or discharged and till BSCDCL certify that the said advance has been fully recovered from the said Contractor, and accordingly discharges this Guarantee subject, however, that BSCDCL shall have no claims under this Guarantee after the said advance has been fully recovered, unless a notice of the claims under this Guarantee has been served on the Bank before the expiry of the said Bank Guarantee in which case the same shall be enforceable against the Bank.

BSCDCL shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity from time to time to vary any of the terms and conditions of the said Contract or the advance or to extend time of performance by the said Contractor or to postpone for any time and from time to time of the

powers exercisable by it against the said Contractor and either to enforce or forbear from enforcing any of terms and conditions governing the said Contract or the advance or securities available to BSCDCL and the said Bank shall not be released from its liability under these presents by any exercise by BSCDCL of the liberty with reference to the matters aforesaid or by reasons of time being given to the said Contractor or any other forbearance, act or omission on the part of BSCDCL or any indulgence by BSCDCL to the said Contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the bank from its such liability. 5.0 It shall not be necessary for BSCDCL to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which BSCDCL may have obtained or obtain from the Contractor or shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealized.

We, the said Bank, lastly undertake not to revoke this Guarantee during its currency except with the previous consent of BSCDCL in writing and agree that any change in the constitution of the said Contractor or the said Bank shall not discharge our liability hereunder.

Dated this .....day of.....

Dated

For and on behalf of Bank

(NAME AND DESIGNATION)

**PROFORMA OF BANK GUARANTEE**  
(IN LIEU OF SECURITY DEPOSIT)

(Judicial Stamp paper of appropriate value as per stamp Act-of respective state)

Bhopal Smart City Development Corporation Ltd.,  
Near Tatpar Petrol Pump, Sector A, Berkheda, Bhopal

In consideration of the Bhopal Smart City Development Corporation Ltd., having its Registered Office at Near Tatpar Petrol Pump Sector A, Berkheda (hereinafter called "BSCDCL") which expression shall include its successors and assigns having awarded to M/s..... (hereinafter called "the Supplier/Contractor") which expression shall wherever the subject or context so permits includes its successors and assigns) a Contract in terms inter-alia of BSCDCL's letter No..... dated..... and the Contract/Purchase Conditions of BSCDCL and upon the condition of the Supplier/Contractor furnishing Security for the performance of the Supplier's obligations and /or discharge of the contractor's/supplier's liability under and/or in connection with the said supply contract upto a sum of Rs..... (Rupees..... only)

We,..... ((hereinafter called "The Bank") which expression shall include its successors and assigns) hereby undertake and guarantee payment to BSCDCL forthwith on the same day on demand in writing and without protest or demur of any and all moneys payable by the supplier/contractor to BSCDCL under, in respect or in connection with the said contract inclusive of all the losses, damages, costs, charges and expenses and other moneys payable in respect of the above as specified in any notice of demand made by BSCDCL to the Bank with reference to this guarantee up to

and aggregate limit of Rs.....(Rupees.....only) and the bank hereby

agree with BSCDCL that:

This Guarantee shall be continuing guarantee and shall ..... remain valid and irrevocable for all claims of BSCDCL and liabilities of Supplier/Contractor arising upto and until midnight of.....

This Guarantee shall be in addition to any other Guarantee or Security whatsoever that BSCDCL now or at any time have in relation to the Supplier's obligations/liabilities under and/or in connection with the said supply/contract, and BSCDCL shall have full authority to take recourse or to enforce this Security in preference to any other Guarantee or Security which BSCDCL may have or obtain and no forbearance on the part of BSCDCL in enforcing or requiring enforcement of any other Security shall have the effect of releasing the Bank from its liability hereunder.

BSCDCL shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other security in respect of the Supplier's/Contractor's obligations and/ or liabilities under or in connection with the said supply/contract or to grant time and / or indulgence to the supplier / contractor or to increase or otherwise vary the prices or the total contract value or to release or to forbear from enforcement of all or any of the conditions under the said supply / contract and / or the remedies of BSCDCL under any other security/securities now or hereafter held by BSCDCL and no such dealings, increase(s) or other indulgence(s) or arrangement(s) with the supplier / contractor or releasing or forbearance

whatsoever shall have the effect of releasing the Bank from its full liability to BSCDCL hereunder or prejudicing rights of BSCDCL against the Bank. This Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier / contractor but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to BSCDCL in terms thereof.

5. The Bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the Bank in terms hereof shall not be otherwise affected or suspended by reason of any dispute or disputes having been raised by the supplier /contractor (whether or not pending before any Arbitrator, Tribunal or Court) or any denial or liability by the supplier/ contractor stopping/ preventing or purporting to stop or prevent any payment by the Bank to BSCDCL in terms thereof.

The amount stated in any notice of demand addressed by BSCDCL to the Guarantor

as liable to be paid to BSCDCL by the supplier/contractor or as suffered or incurred by BSCDCL on account of any losses or damages, costs, charges and / or expenses shall as between the Bank and BSCDCL be conclusive of the amount so liable to be paid to BSCDCL or suffered or incurred by BSCDCL as the case may be and payable by the Guarantor to BSCDCL in terms hereof subject to a maximum of Rs ..... (Rupees ..... only),

Unless demand or claim under this Guarantee is made on the Guarantor in writing

within three months form the date of expiry of the Guarantee i.e upto ..... the Guarantor shall be discharged from all liabilities under this Guarantee there under.

Notwithstanding anything contained herein before our liability under this guarantee is restricted to Rs . ..... (Rupees .....only). This guarantee will expire on..... Any claim under this Guarantee must be received by us within three months from the date of expiry i.e. .... (date, three months after the expiry date) and if no such claim has been received by us by that date all your rights under this guarantee will cease.

For and on behalf of the Bank

Place

Date

WITNESS:

1.

2.

**PROFORMA OF BANK GUARANTEE  
(FOR MOBILIZATION ADVANCE WITH INTEREST BEARING)  
(Judicial Stamp per Stamp Act - paper of appropriate value as respective state)**

Bhopal Smart City Development Corporation Limited,  
Bhopal, Pin- 462023

In consideration of the Bhopal Smart City Development Corporation Limited., having its Registered Office at Bhopal -462023 (hereinafter called "BSCDCL" which expression shall unless repugnant to the subject: or context Include his successor and assigns) having agreed under the terms and conditions of Contract No. dated made between (name of the contractor) and BSCDCL in connection with (name of work) (hereinafter called "the said contract") to make at the request of the Contractor a Mobilization Advance of Rs. \_\_\_\_\_ carrying interest @ ... % p.a. for utilizing it for the purpose of the Contract on his furnishing a guarantee acceptable to BSCDCL, we the Bank (hereinafter referred to the "the said Bank") and having our registered office at do hereby guarantee the due recovery by BSCDCL of the said advance alongwith interest as provided according to the terms and conditions of the contract. We ...

do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely, on a demand from BSCDCL stating that the amount claimed is due to BSCDCL under the said Agreement. Any such demand made on the said bank shall be conclusive as regards the amount due and payable by the said contractor under this guarantee and agree that the liability of the said bank to pay BSCDCL the amount so demanded shall be absolute and unconditional notwithstanding any dispute or disputes raised by the Contractor and notwithstanding any legal proceeding pending in any court or Tribunal relating thereto. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs ... inclusive of interest @ .....% p.a.

We the said bank further agree that BSCDCL shall be the sole judge of and as to whether the amount claimed has fallen due to BSCDCL under the said agreement or whether the said Contractor has not utilized the said advance or any part thereof for the purpose of the Contract and the extent of loss or damage caused to or suffered by BSCDCL on account of the said advance together with interest not being recovered in full and the decision of BSCDCL that the amount has fallen due from' contractor or the said Contractor has not utilized the said advance or any part thereto for the purpose of the contract and as to the amount or amounts of loss or damage caused to or suffered by BSCDCL shall be final and binding on us.

We, the said Bank, further agree that the Guarantee herein contained shall remain

in full force and effect till the said advance has been fully recovered and its claims satisfied or discharged and till BSCDCL certify Contractor, and accordingly discharges this Guarantee subject, however, that BSCDCL shall have no claims under this Guarantee unless a notice of the claims under this Guarantee has been served on the Bank before the expiry of the said Bank Guarantee in which case the same shall be enforceable against the Bank.

BSCDCL shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity from time to time to vary any of the

terms and conditions of the said Contract or the advance or to extend time of performance by the said Contractor or to postpone for any time and from time to time of the powers exercisable by it against the said Contractor and either to enforce or forbear from enforcing any of terms and conditions governing the said Contract or the advance or securities available to BSCDCL and the said Bank shall

not be released from its liability under these presents by any exercise by BSCDCL of the liberty with reference to the matters aforesaid or by reasons of time being given to the said Contractor or any other forbearance, act or omission on the part of BSCDCL or any indulgence by BSCDCL to the said Contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the bank from its such liability.

It shall not be necessary for BSCDCL to proceed against the Contractor before proceeding against the Bank and Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which BSCDCL may have obtained or obtain from the Contractor or shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealized.

We, the said Bank, lastly undertake not to revoke this Guarantee during its currency except with the previous consent of BSCDCL in writing and agree that any change in the constitution of the said Contractor or the said Bank shall not discharge our liability hereunder.

Dated this..... day of.....

Place:

Date:

Witness:



1.

## **FORM FOR GUARANTEE BOND FOR ANTI-TERMITE TREATMENT**

THIS AGREEMENT made this\_\_\_\_ day of Two thousand \_\_\_\_ between M/s\_\_\_\_\_ (hereinafter called the guarantor of the one part and M/s Bhopal Smart City Development Corporation Limited, hereinafter called the BSCDCL hereinafter called the OWNER of the other part.

Whereas this agreement is supplementary to the contract hereinafter called the contract dated\_\_\_\_\_ made between the guarantor of the one part and National Buildings Construction Corporation Ltd., of the other part whereby the contractor inter-alia, understood to render the buildings and structures in the said contract recited, completed, termite proof. And whereas the guarantor agreed to give a guarantee to the effect that the said structure will remain termite proof for TEN YEARS to be so reckoned from the date after the maintenance period prescribed in the contract expires.

During this period of guarantee the guarantor shall make good all defects and for that matter shall replace at his risk and cost such wooden member as may be damaged by termite and in case of any other defect being found, he shall render the building termite proof at his cost to the satisfaction of the Engineer-in-charge and shall commence the works of such rectification within seven days from date of issuing notice from the Engineer-in-Charge calling upon him to rectify the defects falling which the work shall be got done by BSCDCL/ OWNER by some other contractor at the guarantor's cost and risk and in the later case the decision of the Engineer-in-charge as to the cost recoverable from the guarantor shall be final and binding.

That if the Guarantor fails to execute the Anti-Termite treatment or commits breaches hereunder then the Guarantor will indemnify BSCDCL against all losses damages, cost expenses or otherwise which may be incurred by him by reasons of any default on the part of the guarantor in performance and observance of this supplemental Agreement. As to the amount of loss and or damage and/or cost incurred by BSCDCL/ OWNER decision of the Engineer-in-charge will be final and binding on the parties.

In witness where of these presents have been executed by the Guarantor\_\_\_\_\_ and by\_\_\_\_\_ for and on behalf of BSCDCL on the day of month and year first above written.

Signed sealed and delivered by (Guarantor)

IN THE PRESENCE OF:

1.

2.

Signed for and on behalf of BSCDCL by/ in presence of:

1.

2.

**GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS**

The agreement made this ..... day of ..... Two thousand One and ..... between ..... (hereinafter called Guarantor of the one part) and the BSCDCL (hereinafter called the Execution Agency of the other part).

WHEREAS this agreement is supplementary to a contract(hereinafter called the Contract), dated ..... and made between the GUARANTOR OF THE ONE part and the BSCDCL of the other part, whereby the Contractor, inter-alia, undertook to render the buildings and structures in the said contract recited completely water and leak proof.

AND WHEREAS the Guarantor agreed to give a guarantee to the effect that the said structures will remain water and leak proof for ten years from the date of handing over o the structure of water proofing treatment.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date after the maintenance period prescribed in the contract.

Provided that the Guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof or alteration and for such purpose.

Misuse of roof shall mean any operation, which will damage proofing treatment, like chopping of fire wood and things of the same nature which might cause damage to the roof.

Alternation shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts

The decision of the Engineer-in-Charge with regard to cause of leakage shall be final

During this period of guarantee, the Guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-in-Charge at his cost and shall commence the work for such rectification within seven days from the date of issue of notice from the Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by the BSCDCL by some other Contractor at the guarantor's cost and risk. The decision of Engineer-in-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if the Guarantor fails to execute the water proofing or commits breach there-under, then the Guarantor will indemnify the principal and his successors against all laws damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and / or damage and/ or cost incurred by the BSCDCL, the decision of the Engineer-in-Charge will final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligator,,,,,.....and by ..... And for and on behalf of the BSCDCL on the day, month and year first above written.

Signed, sealed and delivered by Obligator in the presence of-

- 1.
- 2.

Signed for and on behalf of the BSCDCL by \_\_\_\_\_

In presence of:

- 1.
- 2.

### **PROFORMA OF INDENTURE FOR SECURED ADVANCE OR CREDIT**

THIS INDENTURE made this day of \_\_\_\_\_ Between \_\_\_\_\_ (hereinafter called the contractor) which expression shall where the Context as admits or implies be deemed to include his executor/administrators and assign of the one part and National Buildings Construction Corporation Ltd., having its Registered Office at BSCDCL, Bhopal (hereinafter called the Engineer) which expression shall where the context so admits or implies be deemed to include its successors and assign of the other part.

Whereas by an agreement dated (hereinafter called the said agreement). The Contractor has agreed to construct.....

And whereas the Contractor has applied to the Engineer that he may be or be given credited for materials brought by him to the site of the work subject to the said agreement for use in construction of the work.

NOW THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) paid to the contractor by the Engineer. The receipt where the Contractor hereby acknowledges and of such advance or credited (if any) as may be made to him as aforesaid the Contractor hereby covenants and agrees with The Engineer and declares as follows:

That all sums given as advance or credit by The Engineer to the Contractor as aforesaid shall be employed by the Constructor in or toward the execution of the said works and for no other purpose whatsoever.

That the material for which the advance or credit is given are offered to and accepted by The Engineer as security and are absolutely the Contractor's own

property and free from encumbrances of any kind the Contractor will not make any application for or receives further advance or credit on the security or material which are not absolutely his own property and free from encumbrances of any kind and the Contractor shall indemnify The Engineer against any claims to any material in respect of which advance or credit has been made to him as aforesaid.

That the said material and all other material on the security of which any further advance or advances or credit may be given as aforesaid (hereinafter called the said materials) shall be used by the Contractor's solely in the execution of the said works in accordance with the direction of the Engineer and in terms of said agreement.

That the Contractor shall make at his own cost all necessary and adequate arrangement for the proper safe custody and protection against all risks of the said material and that until used in the construction as aforesaid the material shall remain at the site of the said works in Contractor's custody and on his responsibility and shall at all times be open to inspection by The Engineer. In the events of the materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in greater degree than in due to reasonable use and wear thereof the Contractor will replace the same with other materials of like quality of repair and make good the same as required by The Engineer.

That said material shall not on any account be removed from the site of work except with the written permission of The Engineer.

That the advance shall be repayable in full when or before Contractor receives payment from The Engineer of the price payable to him for the said work under the term and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done then on the occasion of each payment The Engineer will be at liberty to make a recovery from the Contractor's bill from such payments by deducting there from the value of the said materials than actually used in the contraction and in respect of which recovery has not been made previously. The value of this purpose being determined in respect of each description of materials at the rates at which the amounts of the advance as made under these presents was calculated.

That if the Contractor shall at any time make at any default in the performance of observance in respect of any of the terms and provisions of the said agreement or of that provisions the total amount of the advance or advances that may still be owing to The Engineer, shall immediately on the happening of such default be repayable by the Contractor to The Engineer together with interest thereon at 12% p.a. from the date of respective dated to such advance or advances to the date of payment and with all costs. Damages and expenses incurred by The Engineer in or for recovery hereof or the Contractor hereby covenants and agrees with The Engineer to repay and pay the same respective to him accordingly

That the Contractor hereby charges all the said materials with the repayment to The Engineer of all sums advances or credit as aforesaid and all costs. Charges, damages and expenses payable under these presents PROVIDED ALWAYS it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and wherever the covenant for payment and repayment herein before contained shall be become enforceable and the money owing shall not be paid in accordance therewith. The Engineer may at any time thereafter adopt all or any of the following courses he may deem best:

Seize the utilize the said material or any part thereof in the completion of the said works in accordance with the provision in that behalf contained in the said agreement debating the Contractor with the actual cost of effecting such completion and the amount due in respect of advance or credit under these presents and crediting the Contractor with value of work done as if he has carried it out in

accordance with the said agreement and the rates thereby provided if the balance is against the Contractor is to pay the same to the engineer on demand.

Remove and sell by public action the seized materials or any part thereof and out of the money arising from the sale repay the engineer under these presents and pay over the surplus (if any) to the Contractor.

Deduct all or any part of the moneys owing from any sums due to the contractor under said agreement.

Except in the event of such default on the part of contractor as aforesaid, interest on the said advance shall not be payable.

That in the event of conflict between the provisions of these presents and the said agreements, the provision of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents, the settlement of which has not been hereinbefore expressly provided for the same shall so far as is lawful be subject to jurisdiction of BHOPAL courts only.

IN WITNESS whereof the said the engineer and the contractor hereunto set their respective hands and seals the day year first above written.

Signed Sealed and delivered by

Contractor

The Engineers

## AGREEMENT FORM

This agreement made this day of (Month) (Year), between the **Bhopal Smart City Development Corporation Limited (BSCDCL)**, a company incorporated under the Companies Act, 1956 having its Registered Office at BSCDCL, Bhopal 462023 (hereinafter referred to as the "BSCDCL" which expression shall include its administrators, successors, executors and assigns) of the one part and **M/s(NAME OF CONTRACTOR)** (hereinafter referred to as the 'Contractor' which expression shall unless the context requires otherwise include its administrators, successors, executors and permitted assigns) of the other part.

WHEREAS, BSCDCL, has desirous of construction of **(NAME OF WORK)** (hereinafter referred to as the "PROJECT") on behalf of the **(NAME OF OWNER/MINISTRY)** (hereinafter referred to as "OWNER"), had invited tenders as per Tender documents vide NIT No. \_\_\_\_\_.

AND WHEREAS **(NAME OF CONTRACTOR)** had participated in the above referred tender vide their tender dated \_\_\_\_\_ and BSCDCL has accepted their aforesaid tender and award the contract for **(NAME OF PROJECT)** on the terms and conditions contained in its Letter of Intent No. \_\_\_\_\_ and the documents referred to therein, which have been unequivocally accepted by **(NAME OF CONTRACTOR)** vide their acceptance letter dated \_\_\_\_\_ resulting into a contract.

NOW THEREFORE THIS DEED WITNESSETH AS UNDER:

### ARTICLE 1.0 – AWARD OF CONTRACT

#### SCOPE OF WORK

BSCDCL has awarded the contract to **(NAME OF CONTRACTOR)** for the work of **(NAME OF WORK)** on the terms and conditions in its letter of intent No.

\_\_\_\_\_ dated \_\_\_\_\_ and the documents referred to therein. The award has taken effect from **(DATE)** i.e. the date of issue of aforesaid letter of intent. The terms and expressions used in this agreement shall have the same meanings as are assigned to them in the "Contract Documents" referred to in the succeeding Article.

### ARTICLE 2.0 – CONTRACT DOCUMENTS

The contract shall be performed strictly as per the terms and conditions stipulated herein and in the following documents attached herewith (hereinafter referred to as "Contract Documents").

BSCDCL Notice Inviting Tender vide No. \_\_\_\_\_ date \_\_\_\_\_ and BSCDCL's tender documents consisting of:

General Conditions of Contract (GCC) along with amendments/errata to GCC (if any) issued (Volume-I).

Special Conditions of Contract including Appendices & Annexures, Volume-II.

Bill of Quantities along with amendments/corrigendum of schedule items, if any (Volume-II).

\_\_\_\_\_  
\_\_\_\_\_

**(NAME OF CONTRACTOR)** letter proposal dated \_\_\_\_\_ and their subsequent communication:

Letter of Acceptance of Tender Conditions dated \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

BSCDCL's detailed Letter of Intent No. \_\_\_\_\_ dated \_\_\_\_\_ including Bill of Quantities. Agreed time schedule, Contractor's Organization Chart and list of Plant and Equipment's submitted by Contractor.

All the aforesaid contract documents referred to in Para 2.1 and 2.2 above shall form an integral part of this Agreement, in so far as the same or any part thereof column, to the tender documents and what has been specifically agreed to by BSCDCL in its Letter of Intent. Any matter inconsistent therewith, contrary or repugnant thereto or deviations taken by the Contractor in its "TENDER" but not agreed to specifically by BSCDCL in its Letter of Intent, shall be deemed to have been withdrawn by the Contractor without any cost implication to BSCDCL. For the sake of brevity, this Agreement along with its aforesaid contract documents and Letter of Intent shall be referred to as the "Contract".

### **ARTICLE 3.0 – CONDITIONS & CONVENANTS**

The scope of Contract, Consideration, terms of payments, advance, security deposits, taxes wherever applicable, insurance, agreed time schedule, compensation for delay and all other terms and conditions contained in BSCDCL's Letter of Intent No. \_\_\_\_\_ dated \_\_\_\_\_ are to be read in conjunction with other aforesaid contract documents. The contract shall be duly performed by the contractor strictly and faithfully in accordance with the terms of this contract.

The scope of work shall also include all such items which are not specifically mentioned in the Contract Documents but which are reasonably implied for the satisfactory completion of the entire scope of work envisaged under this contract unless otherwise specifically excluded from the scope of work in the Letter of Intent.

Contractor shall adhere to all requirements stipulated in the Contract documents.

Time is the essence of the Contract and it shall be strictly adhered to. The progress of work shall conform to agreed works schedule/contract documents and Letter of Intent.

This agreement constitutes full and complete understanding between the parties and terms of the presents. It shall supersede all prior correspondence to the extent of inconsistency or repugnancy to the terms and conditions contained in Agreement. Any modification of the Agreement shall be effected only by a written instrument signed by the authorized representative of both the parties.

The total contract price for the entire scope of this contract as detailed in Letter of Intent is Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only), which shall be governed by the stipulations of the contract documents.

### **ARTICLE 4.0 – NO WAIVER OF RIGHTS**

Neither the inspection by BSCDCL or the Engineer-in-Charge or Owner or any of their officials, employees or agents nor order by BSCDCL or the Engineer-in-Charge for payment of money or any payment for or acceptance of, the whole or any part of

the work by BSCDCL or the Engineer-in-Charge nor any extension of time nor any possession taken by the Engineer-in-Charge shall operate as waiver of any provisions of the contract, or of any power herein reserved to BSCDCL, or any right to damage herein provided, nor shall any waiver of any breach in the contract be held to be a waiver or any other or subsequent breach.

**ARTICLE 5.0 – GOVERNING LAW AND JURISDICTION**

The Laws applicable to this contract shall be the laws in force in India and jurisdiction of BHOPAL Court (s) only.

**Notice of Default**

Notice of default given by either party to the other party under the Agreement shall be in writing and shall be deemed to have been duly and properly served upon the parties hereto, if delivered against acknowledgment due or by FAX or by registered mail duly addressed to the signatories at the address mentioned herein above.

IN WITNESS WHEREOF, the parties through their duly authorized representatives have executed these presents (execution whereof has been approved by the Competent Authorities of both the parties) on the day, month and year first above mentioned at BHOPAL.

For and on behalf of:

For and on behalf of:

(NAME OF CONTRACTOR) (M/s Bhopal Smart City Development Corporation)

WITNESS:

WITNESS:

1.

1.



**SECTION-6**

**SPECIAL CONDITION OF  
CONTRACT(SCC)**

## **SPECIAL CONDITIONS OF CONTRACT (SCC)**

### **GENERAL-**

- 6.1 The following special conditions shall be read in conjunction with General conditions of contract. If there are any provisions in these Special Conditions, which are at variance with the provisions of General Conditions of Contract, the provisions in the Special Conditions shall take precedence.
- 6.2 Where any portion of Special Conditions of Contract is repugnant to or at variance with any provision of the instructions to Tenderer and General Conditions of Contract and / or the other documents forming part of the contract then unless a different intention appears the provision of the Special Conditions of Contract shall be deemed to override the provisions of the general conditions of contract and / or the other documents forming part of the contract only to the extent such repugnant/various in the special conditions of contract as are not possible of being reconciled with the provisions in the special conditions of contract as are not possible of being reconciled with the provision with instructions to Tenderer or General Conditions of contract and / or the other documents from part of the contract.
- 6.3 Working drawing shall be according to the drawing given in the Tender document.
- 6.4 Items mentioned in the BOQ may vary or any changes are needed then it should bring to the attention of BSCDCL.
- 6.5 Working drawings are given by BSCDCL in tender document; if any deviations found and correction required then it should be brought to BSCDCL for rectification.
- 6.6 The items which are missing or not defined in the given BOQ in this Tender Document, then the contractor has to submit the items for approval to BSCDCL.
- 6.7 The contractor has to submit sample of the items defined in BOQ the same to be Approved by BSCDCL, before use.
- 6.8 It is percentage rate tender bidder should quote percentage above or below of PAC.
- 6.9 Contractors shall construct/ refurbish Store, Cement Godown, Lab, Office **for their use or shall make for BSCDCL**. The space shall be provided by BSCDCL.
1. Two room for MCGM Site engineers (150 Sq.ft)
  2. One Four Wheeler vehicle like Bolero.

**SECTION-7**

**SCOPE OF WORK**

**AND**

**TECHNICAL SPECIFICATIONS**

## 7.1 SCOPE OF WORK FOR EPC CONTRACT: CIVIL-STRUCTURAL

### 7.1.1 GENERAL DESIGN OBLIGATIONS

The Contractor shall carry out, and be responsible for, the design of the Works, including any site surveys, subsoil investigations, materials testing, and all other things necessary for proper planning and design.

The Contractor shall establish a design liaison office at site within 28 days from the Commencement Date to facilitate preparation and submission of designs, drawings, construction documents, etc., for review and approval by the Employer's Representative. The design liaison office shall preferably be located near the Employer's office to facilitate communications and frequent interactions with the Employer's Representative and the Employer. The Contractor shall provide full-time design staff and continuously maintain the design liaison office until such time as all necessary designs and Construction Documents have been completed, reviewed, and approved by the Employer's Representative. The Contractor will be fully responsible for ensuring that its designs, drawings, and construction documents satisfy all requirements for constructing Works that are complete and fully functional in all respects.

### 7.1.2 SCOPE OF THE WORKS

The Scope of Work under this contract includes but is not limited to the following in relation to the design, construction, and operation of the Works:

- Contractor shall prepare and submit Design Basis Report for approval based on the design intent.
- Site Topographic Survey and Geotechnical Investigations as deemed necessary by the Contractor as per BIS latest codes, NBC etc as applicable through any nationally accredited lab. Employer may verify the results submitted by contractor, if need be.
- Setting out of the works.
- Site Clearing, Site Grading, Excavation, disposal of excavated earth and bailing out & disposal of water.
- Contractor shall do Structural Design based on approved Civil Structural Design Criteria.
- Preparation of complete structural design, drawings for Utility tunnel-foundation raft, external walls, partition walls, pipe and cable supports, cable tray supports, adjoining Vent Shaft, lateral duct entry to plot of 2m length minimum, entry and exit at either ends of duct and for other related structures in the Utility tunnel. i.e. Drain, Pedestals, Platforms, sump, etc to be provided as per provision contained in IS codes/NBC but not lower than the minimum criteria mentioned in the tender. Scales for each detail shall be use as per BIS standards.
- Contractor shall submit Structural stability certificate for 10 years and life span building structure certificate for 50 years for all structures and components from government authority at his own cost.
- Construction of all Civil Structures and Building finishes Work of all structures in Boulevard Street.

- For all structural designs and drawings the contractor must get the proof check done by accredited agencies at his own cost before submitting for the approval of the client.
- One Copy of structural design calculations and details in soft and hard copy (latest version of software) based on the approved plan shall be submitted before commencement of the construction work at site for information and record.
- Design, Construction and Commissioning of Roads.
- Submission of Detailed Engineering Designs, Drawings, Process Calculations, Data Sheets for approval.
- Execution of all Civil Works at Site including Construction, Erection, Testing and Handing over.
- Utility tunnel shall be designed for crack width and checked for water tightness after construction.
- Implementing Anti termite treatment / Water proofing / Insulation works. Contractor shall submit warranty certificate for same in approved format.
- Preparation and Submission of As-Built drawings for Civil and Structural Works.
- Issuing Warranty certificate for Anti termite treatment / Water proofing / Insulation works.
- Maintaining safety requirements and relevant Government Regulations, and ensure their implementation.
- Safety reporting: Brief reports of all accidents and hazardous incidents including descriptions of causes, extent of injuries, action taken, and precautions instituted to prevent repetition of such events.
- Contractor has to erect batch mix plant (minimum 60 cum/hr) fully automatic, computerised for preparation of design mix concrete as per latest BIS codes at his own cost and shall prepare all concrete accordingly. RMC to be used for 6 cum or more than 6 cum of concrete to be done in single pour.
- **Guarantee for construction defect/manufacturing defects for 12 months:** Contractor shall guarantee the following work for period of 12months after completion of work. Any damage or defect that may arise or that may remain undiscovered at the time of issue of completion certificate connected in any way with the equipment or materials supplied by him or in the workmanship be rectified or replaced by contractor at his own expense as desired by engineer in charge or in default may cause the same to be made good by other agency and deduct expenses there of (for which the certificate of engineer in charge shall be final) from any sums that may then or any time thereafter become due to contractor or of sale thereof or a sufficient portion thereof. Further, bidder please note that contractors shall liable to construction defect/manufacturing defects and not liable to damage caused by occupants if any.
- The scope as described above is only indicative and not exhaustive. In additions to above, the contractor shall be responsible for executing all the items required for completing the Boulevard Street in all respect to make the utility units accessible, and ready for workability and also all services and works complete as per direction of Engineer-in- charge.

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### 7.1.3QUALITY ASSURANCE

The Contractor shall institute a Quality Assurance and Quality Control (QA/QC) system in accordance with the requirements to demonstrate compliance with the requirements of the Contract. The Contractor shall submit, within 14 days of signing of the Contract Agreement, the required Quality Assurance and Quality Control (QA/QC) Program for approval by the Employer's Representative. The Employer's Representative will either approve the submittal or provide comments thereon to the Contractor within 14 days of submission by the Contractor. The Employer's Representative's, approval, disapproval, comments, or failure to provide any of these to the Contractor, shall in no way relieve the Contractor of any of its obligations or responsibilities under the Contract. The Contractor, prior to commencement of work at the Site, shall set up his own laboratory, with prior notification to the Employer's Representative. The calibration of the laboratory equipment and instruments shall be certified by agencies approved by the Employer's Representative. Laboratory equipment shall be properly maintained and calibrated throughout the period of the Contract by the Contractor at his own expense. The Contractor shall give the Employer's Representative reasonable advance notice prior to conducting any tests required by the Bid Documents, which the Employer's Representative may choose to witness at his discretion. The Employer's Representative will also inspect the laboratory if deemed necessary and the Contractor shall provide adequate facilities to the Employer's Representative that may be necessary for witnessing testing or for independent verification of the accuracy and adequacy of the facilities and equipment. The list of mandatory equipment to be provided at the Site by the Contractor is indicated in Volume II. Compliance with the QA/QC system shall not relieve the Contractor of any of his duties, obligations, or responsibilities under the Contract. Contractor shall maintain Quality Control records. QA/QC records till the completion of Defect liability Period shall be maintained.

### 7.1.4PROGRESS REPORTS

Weekly/Fortnightly/Monthly Progress Reports, along with photographs depicting the progress achieved in the month, shall be prepared by the Contractor in a format approved by the Employer's Representative and the Employer and submitted to the Employer's Representative. Contractor shall submit Weekly/Fortnightly/Monthly Progress Reports in review meetings for Project Progress and approval.

## 7.2. STRUCTURAL DESIGN BASIS REPORT

### 7.2.1 SCOPE

This Structural Design Basis is intended to provide general guidelines for the structural design, selection of materials, and preparation of engineering specifications and drawings for structures related to Infrastructure development (Utility Trench, Storm Water Drain, etc) at Boulevard Street.

This report will form the design criteria and basis for methods of analysis and design to be adopted in development (Utility Trench, Storm Water Drain, etc) at Boulevard Street with the aim of achieving a design that satisfies all strength and serviceability requirements under all types of loadings. The document also records all inputs assumed in the design and will form the basis for all future detailed structural work. This Report will include following-

### 7.2.2 INPUT

#### 7.2.2.1 ARCHITECTURAL & TRANSPORTATION

Boulevard Street shall be designed as per ROW provided in Road Cross Section drawings and facilities provided as per architectural drawings

### 7.2.2.2 GEOTECHNICAL

Please refer relevant soil investigation report (attached as annexure with this report)

## 7.2.3 SOIL INVESTIGATION AND FOUNDATION

### RECOMMENDATIONS

#### 7.2.3.1 FOUNDATION SYSTEMS

Raft foundation is recommended for Utility Trench.

#### 7.2.3.2 DESIGN CRITERIAS FOR FOUNDATION SYSTEM

Assumed allowable (design) Bearing Capacity of soil is 27.0 T/m<sup>2</sup> i.e. 270 kN/ m<sup>2</sup> at Foundation level as per available adjacent site soil investigation report. Coefficient of friction between concrete and soil strata ranges between 0.55 to 0.60 (Ref: NAVFAC DM 7.2, table 1, pg. 7.2-63).

Modulus of sub-grade reaction can be considered as 10800 kN/m<sup>3</sup>. ground water table is considered far below raft level.

## 7.2.4 CODES, STANDARDS AND SPECIFICATIONS

The design shall comply with the latest editions and revisions of the codes, specifications, and standards listed below:

❖	NBC	:	National Building Code of India.
❖	IS: 875 (Part 1)	:	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures (Dead Loads).
❖	IS: 875 (Part 2)	:	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures (Imposed Loads).
❖	IS: 875 (Part 3)	:	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures (Wind Loads).
❖	IS: 875 (Part 5)	:	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures (Special Loads and Combinations).
❖	IS: 1893 (Part 1)	:	Criteria for Earthquake Resistant Design of Structures (Part 1 – General Provisions and Buildings).
❖	IS: 1893 (Part 2)	:	Criteria for Earthquake Resistant Design of Structures (Part 2 – Liquid retaining tanks – Elevated and ground supported).
❖	IS: 1893 (Part 3)	:	Criteria for Earthquake Resistant Design of Structures (Part 3 – Bridges and retaining walls).
❖	IS: 1893 (Part 4)	:	Criteria for Earthquake Resistant Design of Structures (Part 4 – Industrial Structures including Stack-Like Structures).
❖	IBC	:	International Building Code.
❖	IS 3414	:	Code of practice for design and installation of joints in buildings

#### 7.2.4.1 REINFORCED CEMENT CONCRETE

- ❖ IS: 432 : Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement.
- ❖ IS: 456 : Plain and Reinforced Concrete – Code of Practice.
- ❖ IS: 1786 : High strength deformed steel bars and wires for concrete reinforcement.
- ❖ IS: 2502 : Code of Practice for Bending and Fixing of Bars for Concrete Reinforcement.
- ❖ IS: 4326 : Code of practice for earthquake resistant design and construction of buildings.
- ❖ IS:13920 : Code of practice for ductile design and detailing of reinforced concrete structures subjected to seismic forces.
- ❖ IS: 1080 : Code of practice for design and construction of shallow foundations in soils (other than raft, ring and shell).
- ❖ IS: 1904 : Code of practice for design and construction of foundations in soils: General requirements.
- ❖ IS: 2911: (Part 1 to 4) : Code of Practice for Design and Construction of Pile Foundation.
- ❖ IS: 2950 (Part 1) : Code of practice for design & construction of raft Foundations.
- ❖ IS: 2974 (Part 1 & 2) : Code of Practice for Design and Construction of Machine Foundations.
- ❖ IS: 3370 (Part 1 to 4) : Concrete structures for the storage of liquids - Code of Practice.
- ❖ IS: 5249 : Determination of dynamic properties of soil, method of test.
- ❖ IS: 8009 (Part 1 & 2) : Code of practice for calculation of settlements of foundations.
- ❖ IS: 3414 : Code Of Practice For Joints In The Buildings.
- ❖ SP: 16 : Design Aids for Reinforced Concrete to IS 456: 1978.
- ❖ SP: 24 : Explanatory Hand Book on Indian Standard Code of Practice for Plain and Reinforced Concrete (IS 456: 1978).
- ❖ SP: 34 : Hand Book of Concrete Reinforcement and Detailing.
- ❖ SP: 20 (S & T) : Explanatory Hand Book on Masonry Design and Construction.
- ❖ BS 8110 : 1997 : Plain and reinforced concrete - Code of practice British standard
- ❖ ACI 318-2011 : Plain and reinforced concrete - Code of practice American standard
- ❖ CP65 : Plain and reinforced concrete - Code of practice Singapore standard

#### 7.2.4.2 STRUCTURAL STEEL

- ❖ IS: 800 : Code of Practice for General Construction in Steel.
- ❖ IS: 811 : Cold formed light gauge structural steel sections.
- ❖ IS: 814 : Covered electrodes for manual metal arc welding of carbon and carbon manganese steel.



- ❖ IS: 816 : Code of Practice for Use of metal arc welding for general construction in mild steel.
- ❖ SP: 6 : Handbook for Structural Engineers.  
(Part 1 to 7)
- ❖ IS: 1977 : Low Tensile Structural Steels – Specification.
- ❖ IS: 2062 : Hot Rolled low, medium and high tensile structural steel.
- ❖ IS: 1363 : Hexagonal head bolts, screws & nuts of product Grade C.
- ❖ IS: 2016 : Plain washers.
- ❖ IS: 3138 : Hexagonal bolts and nuts (M42 to M150).
- ❖ IS: 3502 : Steel chequered plates.

## 7.2.5 COMPUTER PROGRAMS

Following computer programs are used for preliminary analysis and design.

- STAAD.Pro: This is commercial general-purpose analysis and design package acceptable internationally. It supports design of concrete and steel structures by Indian as well as other International codes. Analysis capabilities include wind and seismic analysis.
- In-house developed spread sheets in MS-Excel etc.

## 7.2.6 MATERIAL, WORKMANSHIP AND DESIGN CRITERIA

The proposed structure will consist of concrete and Steel reinforcement as main materials used for construction of the structures.

### 7.2.6.1 STRUCTURAL DESIGN OF RCC ELEMENTS

The design aims to achieve an acceptable probability that structures being designed will perform satisfactorily during their intended life. With an appropriate degree of safety, they

should sustain all the loads and deformations of normal construction and use and have adequate durability and resistance to the effects of earthquake, wind as well as misuse and fire. Structures and structural elements will be designed by Limit State Method. Due consideration will be given to the accepted theories, experience and modern design philosophy and practices.

#### 7.2.6.2 CONCRETE

##### a) Cement

Generally Ordinary Portland cement (OPC) conforming to IS: 8112 or Portland pozzolana cement conforming to IS: 1489 shall be used for superstructure.

##### b) Reinforced Cement Concrete (RCC)

Reinforced concrete conforming to Table 2; IS 456-2000 shall be used with 20mm and down size graded crushed stone aggregate unless noted otherwise. recommended Minimum grade of reinforced cement concrete shall be M30 considering high rise structure for

superstructures and substructures. Recommended grades for the different members are as follows:

- Beams and Slabs M35/M30
- Columns M35/M30
- Footings & Raft M35/M30
- Water Retaining Structures M35/M30
- Retaining Walls M35/M30

The contractor has to submit the detailed methodology including quality control measures for the manufacture and supply of concrete to the project site and take prior approval of the client before proceeding.

c) Lean Concrete

Concrete of minimum 100 mm thickness of lean concrete mix 1: 2 :4 (by weight, using 20mm and down size grade crushed stone aggregate) shall be provided under all RCC foundations.

#### 7.2.6.3 REINFORCEMENT BARS

- a) High Strength Deformed Thermo mechanically treated (TMT) Steel bars of grade Fe 500D, conforming to IS: 1786 with minimum elongation of 14.5% and of approved make listed in the tender document shall be used.
- b) No re-rolled reinforcement bars shall be used.
- c) Mechanical couplers for laps of bars higher than 32 mm diameter shall be done as per IS 16172.

#### 7.2.6.4 Min. Reinforcement steel

As per Indian standard code provisions, min & max. reinforcement to be provided as below:

1. Footing : Min. 0.12 % of total cross section area IS 456 : 2000
2. Column : Min. 0.8 % & max 4 % of gross sectional area IS 456 : 2000
3. Beam : Min.  $0.24 \cdot \sqrt{f_{ck}} / f_y$  % or 0.85  $f_y$  % Of efficient cross sectional area
  - o whichever is high. Max 4 % of cross sectional area IS 13920 :2016 & IS 456 :2000
4. Slab : 0.12 % of total cross sectional area IS 456 :2000
5. Retaining wall : 0.12 % of total cross sectional area in each direction
6. Water retaining structures : IS 3370 :2009

For tanks any dimension not exceeds 15m: 0.24 % of surface zone in each direction  
For tanks with any dimension more than 15m: 0.35 % of surface zone in each direction

#### 2.6.5 AGGREGATES

Selected aggregates of proper sizes shall conform to IS: 383.

#### 2.6.6 DURABILITY OF CONCRETE

Minimum recommended Grade of Concrete for structural elements for exposed surface conditions is M30. Nominal covers shall not be less than 40 mm from durability point of view. This is applicable for all RCC elements exposed to environment. For the RCC elements sheltered within the façade envelope, the nominal covers shall not be less than 30 mm from durability point of view. Fire resistance period of all building is minimum 2 hours.

The minimum clear cover for various structural elements is to be as follows,

*Table 0-1 Minimum Clear cover for various structural elements*

1	Slab	(simply supported)	:	35mm
		(continuous)	:	25mm
2	Beams (Roof & floor)	(simply supported)	:	40mm
		(continuous)	:	30mm
3	Tie beam	Tie beam	:	40mm
4	Columns/Pedestals	(Main R/F)	:	40mm
5	Foundation	(Bottom)	:	50mm
		(Top and Side)	:	50mm
6	RCC wall	RCC wall	:	40mm
7	Water retaining structures		:	50mm

#### 7.2.6.7 RCC LINTEL

RCC lintel and sill band shall be provided for all masonry in continuous length.

#### 7.2.6.8 MINIMUM / MAXIMUM THICKNESS OF STRUCTURAL CONCRETE ELEMENTS

- Beam width 200 mm / 750 mm.
- Floor slabs, Roof slabs 125 mm / 300 mm.
- Columns 300 mm / 900 mm.
- Wall thickness ( $0.4\% \leq p \leq 1.0\%$ ) 160 mm / 300 mm.

The following minimum / maximum thickness shall also be followed:

- Ground floor slab (non-suspended) 125mm / 300 mm.
- Footings (All types including raft foundations) 300 mm /as required.
- Liquid retaining structures 200 mm / 400 mm.
- Basement walls 200 mm / 400 mm.
- Parapets, Chajjas 125 mm / 200 mm.
- Storm Water Drains 125 mm / 250 mm.
- Precast Trench Cover/ Floor Slab 100 mm / 250 mm.

#### 7.2.6.9 CONSTRUCTION JOINT

Construction joints and shrinkage strips to be planned by the contractor, at design stage (as per IS code: 3414) itself and only be used in locations pre-approved by consultants. All construction joints of water retaining structures in RCC shall be made water tight using approved make water stops. Water stops shall be provided in all construction joints below ground level in addition to any joint which may be detailed on the drawing.

#### 7.2.6.10 EXPANSION JOINT

To relieve the structure from temperature stresses, expansion joints are provided at several locations as per the requirements. As per BIS code requirement expansion joints are proposed if the length of the structure exceeds 45m. Depending upon geometry of building and for lateral load resisting system expansion joint may be at a distance larger than that recommended by IS codes. Gap for the expansion / separation joint shall be provided as per the provisions mentioned in IS 1893 part IV. The gap in between will be later filled by

approved board & sealant with proper treatment. There shall be a dual column system with combined footing at the expansion joint locations.

#### 7.2.6.11 PERMISSIBLE DEFLECTIONS

Permissible deflections shall be as per IS: 456 clause 23.2. Total deflection of various structural members shall be calculated as per ANNEX C of IS 456. Provisions of IS 1893 and IS 875 shall be followed for lateral deformations.

1. The final vertical deflection due to all loads including the effects of temperature, creep and shrinkage and measured from the as-cast level of the supports of floors, roofs and all other horizontal members should not normally exceed span/250.
2. The part deflection including the effects of temperature, creep and shrinkage should not normally exceed span/350 or 20 mm whichever is less.

#### 7.2.6.12 FACTOR OF SAFETY

The factor of safety against overturning and sliding and flotation shall be as follows:

- a) Against Overturning : 1.4 as per clause 20.1 IS 456:2000
- b) Against sliding : 1.4 as per clause 20.2 IS 456:2000
- c) Against flotation : 1.2 as per clause 7.2 IS 3370 (part-1):2009

#### 7.2.6.13 CRACK WIDTH

Various structural members shall be designed for crack width mentioned as below as per clause no. 35.3.2, IS 456:2000 & clause no. 4.4.1.2, IS 3370(Part-2):2009.

- For structural members exposure to severe exposure condition = 0.1mm
- For water retaining structures = 0.2 mm
- For members exposed to soil or ground water = 0.2 mm
- All other structural members = 0.3 mm

### 7.2.7 DESIGN LOADS

The various structures/ buildings for this project shall be designed for the following loads and also effects due to shrinkage, creep, temperature, etc, where applicable.

#### 7.2.7.1 DEAD LOAD

The dead loads are calculated on the basis of unit weights of materials given in IS: 875 (Part 1). The dead load considered in the structural design shall consist of the full weight of all known fixed structural and architectural elements. The weight of fixed service equipment excluding their contents such as heating, ventilating and air conditioning systems and the weight of all process equipment including all fixtures (conduit, cable tray, ductwork, etc. permanently attached to the structure) and attached piping but excluding their contents shall be considered in dead load. The data provided by the project architect and other service consultants will be used for the specific materials/ equipments.

Unless otherwise specified; the unit weight of materials will be used as follows.

Reinforced concrete	25.00 kN/m <sup>3</sup>
Plain concrete	24.00 kN/m <sup>3</sup>
Light weight concrete	12.00 kN/m <sup>3</sup>
Concrete block work	18.00 kN/m <sup>3</sup>

Brickwork	20.00 kN/m <sup>3</sup>
Autoclaved Aerated Concrete Blocks	8.00 kN/m <sup>3</sup>
Stone cladding	25.00 kN/m <sup>3</sup>
Floor finishes	20.00 kN/m <sup>3</sup>
Glass	23.50 kN/m <sup>3</sup>
Structural steel	78.50 kN/m <sup>3</sup>
Water	09.81 kN/m <sup>3</sup>
Dry Soil	16.00 kN/m <sup>3</sup>
Saturated Soil (Garden load with roots)	21.00 kN/m <sup>3</sup>

Typical dead loads considered in the design are as follows:

Self weight of slabs, beams, columns & walls - As per sectional sizes of the members.

Additional dead loads

floor finishes at Typical floors -1.5 kN/m<sup>2</sup>

Water Proofing at Roof ( BBC waterproofing) -3.0 kN/m<sup>2</sup>

The effects due to provision of sunken slabs in kitchens and toilets and terrace gardens shall be considered as per Architectural or MEP drawings.

#### 7.2.7.2 LIVE LOAD

All the live loads shall be as per IS: 875 (Part 2). In general, following loads reproduced from the code by the use/ occupancy of a building or structure shall be the minimum considered in the designs.

*Table 0-2 Live Load Details*

Loading Area	Load Intensity (KN/m <sup>2</sup> )
Accessible Roof	1.50
Inaccessible Roof	0.75
Storage Area	5.00
Play area, Paved Area, Landscape/ Lawn	5.00
Lobby, Footpath, Utility Area	5.00
Car Parking Area/Ramp	5.00
Drive ways of Podium level	15.00
Planter Area	5.00
Electrical Meter room	5.00
Mechanical room	5.00
Pump house	5.00
DG room	10.00

In addition to the live/imposed loads specified above, loads by dynamic effect of machinery shall be considered. The loads due to the machinery and equipment shall be as specified by the manufacturer and if it exceeds to above then actual loads shall be considered. Resonant conditions shall be avoided by suitably proportioning the supporting structural members.

#### 7.2.7.3 SEISMIC LOAD (SL)

All structures, foundations shall be designed to resist the effects of earthquakes in accordance with IS: 1893 - Criteria for Earthquake Resistant Design of Structures for Design

Basis Earthquake. The structure is primarily column/ shear wall and beam framing system and since due considerations will be given to the major suggestions/ clauses from IS: 13920. The frames are to be designed to carry lateral loads but do not fulfill the requirements of 'dual systems' as per Table 7.

#### 7.2.7.4 SEISMIC PARAMETERS

Seismic design forces shall be determined based upon the following parameters. Buildings of different materials of construction and lateral force resisting systems shall be investigated separately.

Table 0-3 Seismic Parameters

Item	Value	Reference
Seismic Zone:	Zone – II	Fig.1 - Map Showing Seismic Zones of India. (IS 1893 – Part 1)
Zone Factor (z):	0.1 (Low)	Table 2 (IS 1893-Part 1)
Importance Factor (I):	1.0	Table 6 (IS 1893-Part 1)
Response Reduction Factor (R):	4.0	Table 7 (IS 1893-Part 1) CL.No.6.4.2
Fundamental Natural Period (T <sub>a</sub> )	$T_a = \frac{0.09}{\sqrt{d}}$	Clause No: 7.6.2 – IS: 1893 (Part 1).
Average Response Acceleration Coefficient (S <sub>a</sub> /g): For Rocky or Hard soil	$S_a/g \begin{cases} 1+15T & 0.00 & T & 0.10 \\ 2.5 & 0.10 & T & 0.40 \\ 1.00 / T & 0.40 & T & 4.00 \end{cases}$	Fig. 2 Response Spectra for Rock & Soil Sites for 5 percent damping.
Damping Coefficient	0.05 for RCC Structure 0.02 for Steel Structure	Clause No: 7.8.2.1 – IS: 1893 (Part 1).

Item	Value	Reference
<b>Design Spectrum</b> The design horizontal seismic coefficient ( $A_h$ )	$\frac{Z I S_a}{2 R g}$	<b>Clause No: 6.4.2 – IS: 1893 (Part 1).</b>
<b>Design Seismic Base shear</b>	$V_B = A_h W$	<b>Clause No: 7.5.3 – IS: 1893 (Part 1).</b>

Contribution of permanent dead loads and live loads as specified in IS: 1893 (Part 1); Clause No: 7.3 shall be considered while calculating nodal masses. Live load on the roof shall not be accounted in the calculation of nodal masses.

#### 7.2.7.5 SEISMIC WEIGHT CALCULATION

The seismic weight of any structure includes all permanent rigidly attached structural and non-structural components such as walls, floors, roofs, total weight of permanent equipment etc. The contribution of live load to be considered in the seismic weight calculation shall be taken as per Clause 7.3.1 and as specified in Table – 8 of IS 1893 (Part 1).

#### 7.2.7.6 PERMISSIBLE STRESSES

- a) Whenever seismic forces are considered along with other normal design forces, the permissible stresses in material shall be governed by the respective codes as per which the structure/ equipment is being designed.
- b) For the other provisions of the code Cl.No.6.3.5 of IS: 1893 (part-1) and Cl.No. 7.4 of IS: 1893 (Part-4) shall be followed.
- c) Earthquake loads shall not be considered to act simultaneously with wind.

#### 7.2.7.7 METHOD OF SEISMIC DESIGN

- a) General

This document provides certain guidelines for the methods to be used for seismic analysis of structures/equipment.

- b) Method of Analysis

Dynamic Analysis by response spectrum method shall be used to analysis structures for earthquake forces. For all Structures recommendations as per IS: 1893 shall be followed.

#### 7.2.7.8 DUCTILE DETAILING

The ductility details of reinforced concrete members shall be provided as per the provisions of IS: 13920 to avoid premature failure during earthquake.

#### 7.2.7.9 IMPACT LOADS

- a) All structural framing and concrete foundations subject to vibration, impact, impulse, shock, etc., shall be designed to withstand the generated forces within the limits of acceptable stress, deflection, and/or amplitude of vibration.
- b) All structures supporting reciprocating equipment or rotating equipment with excessive imbalance shall be analyzed for both strength and response.
- c) All structures supporting moving or stationary equipment shall be designed for static loads plus an appropriate impact factor as defined by the equipment manufacturer, IS: 875, IS: 2974.

#### 7.2.7.10 WHEEL LOAD

For any structure or pipeline below roads, IRC Class of loading for which the road has been actually designed will be considered.

#### 7.2.7.11 SURCHARGE LOAD

Minimum surcharge of 10KN/m<sup>2</sup> and as per IRC whichever is higher shall be considered for design of all underground structures to take in to account the construction load and vehicular traffic in the vicinity of structure. The soil parameters and ground water table will be considered as per soil investigation report.

#### 7.2.7.12 EARTH PRESSURE

Earth pressure for walls of basement/ tanks etc. with propped support condition will be calculated using coefficient of earth pressure at-rest. Earth pressure for cantilever walls like cable trenches will be calculated based on active earth pressure. Unit weight of soil shall be as per section 8.1. Other soil parameters such as cohesion and angle of internal friction shall be considered as per soil investigation report.

#### 7.2.7.13 HYDROSTATIC PRESSURE

If envisaged, the ground water load shall be applied on the substructure as super imposed dead load in addition to the earth pressure. The dry density of soil shall be considered in this combination.

#### 7.2.7.14 CONSTRUCTION LOADS

Loads produced by the materials of construction plus the equipment required to construct the facility (crane loads, rigging loads, earth moving equipment, etc.) as applicable shall be considered. When the sequencing of construction will not permit the lateral force resisting system of the structure to be constructed first, the engineer shall make provisions for temporary lateral bracing and clearly identify these requirements on the design drawings and contract documents. The Contractor shall coordinate the sequence of building erection and the types and quantity of construction equipment to be used.



Any other loads like those of services; storage etc has to be obtained from time to time from the relevant consultants and is to be incorporated. The top slab of the lift shaft to be designed for lift loads as obtained from the manufacturer.

#### 7.2.7.15 LOAD COMBINATIONS

Each element of a building or structure shall be provided with sufficient strength to resist the most critical effects resulting from the following combination of loads.

**Load cases and load combination shall be as follow:**

- a) Static load cases
  - 1) Dead load (DL)
  - 2) Live load (LL)
  - 3) Water Pressure (Water)
  - 4) Earth Pressure (Soil)
  - 5) Surcharge Pressure (Surcharge)
  - 6) Uplift Pressure Due to Ground Water (Uplift)
  - 7) Seismic load (Spectra) in X-direction (EQX)
  - 8) Seismic load (Spectra) in Y-direction (EQY)

(X and Y directions are mutually orthogonal in plan area, to define the direction of seismic forces with reference to building)

- b) Load Combinations

The following Load Combinations have been considered for the analysis.

#### **Factored Load Combination**

- 1) 1.5 DL
- 2) 1.5 (DL + LL)
- 3) 1.2 (DL+LL+WATER)
- 4) 1.5 (DL+WATER)
- 5) 1.2 (DL+LL+SOIL+UPLIFT+SURCHARGE)
- 6) 1.2 (DL+LL+WATER+SOIL+UPLIFT+SURCHARGE)
- 7) 1.5 (DL+SOIL+UPLIFT+SURCHARGE)
- 8) 1.5 (DL+WATER+SOIL+UPLIFT+SURCHARGE)
- 9) 1.2 (DL+LL+EQX+WATER)
- 10) 1.2 (DL+LL+EQZ+WATER)
- 11) 1.5 (DL+EQX+WATER)
- 12) 1.5 (DL+EQZ+WATER)
- 13) 1.2 (DL+LL+EQX+SOIL+UPLIFT+SURCHARGE)

- 14) 1.2 (DL+LL+EQZ+SOIL+UPLIFT+SURCHARGE)
- 15) 1.5 (DL+EQX+SOIL+UPLIFT+SURCHARGE)
- 16) 1.5 (DL+EQZ+SOIL+UPLIFT+SURCHARGE)
- 17) 1.2 (DL+LL+EQX+WATER+SOIL+UPLIFT+SURCHARGE)
- 18) 1.2 (DL+LL+EQZ+WATER+SOIL+UPLIFT+SURCHARGE)
- 19) 1.5 (DL+EQX+WATER+SOIL+UPLIFT+SURCHARGE)
- 20) 1.5 (DL+EQZ+WATER+SOIL+UPLIFT+SURCHARGE)
- 21) 1.2 (DL +LL+EQX)
- 22) 1.2 (DL + LL – EQX)
- 23) 1.2 (DL + LL + EQY)
- 24) 1.2 (DL + LL – EQY)
- 25) 1.5 (DL + EQX)
- 26) 1.5 (DL – EQX)
- 27) 1.5 (DL + EQY)
- 28) 1.5 (DL – EQY)
- 29) 0.9 DL + 1.5 EQX
- 30) 0.9 DL -1.5 EQX
- 31) 0.9 DL + 1.5 EQY
- 32) 0.9 DL - 1.5 EQY

#### **Load Combinations for Serviceability**

- 1) DL+ LL
- 2) (DL+LL+WATER)
- 3) (DL+WATER)
- 4) (DL+LL+SOIL+UPLIFT+SURCHARGE)
- 5) (DL+LL+WATER+SOIL+UPLIFT+SURCHARGE)
- 6) (DL+SOIL+UPLIFT+SURCHARGE)
- 7) (DL+WATER+SOIL+UPLIFT+SURCHARGE)
- 8) DL + 0.8 LL + 0.8 EQX
- 9) DL + 0.8 LL – 0.8 EQX
- 10) DL + 0.8 LL + 0.8 EQY
- 11) DL + 0.8 LL - 0.8 EQY
- 12) DL + EQX
- 13) DL – EQX

14) DL + EQY

15) DL - EQY

The design shall be governed by worst load combinations, keeping in view the probability of

- Each load case acting together and Their disposition in relation to other loads and severity of stresses or deformations caused by combinations of the various loads is necessary to ensure the required safety and economy in the design of a structure.

The allowable stresses and soil bearing values shall not be increased for any condition of dead, live loads acting alone or in combination with each other.

## 7.2.8 CONCLUSIONS

Further detail design engineering and drawings will be developed based on the philosophy, method and statutory requirements described in this document.

## 7.2. SCOPE OF WORK FOR EPC CONTRACT: ROAD WORK

### 7.2.1 General Design Obligations

The scope of proposed road works includes development of roads/driveways, pathways and parking areas within Bhopal smart City project Site Road No MR03 (Boulevard Street-45 m RoW) connecting to project site as per approved master plan site development. The Contractor shall carry out, and be responsible for, the design and execution of the road, junction and public facility works, including any site surveys, subsoil investigations, materials procurement and testing, and all other things necessary for proper planning, design and construction.

The Contractor shall establish a design liaison office at site within 28 days from the Commencement Date to facilitate preparation and submission of designs, drawings, construction documents, etc., for review and approval by the Employer's Representative. The design liaison office shall preferably be located near the Employer's office to facilitate better communications and frequent interactions. The Contractor shall provide full-time design staff and continuously maintain the design liaison office until such time as all necessary designs and Construction Documents have been completed, reviewed, and approved by the Employer's Representative. The Contractor will be fully responsible for ensuring that its designs, drawings, and construction documents satisfy all requirements for constructing road works that are complete and fully functional in all respects.

#### 7.2.1.1 Scope of the Works

The Scope of Work under this contract includes but is not limited to the following in relation to the design, construction, and operation of the Works:

- Contractor shall study approved master plan of proposed development at Bhopal Smart City site including all external roads connecting to site to have complete idea of anticipated road works and for proper coordination of various works.

- Contractor shall understand all types of pavement to be designed and constructed in relation to proposed surface finishes of roads/driveways, pathways and parking areas, i.e. bituminous, paver block, concrete pavement, etc.
- Site Topographic Survey and Geotechnical Investigations as deemed necessary by the Contractor and Indian Road Congress (IRC) standard/MORTH.
- Contractor shall follow latest Indian Roads Congress (IRC) / Indian Standard (IS) codes and Ministry of Road Transport and Highways (MORTH) specifications and/or related other international standards for design and construction of road works
- Contractor shall do Structural Design of all retaining structures, culverts, etc. based on approved Civil Structural Design Criteria
- Contractor shall submit Structural Stability Certificate for all anticipated structures
- For all structural designs and drawings the contractor must get the proof check done by accredited agencies at his own cost before submitting for the approval of the client
- Contractor shall prepare and submit Design Basis Report along with design calculations for approval based on the design Intent
- Contractor shall prepare and submit Construction Drawings necessary for execution.
- Contractor shall coordinate with other design / implementing agencies related to site infrastructure utility works, i.e. water, sewerage, electricity, telecommunication lines, etc. for road design and proper execution. All proposed underground utilities shall be executed first before road finishing works to avoid any reworks.
- Contractor shall prepare and submit Specifications for any new non - DSR item and Cost Estimation for proposed road works based on design intent.
- Contractor shall take all necessary approvals prior to execution from concerned agencies. Works shall be start after formal approval of design and construction documents from Employer's Representative.
- The construction works shall include but not limited to following works:
  - All works shall be carried out as per approved specifications and design intent
  - Contractor shall submit construction methodology, schedule and plans for proposed works
  - Contractor shall do Site Clearing and Grubbing, Earth excavation and disposal of excavated earth in borrow pits, filling with borrowed earth in layers, etc. necessary for site grading.
  - Contractor shall inform about his arrangements for water, electricity, fuel, etc. necessary for works
  - Setting out of the works at site
  - Coordination with other agencies responsible for any works within area under scope. All utility or allied works within right of way (ROW) and parking areas shall be executed first prior to road base works.
  - Soil stabilization or other measures to be implemented to improve soil subgrade strength as per design intent
  - Execution of all road layers as per approved specifications and design intent
  - Testing of all materials to be used in construction as per respective standard tests

- Field / laboratory tests on samples of executed works for quality check
- Proper curing of finished surfaces prior to opening to general traffic
- Contractor shall also take approval from architecture / landscape agencies for all finished surface products to be used in construction for their colour, make and aesthetics, i.e. paver blocks, stone tiles, kerb stones, etc.
- Contractor shall plan activities in such a way that no construction vehicles pass over finished road surface. If construction vehicle is to be passed over finished roads then the road shall be designed to take care for the same
- Preparation and Submission of As-Built drawings for Civil and Structural Works
- Maintaining safety requirements and relevant Government Regulations, and ensure their implementation
- Safety reporting: Brief reports of all accidents and hazardous incidents including descriptions of causes, extent of injuries, action taken, and precautions instituted to prevent repetition of such events

#### 7.2.1.2 Quality Assurance

The Contractor shall institute a Quality Assurance and Quality Control (QA/QC) system in accordance with the requirements to demonstrate compliance with the requirements of the Contract. The Contractor shall submit, within 14 days of signing of the Contract Agreement, the required Quality Assurance and Quality Control (QA/QC) Program for approval by the Employer's Representative. The Employer's Representative will either approve the submittal or provide comments thereon to the Contractor within 14 days of submission by the Contractor. The Employer's Representative's, approval, disapproval, comments, or failure to provide any of these to the Contractor, shall in no way relieve the Contractor of any of its obligations or responsibilities under the Contract. The Contractor, prior to commencement of work at the Site, shall set up his own laboratory or give the name of the nearby available laboratory where testing will be carried out, with prior notification to the Employer's Representative. The calibration of the laboratory equipment and instruments shall be certified by agencies approved by the Employer's Representative. Laboratory equipment shall be properly maintained and calibrated throughout the period of the Contract. The Contractor shall give the Employer's Representative reasonable advance notice prior to conducting any tests required by the Bid Documents, which the Employer's Representative may choose to witness at his discretion. The Employer's Representative will also inspect the laboratory if deemed necessary and the Contractor shall provide adequate facilities to the Employer's Representative that may be necessary for witnessing testing or for independent verification of the accuracy and adequacy of the facilities and equipment. Compliance with the QA/QC system shall not relieve the Contractor of any of his duties, obligations, or responsibilities under the Contract. Contractor shall maintain Quality Control records. QA/QC records shall be maintained till the completion of Defect liability Period.

#### 7.2.2.3 Progress Reports

Weekly/Fortnightly/Monthly Progress Reports, along with photographs depicting the progress achieved in the month, shall be prepared by the Contractor in a format approved by the Employer's Representative and the Employer and submitted to the Employer's Representative. Contractor shall submit Weekly/Fortnightly/Monthly Progress Reports in review meetings for Project Progress and approval.

## 2 ROAD DESIGN BASIS REPORT

### 2.1 Introduction

Roads are essential infrastructure component of civilisation as they provide important means for movement of people and goods. Roads play major role in economic and social growth of

community. This document provides design basis for external roads connecting proposed development of Bhopal Smart City project Road No MR03 (Boulevard Street-45 m RoW). The design basis gives emphases on safety, efficiency and economics. This document should be read in conjunction with other documents and drawings related to roads and transportation issued for the project.

The design basis is given for pavement design of external roads with bituminous carriageway and interlocking concrete paver block footpath. Right of Way of Proposed road describe with pavement composition in typical section of road in drawing section.

## **2.2 Road Cross Section Detail**

Road No MR03 (Boulevard Street-45 m RoW) typical cross section (TCS No.-02) shows width of center median 1.2m, left and right paved carriageway with cycle track including Kerb shyness 12.5 m than 2.7 m tree trench and 6.7 m is footpath/walkways. At grade junction detail as per marked in junction drawings. Utility detail, electrical, horticulture and ICT detail marked as per reference drawing.

## **2.3 Structural Design of Pavement Layers**

### **2.3.1 Pavement Type**

Following types of pavements are identified for ease of construction, low construction cost, ease for maintenance of utilities, allowing quick surface runoff and aesthetics for roads connecting Smart city area. The classification applicable to pavement types are as follows:

a) For external roads

- Carriageway - Bituminous (Flexible) Pavement
- Footpath - Interlocking concrete / stone paver blocks

### **2.3.2 Design Parameters**

- 1) Traffic for pavement design for external roads - 100 Million Standard Axles (msa)
- 2) Design Life - 15 years
- 3) Design Wheel Load - 6 Tonne
- 4) Tyre Pressure - 7 kg/sqcm
- 5) CBR value of Subgrade - 8%

### **2.3.3 Pavement Composition**

“IRC:37- "Guidelines for the Design of Flexible Pavements”, MORTH and good engineering practice will be considered for design of Flexible (Asphalt) pavement.

#### **1) Subgrade, Sub-base and Base Course**

##### **a) Subgrade**

The subgrade whether in cut or fill should be well compacted to utilize its full strength and to economies thereby on the overall thickness of pavement required. Most of the specifications prescribe use of selected material and stiffer standards of compaction in subgrade (top 500 mm portion of the roadway). The current MORT&H specification for Road and Bridge works recommended that the subgrade shall be compacted to 97% of dry density achieved with heavy compaction (modified proctor density) as per IS:2720 (Part - 8). These requirements should be strictly complied. IRC: 36 “Recommended Practice for the construction of Earth Embankments for Road Works” should be followed for Guidance during planning and execution of work. The California Bearing Ratio, CBR value needs to be determined for earth material (4 day soaked sample) to be used as subgrade. Based on CBR value of subgrade material, the total pavement crust thickness and different layers will be decided.

##### **b) Sub-Base Course**

Sub-base materials comprise natural sand, moorum, gravel, laterite, kankar, brick metal, crushed stone, crushed slag, crushed concrete or combination thereof meeting the prescribed grading and physical requirements. When the sub-base material consists of combination of materials, mixing shall be done mechanically either using a suitable mixer or adopting mix-in-place method.

MORT&H specifications suggest three gradings each for close and coarse graded granular sub-base materials specify that the materials passing 425 micron sieve when tested in accordance with IS: 2720 (Part 5) should have liquid limit and plasticity index of not less than 25 and 6 respectively. These requirements and the specified grain size distribution of the sub-base material should be strictly enforced in order to meet stability and drainage requirements of the granular sub-base layer.

The sub-base material should have minimum CBR of 20% for cumulative traffic up to 2 MSA (Million Standard Axles) and 30% for traffic exceeding 2 MSA. Where the granular sub-base materials conforming to the above specifications is not available economically, other granular sub-bases, like, Water Bound Macadam or Wet Mix Macadam conforming to MORT&H specifications are recommended. From drainage considerations the granular sub-base should be extended over the entire formation width in case the subgrade is relatively low permeability.

The thickness of sub-base should not be less than 150 mm for design traffic less than 10 MSA.

### **c) Base Course**

Unbound granular bases which comprise conventional Water Bound Macadam (WBM), Wet Mix Macadam (WMM) or other equivalent granular construction conforming to IRC / MORT&H specifications shall be adopted.

Materials for use in the base course must satisfy the grading and physical requirements prescribed in the IRC / MORT&H specifications.

### **2) Surface / Wearing Course**

#### **a) Bituminous (Flexible) Pavement**

The bituminous surfacing shall consist of either a wearing course or a binder course with a wearing course depending upon the traffic to be carried. The most commonly used wearing courses are surface dressing, Close-graded Premix Carpet, Mix Seal Surfacing, Semi-dense Bituminous Concrete and Bituminous Concrete. For binder courses, MORT&H specification prescribes Bituminous Concrete and Dense Bituminous Macadam. Bituminous Macadam has low binder content and high voids and is thus not impervious to water. As per IRC / MORT&H specifications, the bituminous concrete binder course may be restricted only to roads designed to carry traffic more than 100 MSA.

Choice of the appropriate type of bituminous wearing course will depend on several factors, like, design traffic over the service life, the type of base/binder course provided, whether the pavement is to be built up in stages, rainfall intensity and other related factors. The grade of bitumen will be selected keeping in view the traffic, rainfall and other environmental conditions. Generally for moderate to hot climate 60/70 grade bitumen is used for construction.

#### **b) Paver Blocks for Footpath**

The thicknesses of paver block surface for footpath will be based on IRC:SP:63 " Guidelines for the use of Interlocking Concrete Block Pavement" and to suit site conditions.

### **3) Pavement Components**

Based on criteria considered for design, the pavement components of different layers for external roads (carriageway and footpath) are as follows:

i. External Road Carriageway with Bituminous Pavement

A	Thickness of Bituminous Surfacing		
1	Wearing Course layer (Bituminous Concrete)	=	<b>50.00 mm</b>
2	Binder Course layer – Dense Bituminous Macadam	=	<b>115.00 mm</b>
B	Thickness of Granular Base layer (Wet Mix Macadam)	=	<b>250.00 mm</b>
C	Thickness Granular Sub-base layer (Granular Material of CBR not less than 30%)	=	<b>200.00 mm</b>
D	Subgrade Layer, (minimum CBR value of 8%)	=	<b>500.00 mm</b>

ii. Footpath Layers (the Paver Blocks are suggested in Architectural Design Basis Report)

A	Thickness of Granular Base layer (Wet Mix Macadam)	=	<b>225.00 mm</b>
B	Thickness of Granular Sub-base layer (Granular Material of CBR not less than 30%)	=	<b>150.00 mm</b>
C	Subgrade Layer, (minimum CBR value of 8%)	=	<b>500.00 mm</b>

## 2.4 Terrain classification

The project road alignment generally traverses through rolling terrain as per topographic survey and available information. Elevation of the Project area varies from Minimum elevation El. 508.5 m near drainNo.8 to maximum elevation El. 542.5 m.

## 2.5 Design Speed

The choice of design speed depends on characteristics of the terrain such as curvature, super-elevation, camber and sight distances. Table above shares the speed for different roads.

**Table 0-1: Proposed design speed as Per IRC:86**

Sr No	ROW in m	Classification of Urban roads	Design Speed in km/hr
2	45	Sub Arterial Road	60/50

\*IRC:73 -1980 &IRC:86-1983

## 2.6 Vertical Gradient

A gradient of 5 percent should be considered the maximum for urban roads. On roads carrying predominantly slow moving traffic, however the gradient should desirably not exceed 2 percent. As the urban roads are generally kerbed, it would be desirable to ensure a minimum gradient as indicated below for facilitating longitudinal drainage. Minimum vertical curve length must be considered as per IRC: 86. Plan and profile detail attached with drawing section.



**Table -2 Recommended minimum gradients**

Design elements	Recommended minimum gradients	
	Desirable minimum	Absolute minimum
Kerbed Pavements	0.5	0.3
Side ditches	0.5	0.2

### 2.6.1 Horizontal Curves

Horizontal curve with transition length of proposed alignment should be fixed basis of required design speed of traffic. Also provide the required super elevation. At sharp horizontal Curves, it is necessary to widen the carriageway to provide for safe passage of vehicle, based on this the extra width of carriageway to be provide at horizontal curves on single and two lane roads given in table 12 IRC:86 1983.

### 2.7 Intersection

Intersection required on merging of roads to provide controlled and safe traffic movement. It's design shall be as per As per IRC SP: 41-1994, 'Guidelines for the Design of At-Grade Intersections in Rural and Urban areas'. Typical Junction drawings attached in drawing section.

### 2.8 Utilities

The proposed utilities will be placed as per utility design the road portion (Road RoW). For utility placing location describe in typical cross section of road drawing in drawing section.

### 2.9 Kerb

It is desirable that roads in urban area are provided kerbs for the pedestrian safety. As per IRC:86-1983 Kerbs may be barrier type, semi- barrier type and mountable type. Proposed projects area for footpath barrier type of curve should be use.

## 3. SPECIFICATIONS FOR ROAD WORKS

### APPLICABLE CODES AND SPECIFICATIONS

The following IS (Indian Standard) Codes and IRC (Indian Road Congress) Codes, specifications etc. shall be applicable. In all cases the latest revision of the codes and specifications shall be referred to:

Sr. No.	IS / IRC Code Nos.	Description
1		<b>MORT&amp;H</b> Standard specifications for Road and Bridge works.
2	IRC : 19	Standard specification and code of practice for Water Bound Macadam
3	IRC : 36	Recommended Practice for Construction of Earth Embankments and Sub-grade for road works
4	IRC : 86	Geometric Design standards for Urban roads in plans

<b>Sr. No.</b>	<b>IS / IRC Code Nos.</b>	<b>Description</b>
5	IRC : 37	Guidelines for the Design of Flexible Pavements
6	IRC:SP:63	Guidelines for the use of Interlocking Concrete Block Pavement
7	IRC : 27	Specifications for Bituminous Macadam
8	IRC : 94	Specification for Dense Bituminous Macadam
9	IRC : 95	Specification for Semi Dense Bituminous Concrete
10	IRC : 29	Specifications for Bituminous Concrete for Road Pavement
11	IS : 73	Specifications for Paving Bitumen
12	IS : 217	Specification for cut back Bitumen
13	IS : 400	Specification for Test Sieve
14	IS : 454	Specification for Digboi type cut back Bitumen
15	IS : 456	Specifications for plain and reinforced concrete.
16	IS : 2720 : (Part 5)	Method of Test for Soils: Determination of Liquid and Plastic Limit.
17	IS : 2720 : (Part 8)	Method of Test for Soils: Determination of water content – dry density relation using Light compaction
18	IS : 2720 : (Part 16)	Method of Test for Soils: Laboratory determination of CBR
19	IS : 1124	Method of Test for determination of water Absorption, apparent specific gravity & porosity of Building stone

## **TECHNICAL SPECIFICATIONS**

### **3.1 PREAMBLE**

3.1.1 The Technical Specifications contained herein shall be read in conjunction with the other Tender Documents.

#### **3.1.2 Information**

The information given hereunder and provided elsewhere in these documents is given in good faith by the Employer but the Contractor shall satisfy himself regarding all aspects of site conditions and no claim will be entertained on the plea that the information supplied by the Employer is erroneous or insufficient.

### **3.2. GENERAL TECHNICAL SPECIFICATIONS**

The General Technical Specifications shall be the "Specifications for Road and Bridge Works" (Fifth Revision, Year 2013), as corrected in the original issued by Ministry of Road Transport and Highways (MORT&H), Government of India and published by the Indian Roads Congress (IRC), Jamnagar House, Shahjahan Road, New Delhi - 110 011".

#### **NOTE**

1. Relevant clauses of Ministry of Road Transport & Highways (MORT&H) Specifications for Roads and Bridges (5th Edition, 2013) relevant to this tender only are reproduced.
2. In case of any variation between the reproduced specification and the original specification of MORT&H publication, the reproduced publication shall prevail and shall be construed accordingly.
3. If MORT&H clauses referred to in the reproduced specifications herein are not included in the latter, the same shall be read from MORT&H specifications.

### **Technical Specifications**

- 7.1 The works in General shall be carried out as per latest UADD & CPWD Specifications, BHOPAL (updated with corrections slips issued upto last date of submission of tender) unless otherwise specified in the nomenclature of the individual item or in the particular specifications of concerned items of works.
- 7.2 For items not covered under UADD specifications with correction slips or those specifications are not given in the technical specifications appended or not incorporated in the nomenclature of the individual item, the work shall be done as per latest relevant BIS Codes of Practice or as per approval of Engineer-in-charge of BSCDCL.
- 7.3 All the works shall be executed as per the approved drawings / designs. The patterns shown in the tender drawings can be modified as per the site requirements by the Engineer-in-charge and nothing extra whatsoever shall be payable over and above the quoted rates.

- 7.4 Material should be of the best approved quality obtainable and they shall comply to the respective Indian Standard Specifications.
- 7.5 Samples of all materials shall be got approved before placing order and the approved sample shall be deposited with the Client/Engineer In-Charge.
- 7.6 It shall be obligatory for the Contractor to furnish Certificate, if demanded by the Client/Engineer In-Charge from manufacturer or the material supplier that the work has been carried out by using their material and as per their recommendations.
- 7.7 All materials supplied by the Client/Engineer In-Charge any other specialized firms shall be properly stored and the contractor shall be responsible for its safe custody until they are required on the works and till the completion of work.

## MORTARS

### NOTES:

**7.8 Cement:** Cement to be used in the works shall be any of the following types with the prior approval of the Engineer-in-charge :

- a) Ordinary portland cement, 33 Grade conforming to IS : 269.
- b) Ordinary portland cement, 43 Grade conforming to IS : 8112.
- c) Ordinary portland cement, 53 Grade conforming to IS : 12269.
- d) Sulphate resistant portland cement conforming to IS : 12330.

**7.9 Sand:** Sand to be used in the work, shall conform to IS: 1542-1960 for plaster and IS: 2166-1965 for masonry work.

**7.10. Cement Mortar:** Cement and sand shall be mixed in specified proportions given in the agreement/drawings. All mortars shall be mixed with a minimum quantity of water to produce desired workability consistent with maximum density of mortar. The mix shall be clean and free from injurious type of soil/acid/alkali/organic matter or deleterious substances.

**7.11. Water:** Water used for mixing and curing shall be clean and free from injurious amount of oils, acids, alkalis, salts, sugar, organic or other substances. Potable water is generally considered satisfactory for preparing mortars.

**7.12.** The mixing shall preferably be done in a mechanical mixer operated manually or by power. Hand mixing can be resorted to as long as uniform density of the mix and its strength are assured subject to prior approval of the Engineer-in-Charge. Hand mixing operation, if permitted, shall be carried out on a clean water tight platform where cement and sand shall be first mixed dry in the required proportion by being turned over and over, backwards and forwards several times till the mixture is of

uniform colour. Thereafter, minimum quantity of water shall be added to bring the mortar to the consistency of stiff paste. The mortar shall be mixed for at least two minutes after addition of water.

Mortar shall be mixed only in such quantity as required for immediate use. The mix which has developed initial set, shall not be used. Initial set of mortar with O.P.C. shall normally be considered to have taken place in 30 minutes after mixing. If the mortar has stiffened during initial setting time because of evaporation of water, same can be re-tempered by adding water as frequently as needed to restore requisite consistency but this retempering shall not be permitted after 30 minutes. Mortar, unused for more than 30 minutes, shall be rejected and removed from site.

## PLAIN CEMENT CONCRETE

Notes:

1 **Cement:** Cement to be used in the works shall be any of the following types with the prior approval of the Engineer-in-charge :

- a) Ordinary portland cement, 33 Grade conforming to IS : 269.
- b) Ordinary portland cement, 43 Grade conforming to IS : 8112.
- c) Ordinary portland cement, 53 Grade conforming to IS : 12269.
- d) Sulphate resistant portland cement conforming to IS : 12330.

2 **Aggregates:** aggregate shall consist of clean, hard, strong, dense, non-porous and

and durable pieces of crushed stone. They shall not consist pieces of disintegrated stones, soft, flaky, elongated particles, salt, alkali, vegetable matter or other deleterious materials. All aggregate shall conform to IS: 383 and tests for conformity shall be carried out as per IS : 2386 parts I to VIII. The maximum value of flakiness Index for aggregate shall not exceed 35 percent. The aggregate shall satisfy the following requirements of grading:

### Grading Requirements of Aggregate

IS Sieve the sieve	Percentage by weight passing		
	40 mm	20 mm	12.5 mm
63 mm	100	-	-
40 mm	95-100	100	-
20 mm	30-70	95-100	100
12.5 mm	-	-	90-100
10 mm	10-35	25-55	40-85
4.75 mm	0-5	0-10	0-10

### Sand/Fine Aggregates :

Sand to be used for lime or cement concrete should be dry and free from all deleterious materials, and shall conform to IS: 383-2007 & fine aggregates shall not contain dust, lumps, soft or flaky materials, mica or other deleterious materials. Fine aggregates having positive alkali-silica reaction shall not be used. All fine aggregate shall conform to IS : 383. The fineness modulus of fine aggregate shall neither be less than 2.0 nor greater than 3.5.

4 **Water :** Water used for mixing and curing shall be clean and free from

injurious amounts of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete. Potable water is generally considered satisfactory for mixing and curing of concrete.

- 5 **Concrete:** Concrete shall be mixed either in a concrete mixer or in a batching and mixing plant. Hand mixing is prohibited. Mixing shall be continued till materials are uniformly distributed and a uniform colour of the entire mass is obtained and each individual particle of the aggregate shows complete coating of mortar, containing its proportionate amount of cement. In no case, mixing shall be done for less than 2 minutes. Concrete shall be transported and placed as near as practicable to its final position. Concrete shall not be freely dropped into place from a height exceeding 1.50 meters and it shall be compacted in its final position within 30 minutes of its discharge from the mixer. It shall be compacted thoroughly by vibration or other means during placing so as to produce a dense homogeneous void-free mass having the required surface finish. Bottom and side surfaces shall give a uniform texture, smooth surface and good appearance. Non uniform texture and rough surface of concrete shall be treated as defective work and it has to be remedied with 1:3 cement plaster but in no case, more than 5% of area be permitted to be made good with plastering, Concrete having rough, non-uniform texture and honey combing in more than 5% area shall be rejected and the payment for the formwork shall also be not made.
- 6 Formwork shall include all temporary or permanent forms required for forming the concrete of the shape, dimensions and surface finish as shown on the drawings together with all props, staging, centering, scaffolding and temporary construction required for their support.
- 7 All materials shall conform to the specifications issued by the Indian Standards Institution. Materials and components used for formwork shall be examined for damage or excessive deterioration before use/reuse and shall be used only if found suitable after necessary repairs. In case of timber form work, the inspection shall not only cover physical damages but also signs of attacks by decay, rot or insect attack or the development of splits.
- 8 Form shall be constructed with metal or timber. The metal used for forms shall be of such thickness that the forms remain true to shape. All bolts should be counter sunk.
- 9 The contractor shall furnish the design and drawing of complete formwork (i.e. the forms as well as their supports) for approval of the Engineer-in-Charge before any erection is taken up. Notwithstanding any approval or review of drawing and design by the Engineer-in-Charge, the contractor shall be entirely responsible for the adequacy and safety of form work.
- 10 The formwork shall be robust and strong and joints shall be leak-proof. Staging must have cross bracings and diagonal bracings in both direction and the number of joints in the form work shall be kept to a minimum by using large size panels.
- 11 Rates in this chapter are for the finished work including the cost of all materials, labour, tools and plant required for design, construction and

removal of formwork including properly supporting the members until the concrete is cured, set and hardened as required and also inclusive of lining with material approved by the Engineer-in-Charge so as to provide a smooth finish of uniform texture, appearance and to produce a finished concrete true to shape, line, levels and dimension as shown on the drawings. The material used shall leave no stain on the concrete and so fixed to its backing as not to impart any blemishes. The rate also includes coating of formwork with an approved release agent that will effectively prevent sticking and will not stain the concrete surface. Lubricating (machine oils) are prohibited for use as a coating.

- 12 The rate includes provision of gradient in formwork for terrace roof as per direction of Engineer-in-Charge and the gradient shall be provided necessarily so that water is drained out quickly and effectively.
- 13 Rates also include all leads and lifts of all materials etc. required for the work.

## **REINFORCED CEMENT CONCRETE**

### NOTES:

- 1 **Cement:** Cement to be used in the works shall be any of the following types with the prior approval of the Engineer-in-charge:
  - a) Ordinary portland cement, 33 Grade conforming to IS : 269.
  - b) Ordinary portland cement, 43 Grade conforming to IS : 8112.
  - c) Ordinary portland cement, 53 Grade conforming to IS : 12269.
  - d) Sulphate resistant portland cement, conforming to IS : 12330.
- 2 **Steel:** Steel to be used shall conform to IS: 1786. All steel shall be procured from original producers; no re-rolled steel shall be incorporated in the work. Only new steel shall be delivered to the site. Every bar shall be inspected before assembling on the work and defective, brittle or burnt bar shall be discarded. Cracked ends of bars shall be discarded.
- 3 **Aggregates:** aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone. They shall not consist pieces of disintegrated stones, soft, flaky, elongated particles, salt, alkali, vegetable matter or other deleterious materials. All aggregate shall conform to IS: 383 and tests for conformity shall be carried out as per IS: 2386 parts I to VIII. The maximum value of flakiness Index for aggregate shall not exceed 35 percent. The aggregate shall satisfy the following requirements of grading:

## Grading Requirements of Aggregate

IS Sieve	Percentage by weight passing the sieve		
	40 mm	20 mm	12.5 mm
63 mm	100	-	-
40 mm	95-100	100	-
20 mm	30-70	95-100	100
12.5 mm	-	-	90-100
10 mm	10-35	25-55	40-85
4.75 mm	0-5	0-10	0-10

- 4 **Sand/Fine Aggregates:** Fine aggregates shall not contain dust, lumps, soft or flaky materials, mica or other deleterious materials. Fine aggregates, having positive alkali-silica reaction, shall not be used. All fine aggregates shall conform to IS : 383. The fineness modulus of fine aggregate shall neither be less than 2.0 nor greater than 3.5.
- 5 **Water:** Water used for mixing and curing shall be clean and free from injurious amount of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete. Potable water is generally considered satisfactory for mixing and curing of concrete.
- 6 **Concrete:** Concrete shall be mixed either in a concrete mixer or in a batching and mixing plant. Hand mixing is prohibited. Mixing shall be continued till materials are uniformly distributed and a uniform colour of the entire mass is obtained and each individual particle of the aggregate shows complete coating of mortar, containing its proportionate amount of cement. In no case, mixing shall be done for less than 2 minutes. Concrete shall be transported and placed as near as practicable to its final position. Concrete shall not be freely dropped into place from a height exceeding 1.50metres and it shall be compacted in its final position within 30 minutes of its discharge from the mixer. It shall be compacted thoroughly by vibration or other means during placing so as to produce a dense homogeneous void-free mass having the required surface finish. Bottom and side surfaces shall give a uniform texture, smooth surface and good appearance. Non uniform texture and rough surface of concrete shall be treated as defective work and it has to be remedied with 1:3 cement plaster.
7. Item for Ready mixed concrete has also been included in this chapter in view of changing technology.

## BRICK WORK

### THE GHOL BRICKS SHALL BE OF 1<sup>st</sup> GRADE QUALITY (ALLAHABAD BRICKS)

#### Notes :

- 1 This work shall consist of construction of structures with bricks jointed together by cement mortar in accordance with the details shown on the drawings or as approved by the Engineer in charge
- 2 Burnt clay bricks shall conform to the requirements of IS:1077. They shall be free from cracks and flaws and nodules of free lime. The brick shall have smooth rectangular faces with sharp corners and emit a clear ringing sound when struck.



- 3 Cement mortar for the work shall be as per details given in Chapter III of this SOR
- 4 All bricks shall be thoroughly soaked in a tank filled with water for a minimum period of one hour prior to being laid. Soaked bricks shall be removed from the tank sufficiently in advance so that they are skin dry at the time of actual laying. Such soaked bricks shall be stacked on a clean place where they are not contaminated with dirt, earth, etc.
- 5 The thickness of joints shall not exceed 10mm. All joints on exposed faces shall be tooled to give concave finish.
- 6 The brick work shall be built in uniform layers and for this purpose wooden straight edge with graduations indicating thickness of each course including joint shall be used. Corners and other advanced work shall be raked back. Brickwork shall be done true to plumb or in specified batter. All courses shall be laid truly horizontal and vertical joints shall be truly vertical. Vertical joints in alternate courses shall come directly one over the other. During construction, no part of work shall rise more than one metre above the general construction level, to avoid unequal settlement and improper jointing. Where this is not possible in the opinion of the Engineer in charge, the works shall be raked back according to the bond (and not toothed) at an angle not steeper than 45 degrees with prior approval of the Engineer in charge. Toothing may also be permitted where future extension is contemplated.
- 7 Where fresh masonry is to join with masonry that is partially/entirely set, the exposed jointing surface of the set masonry shall be cleaned, roughened and wetted, so as to effect the best possible bond with the new work. All loose bricks and mortar or other material shall be removed. In the case of vertical or inclined joints, it shall be further ensured that proper bond between the old and new masonry is obtained by interlocking the bricks. Any portion of the brickwork that has been completed shall remain undisturbed until thoroughly set.
- 8 Green work shall be protected from rain by suitable covering and shall be kept constantly moist on all faces for a minimum period of seven days. Brick work carried out during the day shall be suitably marked indicating the date on which the work is done so as to keep a watch on the curing period. Watering may be done carefully so as not to disturb or wash out the green mortar. During hot weather, all finished or partly completed work shall be covered or wetted in such a manner as will prevent rapid drying of the brickwork. During the period of curing of brick work, it shall be suitably protected from all damages. At the close of day's work or for other period of cessation, watering and curing shall have to be maintained. Should the mortar perish i.e. become dry, white or powdery through neglect of curing, work shall be pulled down and rebuilt as directed by the Engineer in charge. If any stains, appear during watering, the same shall be removed from the face. The scaffolding shall be sound, strong and safe to withstand all loads likely to come upon it. Putlog holes are not allowed.
- 9 Bricks having crushing strength of more than 40kg/cm<sup>2</sup>. shall be used for load bearing walls.
- 10 Classification of Bricks and Masonry:-  
In this schedule the following three classifications of bricks and masonry is given and shall have the minimum crushing strength when tested according to IS: 1077-1992
- (a) Class 40 TM chimney brick/grog or ghol brick: - For this item either selected chimney burnt bricks or ghol bricks are used and superior workmanship than the following varieties is required. The crushing strength when thoroughly

- soaked in water shall not be less than 40kg/sq.cm.
- (b) Class 25 TM chimney brick masonry: - The crushing strength when thoroughly soaked in water shall not be less than 25 kg/sq.cm.
- (c) Class 25TM open bhatta or pajaw a burnt brick :- As is clear the only difference between (b) and (c) varies in the method of burning bricks. The crushing strength when thoroughly soaked in water shall not be less than 25 kg/sq.cm.
- 11 Periodical sampling and testing of bricks shall be carried out at contractors cost to classify the brick. The record of test results shall be kept with the Executive Engineer, or Authorized officer.
- 12 When reinforcement is used in 10cm thick brick masonry, minimum lap of reinforcement should be 15cm. In case of wall joints of the main wall, reinforcement should go 15cm to the main wall.

## STEEL WORK

### Notes:

- 1 Structural steel shall be of tested, standard quality conforming to IS: 226-69 & commercial quality shall conform to IS: 1977-69.
- 2 Steel work in single section are for works, like hold fasts & iron work for wooden trusses, M.S. Square/round guard bars fixed in wooden or steel windows & ventilators frames etc.
- 3 Steel work riveted or bolted shall conform to IS: 1148-1968 and IS : 800-1962.
- 4 Welding of steel shall be electric arc welding as per IS : 816-1956 and shall be on the lines given in IS : 800-1962.
- 5 Rolling shutters should conform to IS : 6248-1971.
- 6 Rolled steel sections for fabrication of steel glazed doors, windows & ventilators shall conform to IS : 7452-1974.
- 7 Glass panes should conform to IS : 1761-1960.
- 8 Screws shall conform to IS : 4218 (Part I to V I) 1967.
- 9 Steel doors, windows & ventilators shall conform to IS : 1038-1975 and IS : 7452-1974.
- 10 The rates of steel doors, windows & ventilators include cost of all materials, labour, T&P, hire & running charges of machineries & wastages etc. and also include cost of welding, all fixtures, erecting and fixing the sections in position.
- 11 Rates of steel angle iron fencing include all forging, reducing to required size, shape & figure, drilling, tapping, punching, counter sinking for screws, nailing etc. and every description of workmanship that may be necessary to fabricate, finish, erect and fix in positions in perfect manner.
- 12 Cold rolled framed profiles of pressed steel made from commercial M.S. Sheets conforming IS-513 of 1973 and as per general specifications of IS : 4351 are to be filled with M-15 grade of concrete and rates of items with these sections are inclusive of the cost of concrete.

## WATER PROOFING

### Laying Brick Bat Coba

In coba of brick bat the brick bat of size 2.5 cm to 11.5 cm out of well burnt bricks shall be used and shall be properly dampened for six hours before laying. Brick bats shall be laid on required slope/gradient over the base coat of mortar leaving 15 to 25 mm gap between two bats. Cement mortar, 1:5 (1 blended cement: 5 coarse sand) shall be poured over the brick bats and joints filled properly. Under no circumstances dry brick bats should be laid over the base coat. The haunches/goal at the junction of parapet wall and the roof shall be formed only with brick bat coba as shown in Fig.6. In case, the brick bat coba is laid on the base coat. Immediately on initial set there will be no necessity of, applying cement slurry over the base coat before laying the brick bat coba. However, if the brick bat, coba is to be laid on the subsequent day, cement slurry prepared as described in para 17.7.3 shall be, applied over the top surface of the base coat, and then only the brick bat coba shall be laid.

### WATER PROOFING TREATMENT IN SUNKEN PORTION OF WCs, BATHROOMS ETC:

Before the water proofing treatment, the internal plaster of ceiling and walls of WC block leaving the, portion for dado/skirting should be completed. Grooving / chasing for doing the concealed work of GI/CI, pipes/Electrical conduits should be completed. Cleaning the depressed/sunken portion of WC of all, debris, extra mortar sticking to the vertical and horizontal surface etc. Necessary holes for 'P' trap/Nahani trap/, Water escape pipe etc should be completed.

### CENTERING & SHUTTERING

Marine plywood or steel plates or any material mentioned elsewhere in the tender document or as approved by Engineer-in-Charge shall be used for formwork. The shuttering plates shall be cleaned and oiled before every repetition and shall be used only after obtaining approval of BSCDCL's Engineers at site. The number of repetitions allowed for plywood and steel shuttering shall be at the discretion of Engineer-in-Charge of BSCDCL depending upon the condition of shuttering surface after each use and the decision of Engineer-in-Charge in this regard shall be final and binding on the contractor. No claim whatsoever on this account shall be admissible.

<b>TECHNICAL SPECIFICATION FOR FRP MANHOLE COVER WITH FRAME</b>
<b>Technical Specification - 10 Ton</b>
Supplying of <b>FRP / GRP / COMPOSITE</b> resin manhole cover and frame of appropriate size and load capacity of approved brand "THERMODRAIN" confirming to BSEN – 124:1994. Product shall have top abrasion resistant layer of decorative grey granite finish. It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set. The lifting arrangement should have an insert of 5mm in Glass Filled nylon socket type with key hole.
<b>TECHNICAL SPECIFICATION FOR FRP MANHOLE COVER WITH FRAME</b>
<b>Technical Specification - 20 Ton</b>

Supplying of **FRP / GRP / COMPOSITE** resin manhole cover and frame of appropriate size and load capacity of approved brand "THERMODRAIN" confirming to BSEN – 124:1994. Product shall have top abrasion resistant layer of decorative grey granite finish. It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set. The lifting arrangement should have an insert of 5mm in Glass Filled nylon socket type with key hole.

#### **TECHNICAL SPECIFICATION FOR FRP WATER GULLY COVER WITH FRAME**

##### **Technical**

Supplying of FRP / GRP / COMPOSITE gully grating and frame of appropriate size and load capacity of approved brand "THERMODRIN" confirming to BSEN – 124:1994. Gully grating shall have minimum 30% of water entrance area that of clear opening of the chamber. Gully grating shall have top abrasion resistant layer of decorative grey granite finish, It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set

#### **TECHNICAL SPECIFICATION FOR FRP WATER TANK COVER WITH**

Supplying of **FRP / GRP / COMPOSITE** resin Water Tank cover and frame of appropriate size and load capacity of approved brand "THERMODRAIN" confirming to BSEN – 124:1994. Product shall have top abrasion resistant layer of decorative grey granite finish. It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set. The lifting arrangement should have an insert of 5mm in Glass Filled nylon socket type with key hole. The cover should be hinged (galvanized) with bolt locking facility.

## SPECIFICATIONS FOR FRP GRATING AND COVERS

**FRP Grating:** FRP Gratings are with 0% filler & are self pigmented without any painting or coating. The 0% filler imparts higher flexural strength and doesn't allow the gratings to crack due to its high cohesion. This enhances the life of the product by 50% under exposure to load, Sunlight or Rainfall.

<u>SR.NO.</u>	<u>SIZE (OUT TO OUT SIZE)</u>	<u>LOAD BEARING</u>
1	562 mm x 1006 mm x 30 mm	2.5ton-
<b>OR</b>		
2	564 mm x 1001 mm x 40 mm	2.5ton-

**FRP Manhole Cover With or Without Frame:** FRP manhole covers (Tested as per BS EN 124 or IS 1726) are with **double seal & with a closed bottom High strength plastic alloy socket keyhole lifting arrangement**. The closed keyhole does not allow mosquito breeding to happen in the chamber doesn't allow foreign particles to enter the chamber and eliminates/reduces the foul smell from the chamber. The High strength plastic alloy socket keyhole lifting arrangement protects the FRP surface from damage due to multiple lifting operations over the years.

<u>SR.NO.</u>	<u>SIZE (OUT TO OUT SIZE)</u>	<u>LOAD BEARING</u>
1	1330 mm x 1105 mm x 75mm	10 Ton
2	1330 mm x 1105 mm x 75mm	20 Ton

**FRP Manhole Cover With or Without Frame:** FRP manhole covers (Tested as per BS EN 124 or IS 1726) are with **double seal & with a closed bottom High strength plastic alloy socket keyhole lifting arrangement**. The closed keyhole does not allow mosquito breeding to happen in the chamber doesn't allow foreign particles to enter the chamber and eliminates/reduces the foul smell from the chamber. The High strength plastic alloy socket keyhole lifting arrangement protects the FRP surface from damage due to multiple lifting operations over the years.

<u>SR.NO.</u>	<u>SIZE (OUT TO OUT SIZE)</u>	<u>LOAD BEARING</u>
1	600 mm x 600 mm	5 Ton
2	900 mm x 900 mm	5 Ton

SECTION-8

DRAWINGS

## **Drawings**

All drawings shall be produced in accordance with the relevant procedures as described in the Contractor's Quality Control/Assurance Manual approved by the Engineer . All drawings shall be submitted to the Engineer for his approval before construction commences either in part or whole. Drawings shall be in English and shall be submitted in duplicate, together with a reproducible copy. Approval by the Engineer shall not relieve the Contractor of responsibility for the safety, suitability and adequacy of any part of the Works. Drawings and other documents shall satisfy the following requirements, where appropriate, before they are submitted to the Engineer for review:

The contractor shall ensure that all drawings submitted to the Engineer for review shall constitute a set as follows:

1. Plans
2. Elevations
3. Sections
4. Details
5. Design calculation Reports
6. Other relevant Reports e.g. soil test, etc.

All drawings shall show legends, notes, title block, drawing scale and dimensions correctly and relevantly presented to ensure comprehensive and clear presentation of information.

All structural drawings shall show details of structural reinforcements, bending schedule, and dimensions correctly and relevantly presented to ensure comprehensive and clear presentation of information.

All design calculation reports shall be submitted together with the relevant/appropriate drawings.

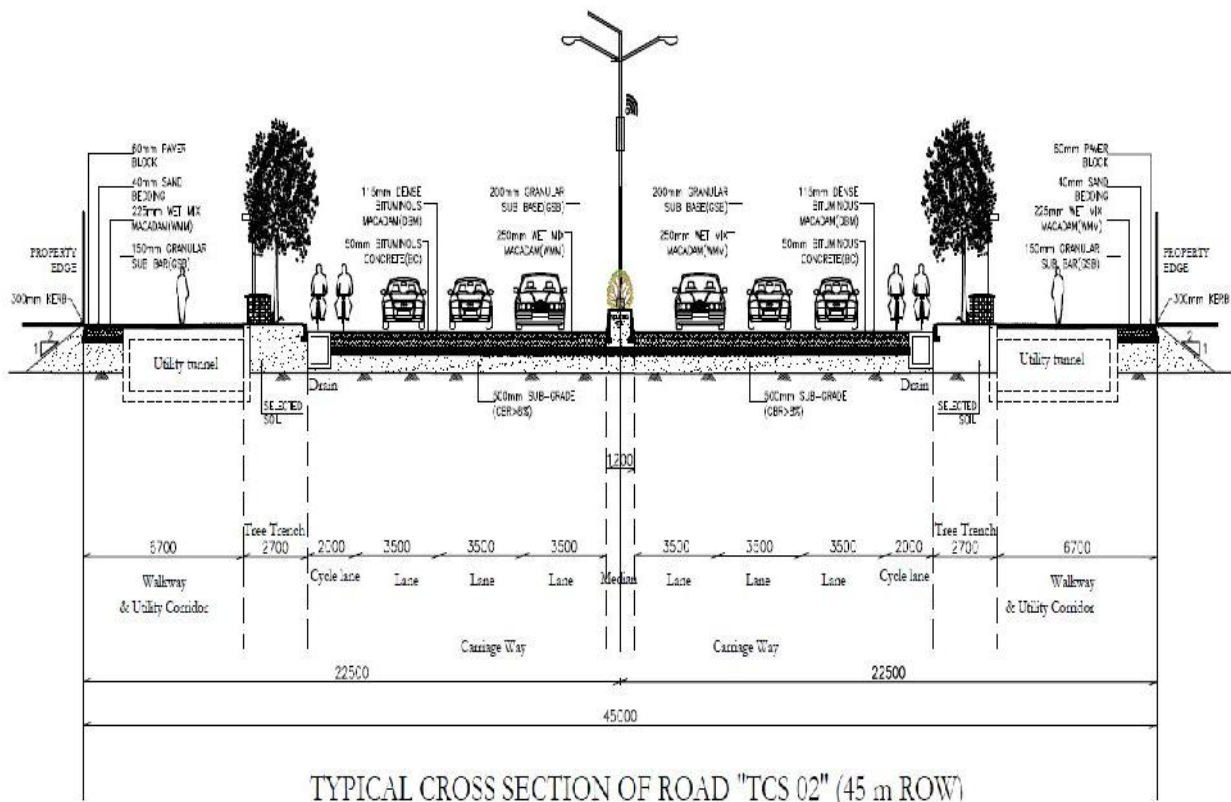
Any set of drawings that do not satisfy these conditions shall be rejected outright without being reviewed and such submissions shall be considered as null and void.

## **Submissions**

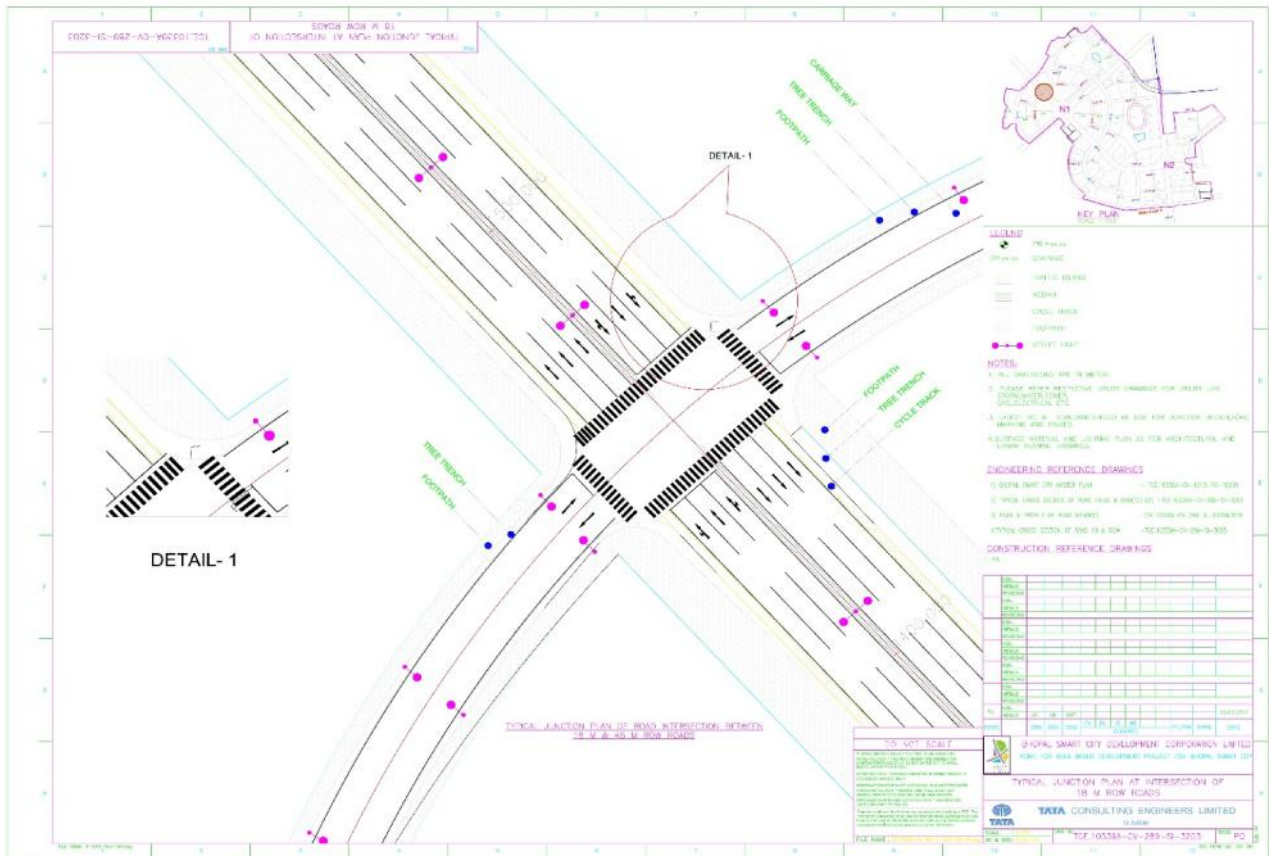
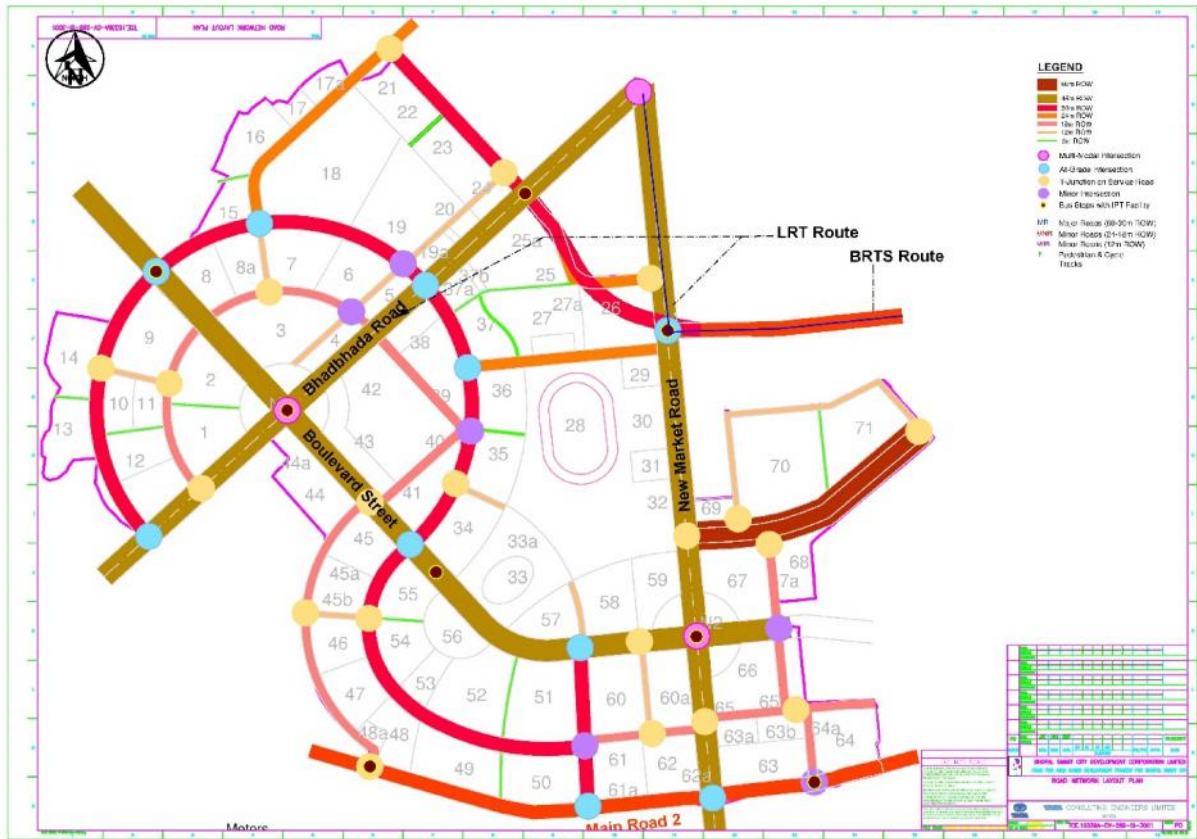
The detailed design, including calculations and drawings, for all the works to be carried out, shall be submitted to the Engineer for approval. Such submissions shall be in accordance with an approved programme.

Submissions shall be made in an orderly and timely manner, during the periods shown for design approval in the Works Programme, such that the Engineer shall have adequate time for their detailed examination and for checking and approving any necessary revisions. A period of one month shall be allowed for the Engineer's checking and approval of any design submission from date of receipt of submission to date of notification of approval or comments.

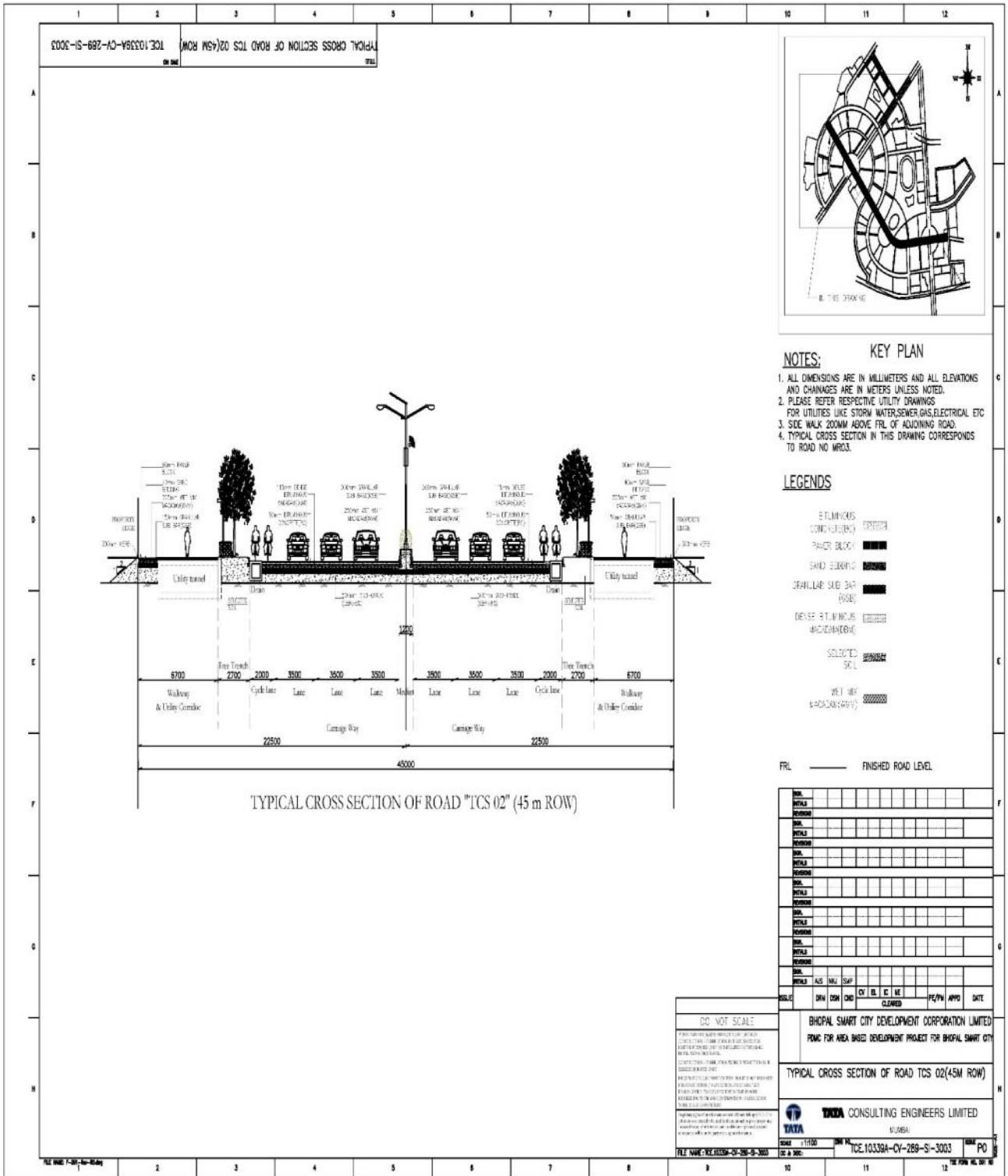
In programming submissions the Contractor shall allow for the possibility that a resubmission may be necessary before the start of any part of the Works. Each design submission shall be serially numbered and dated and shall refer to one subject matter only. Each submission shall be accompanied by a summary sheet, which lists the documents comprising the submission. Where a submission includes revisions of documents previously submitted the summary sheet shall include a reference to the original submission number.

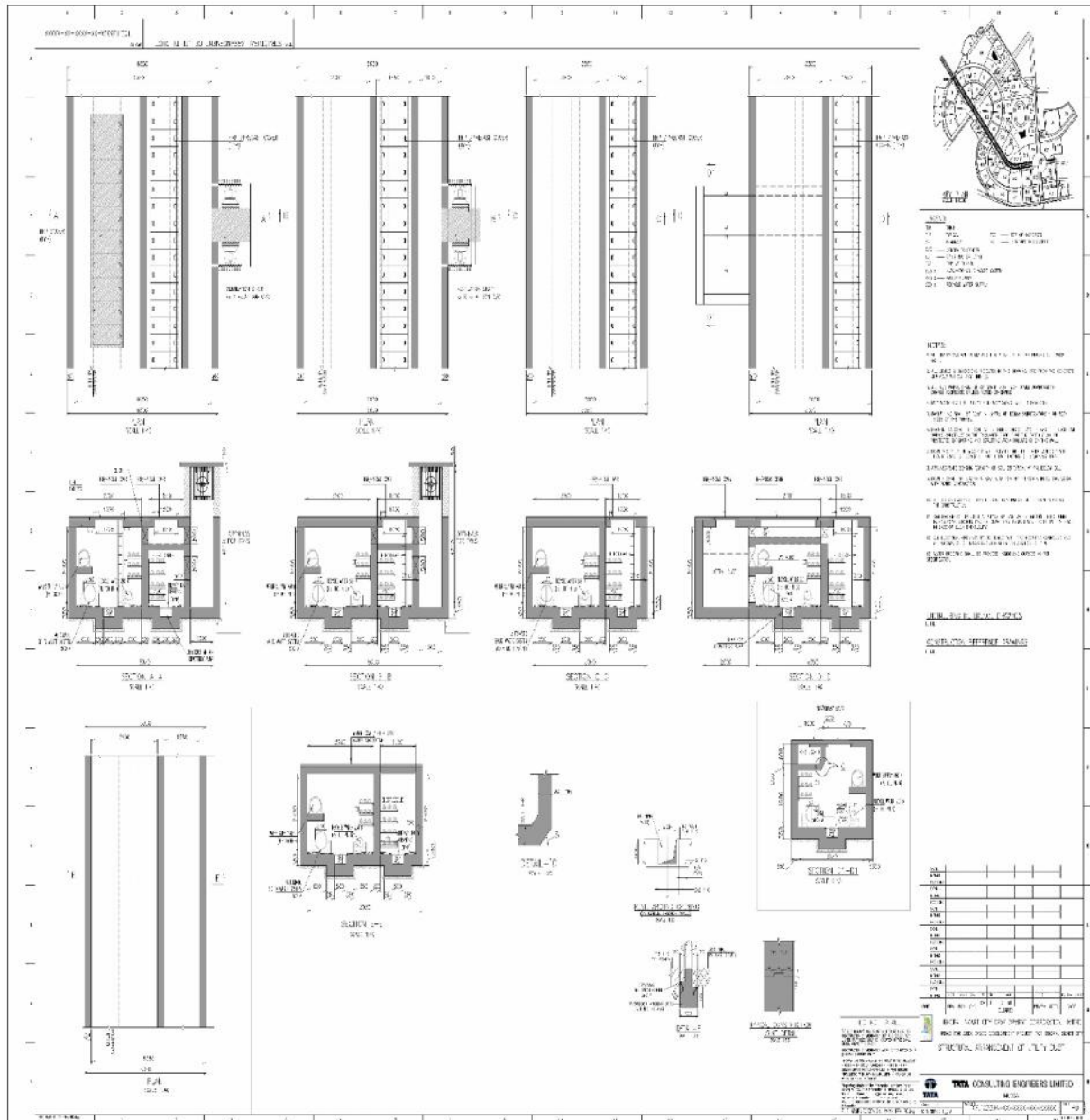












# SECTION-9

## BILL OF QUANTITY

UADD ROAD&BRIDGES - 2012

Boulevard Street

S.No	SOR	SOR Item no.	Description	Unit	Quantity	Rate	Amount	
1	UADD Road & Bridges 2012	2.1	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 mtrs and earth filling in the depression/pit and as per relevant clauses of section-200 for					
			i	Girth from 300 mm to 600 mm	each	90.00	136.00	<b>12240.00</b>
			ii	Girth from 600 mm to 900 mm	each	128.00	224.00	<b>28672.00</b>
			iii	Girth from 900 mm to 1800 mm	each	130.00	465.00	<b>60450.00</b>
			iv	Girth above 1800 mm	each	24.00	906.00	<b>21744.00</b>
2	UADD Road & Bridges 2012	2.2	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 meter including removal and disposal of top organic soil not					

			exceeding 150 mm in thickness if required and as per relevant clauses of section-200.				
		a	In area of light jungle	hectare	8.00	31510.00	<b>252080.00</b>
3	UADD Road & Bridges 2012	3.1	<b>Excavation</b> for road way in soil including loading in a truck and carrying of cut earth to embankment site with all lifts and leads upto 1000 meters and as per relevant clauses of section - 300.	Cum	2100.00	98.00	<b>205800.00</b>
4	UADD Road & Bridges 2012	3.5	Excavation for roadway in hard rock with controlled blasting by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut in all lifts and lead upto 1000 meters and as per relevant clauses of section - 300	Cum	3155.00	246.00	<b>776130.00</b>

5	UADD Road & Bridges 2012	3.9	<p><b>Construction of embankment/earth shoulders, as per clause 305.1.1 inclusive of operation necessary as per clause 305.1.1 inclusive of operation necessary as per clause 305 &amp; its sub-clauses, where required but with approved materials obtained from excavation for road construction (vide clause 301.3.11) i/c consolidating the original ground by rolling as directed by the engineer-in-charge but with a maximum of 6 passes of 8-10 tonne roller &amp; i/c compaction and maintenance of surface during construction to ensure shedding &amp; preventing ponding of water (clause 305.3.7), finishing i/c all lifts but excluding scarifying existing granular/bituminous road surface vide clause 305.6.</b></p>	Cum	19920.0 0	234.00	<b>4661280.00</b>
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6	UADD Road & Bridges 2012	3.11	Construction of Subgrade / earth shoulders, as per clause 305 & its sub-clauses, where required but with approved materials/soil like morrum CBR value not less than 8% i/c all lifts i/c excavation, cost of watering, compaction and maintenance of surface during construction to ensure shedding & preventing ponding of water (clause 305.3.6) shaping & dressing (clause 305.3.7), finishing etc. complete but excluding scarifying existing granular/bituminous road surface vide clause 305.6.	Cum	20510.0 0	272.00	<b>5578720.00</b>
7	UADD Road & Bridges 2012	4.1	Construction of <b>granular sub-base</b> by providing coarse graded material, spreading in uniform layers with on prepared surface, mixing by mix in place method at OMC, and compacting with vibratory roller to achieve the desired density, complete in all respect and as per relevant clauses of section-400. i) for grading - I Material	Cum	10620.0 0	604.00	<b>6414480.00</b>

8	UADD Road & Bridges 2012	4.5	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / <b>base course</b> on well prepared surface and compacting with vibratory roller to achieve the desired density and as per relevant clauses of section - 400.	Cum	12865.0 0	951.00	<b>12234615.0 0</b>
9	UADD Road & Bridges 2012	5.1	Providing and applying <b>primer coat</b> with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.75 kg/sqm using mechanical means as per relevant clauses of section- 502.	Sqm	50066.0 0	26.00	<b>1301716.00</b>
10	UADD Road & Bridges 2012	5.2	Providing and applying <b>tack coat</b> with bitumen emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom and as per relevant clauses of				

			section-503				
		i	0.25 kg per sqm (normal bituminous surfaces)	Sqm	50065.00	9.00	<b>450585.00</b>
		ii	0.30 kg per sqm (dry & hungry bituminous surfaces /granular surfaces treated with primer)	Sqm	43470.00	11.00	<b>478170.00</b>
11	UADD Road & Bridges 2012	5.6 (ii)	Providing and laying <b>Dense bituminous macadam</b> with hot mix plant batch using crushed aggregates of specified grading, premixed with bituminous binder, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects and as per relevant clauses of section-507. (ii) for Grading II (50-75mm thickness)	Cum	5660.00	7178.00	<b>40627480.00</b>

12	UADD Road & Bridges 2012	5.8(iv)	<p>Providing and laying <b>Bituminous concrete</b> with hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects and as per relevant clauses of section-509. (only cement will be used as filler) (iv)for Grading-II ( 30-45 mm thickness ) with 60/70 bitumen(VG-30)</p>	Cum	2460.00	8226.00	<b>20235960.00</b>
13	UADD Road & Bridges 2012	8.10	<p><b>Road Marking</b> with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The</p>				

			finished surface to be level, uniform and free from streaks and holes all complete as per clauses of section-803.				
			Road painting solid	sqm	3481.00	900.00	<b>3132900.00</b>
14	UADD Road & Bridges 2012	8.1 (B)	<b>Construction of Cement Concrete kerb</b> with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete and as per clause 408 of specifications. B-Using Concrete Batching and Mixing Plant	Rmt.	6074.00	189.00	<b>1147986.00</b>
15	UADD Road & Bridges 2012	8.6	<b>Painting</b> two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces and as per relevant clauses of section-800 & IRC-67 including cost of paint etc. complete.	Sqm	3098.00	44.00	<b>136312.00</b>

16	UADD Road & Bridges 2012	13.6 (e)	Providing and laying Plain cement concrete (mixed in concrete mixture) in open foundation including form work shuttering etc. complete as per drawing and technical specifications and as per relevant clauses.	Cum	7.00	4277.00	<b>29939.00</b>
17	UADD Road & Bridges 2012	3.11	Construction of Subgrade / earth shoulders, as per clause 305 & its sub-clauses, where required but with approved materials/soil like morrum CBR value not less than 8% i/c all lead & lifts i/c excavation, cost of watering, compaction and maintenance of surface during construction to ensure shedding & preventing ponding of water (clause 305.3.6) shaping & dressing (clause 305.3.7), finishing etc. complete but excluding scarifying existing granular/bituminous road surface vide clause 305.6.	Cum	7410.00	272.00	<b>2015520.00</b>

18	UADD Road & Bridges 2012	8.1 (B)	<p><b>Construction of Cement Concrete kerb</b> with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete and as per clause 408 of specifications. B-Using Concrete Batching and Mixing Plant</p>	Rmt.	468.00	189.00	<b>88452.00</b>
19	UADD Road & Bridges 2012	8.3	<p>Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm (height from crown level of the road and bottom of the sign board shall not be less than 1.5 m.) firmly fixed to ground by means of properly designed foundation with M15 grade</p>				

			concrete 450x450x600mm below ground level as per approved drawing including painting of vertical post as per specification.				
		ii	60 cm equilateral triangle	each	30.00	2488.00	<b>74640.00</b>
		iii	60 cm circular	each	30.00	3291.00	<b>98730.00</b>
		v	60 cm x 45 cm rectangular	each	30.00	3209.00	<b>96270.00</b>
		vi	60 cm x 60 cm square	each	9.00	3778.00	<b>34002.00</b>
20	UADD Road & Bridges 2012	8.4	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retroreflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on mild steel single angle iron post 75x75x6 mm (height from crown level of the road and bottom of the sign board shall not be less than 1.5 m.), 2 Nos. firmly fixed to the ground by means of properly designed	Sqm	30.00	7983.00	<b>239490.00</b>



			foundation with M15 grade concrete 45 cmx45 cmx60 cm below ground level as per approved drawing including painting of vertical post as per specification.				
21	UADD Road & Bridges 2012	8.5	Direction and Place Identification signs with size more than 0.9 sqm size board. (Providing and erecting direction and place identification retroreflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on mild steel single angle iron post 75x75x6 mm (height from crown level of the road and bottom of the sign board shall not be less than 1.5 m.), 2 Nos. firmly fixed to the ground by means of properly designed foundation with M15 grade concrete 45	Sqm	9.00	13831.00	<b>124479.00</b>

			cmx45 cmx60 cm below ground level as per approved drawing including painting of vertical post as per specification.				
			<b>UTILITY TUNNEL</b>				
22	UADD Road & Bridges 2012	13.1	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. as per relevant clauses of section 300 & 2100 in ordinary soil				
			All soil type				
		i	Upto 3 metre	Cum	33949.0 0	136.00	<b>4617064.00</b>
		iv	Hard Rock (blasting prohibited with written permission of S.E.)	Cum	47940.0 0	577.00	<b>27661380.0 0</b>

23	UADD Road & Bridges 2012	14.5	Providing and laying Plain Cement concrete (mixed in concrete mixture) in Substructure or complete RCC bor section as per drawing and technical specificatios and as per relevant cluasees of sections 1500, 1700 & 2200 (in heights above average ground level)				
		A(a)	PCC Grade M15 with 40mm maximum sizes of aggregate Height upto 5m	Cum	2078.00	3743.00	<b>7777954.00</b>
24	UADD Road & Bridges 2012	14.5	Providing and laying Plain Cement concrete (mixed in concrete mixture) in Substructure or complete RCC bor section as per drawing and technical specificatios and as per relevant cluasees of sections 1500, 1700 & 2200 (in heights above average ground level)				
		D (a)	Raft in CC M30 PCC Grade M30 with 40 mm maximum size of aggregate a) Height upto 5m	Cumt	17000.00	4420.00	<b>75140000.00</b>
25	UADD Road & Bridges 2012	14.1	Brick masonry work in 1:3 in sub-structure complete excluding pointing and plastering, as per drawing and technical				

			specifications and as per clauses of section 1300				
			230mm Thick Wall	Cum	33.00	3871.00	<b>127743.00</b>
26	UADD Road & Bridges 2012	14.3	Plastering with cement mortar (1:3 ) on brick work in substructure as per Technical specifications and as per clauses of section 1300	Sqmt	140.00	84.00	<b>11760.00</b>

#### UADD BUILDING WORK – 2012

#### UTILITY TUNNEL

Sr. No.	SOR	SOR Item no.	ITEM DESCRIPTION	Unit	Quantity	Rate	Amount
27	UADD Building work 2012	5.20.6	Reinforcement for RCC work including straightening, cutting, bending, placing in position and binding including cost of binding wire upto floor two level including all wastage etc. complete. TMT bars	KG	1840000.00	60.00	110,400,000.00
28	UADD Building work 2012	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete:	KG	648000.00	62.00	40,176,000.00

29	UADD Building work 2012	10.26	Providing and fixing hand rail of approved sizes by welding etc. to steel ladder railing, balcony railing and staircase railing including applying a priming coat of approved steel primer				
			MS tube	Kg	31500.00	84.00	2,646,000.00
30	UADD Building work 2012	5.20.6	Reinforcement for RCC work including straightening, cutting, bending, placing in position and binding including cost of binding wire upto floor two level including all wastage etc. TMT bars	KG	13001.00	60.00	780,060.00

**DSR 2016**

**ROAD WORK**

S.No.	SOR	SOR Item no.	Description	Unit	Quantity	Rate	Amount
31	DSR 2016 (Vol.2)	16.69	<b>Road Median Kerb:</b> Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm),	Cum	483	5012.65	2421109.95

			including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).				
			<b>UTILITY TUNNEL</b>				
32	DSR 2016 vol 1	7762	Precast porforated cover	nos	12601.00	800.00	10,080,800.00
33	DSR 2016 vol 1	5.13	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete in covers not exceeding 1.5m clear span up to floor five level, including the cost of required centering, shuttering but , excluding the cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	cum	155.00	9,330.20	1,446,181.00

34	DSR 2016 Vol 2	22.22	<p>Providing and mixing integral crystalline admixture for waterproofing treatment to RCC structures like basement raft, retaining walls, reservoir, sewage &amp; water treatment plant, tunnels / subway and bridge deck etc. at the time of transporting of concrete into the drum of the ready-mix truck, using integral crystalline admixture @0.80% (minimum) to the weight of cement content per cubic meter of concrete) or higher as recommended by the manufacturer's specification in reinforced cement concrete at site of work. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90%, compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure. The crystalline admixture shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for</p>	Kg.	38273.00	376.40	14,405,957.20
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			10 years against any leakage.				
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**NON SOR ITEMS**

**UTILITY TUNNEL**

Sr. No.	SOR	ITEM DESCRIPTION	Unit	Quantity	Rate	Amount
35	NON SOR	<b>FRP Gating:</b> Supplying & Installation of FRP / GRP / COMPOSITE gully grating and frame of appropriate size and load capacity of 2.5 tone equivalent to approved brand "THERMODRIN" confirming to BSEN – 124:1994. Gully grating shall have minimum 30% of water entrance area that of clear opening of the chamber. Gully grating shall have top abrasion resistant layer of decorative grey granite finish, It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set				
		Size of 562x1006x30mm	No.	3133.00		



36	NON SOR	<b>FRP covers:</b> Supplying & Installation of FRP / GRP / COMPOSITE resin manhole cover and frame of appropriate size and load capacity of 10 tone of approved brand "THERMODRAIN" or Equivalent confirming to BSEN – 124:1994. Product shall have top abrasion resistant layer of decorative grey granite finish. It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set. The lifting arrangement should have an insert of 5mm in Glass Filled nylon socket type with key hole.				
		Size of 1105x1330x115mm	No.	969.00		
37	NON SOR	Supplying of FRP / GRP / COMPOSITE resin manhole cover and frame of appropriate size and load capacity of 10 tone of approved brand "THERMODRAIN" or Equivalent confirming to BSEN – 124:1994. Product shall have top abrasion resistant layer of decorative grey granite finish. It shall also confirm "Permanent Set" criterion as per BSEN-124. Product should be tested in test lab for load capacity and permanent set. The lifting arrangement should have an insert of 5mm in Glass Filled nylon socket type with key hole.				
		Size of 1330x1105x115mm	No.	77.00		