OFFICE OF THE EXECUTIVE ENGINEER (NW)–II
DELHI JAL BOARD: GOVT OF NCT OF DELHI
H-BLOCK: SECTOR-15: ROHINI: DELHI-89
E-mail Id:-eenw2.djb@gmail.com

NIT No. 13 (2018-19)

On behalf of DJB, EE (NW)-II invite online percentage/item rate tender from the registered contractors in appropriate class of DJB. The contractors must comply with the conditions, rules & regulations and other guidelines as issued by Delhi Jal Board from time to time.

Last date & time for download of tender documents : 09.07.2018 at 3.00 PM
Last date & time for online submission of tender : 09.07.2018 at 3.00 PM
Date & time of opening of Technical Bid : 09.07.2018 at 3.15 PM
Date & time of opening of financial Bid : After completion of technical bid.
Detail of the work:-

S. No.	Name of Work	Amount put to tender	Earnest Money	Tender Fee	Completion Period
1	Improvement of sewerage system by making interconnection of sewer line at Pandito wali gali Pooth Kalan in AC-07 Bawana under EE(NW)II. (Re-invite)	Rs. 7,10,747/-	Rs.14,300/-	Rs.500/-	30 Days
2	Making interconnection of 800 mm dia M.S. RWTW main with B.P.S. Holambi Kalan in AC-01 Narela under EE(NW)-II. (Re-invite)	Rs. 8,55,970/-	Rs.17,200/-	Rs.500/-	30 Days
3	Engagement of S.G.Beldars on contract basis for maintenance of sewer line in AC- 13 Rohini under EE(NW)II. (Re-invite)	Item Rate	Rs.15,300/-	Rs.500/-	180 Days
4	P/F 600 mm dia S/V at Swatantra Nagar Narela in AC-01 Narela under EE(NW)-II	Rs. 8,03,603/-	Rs.16,100/-	Rs.500/-	30 Days

Note:

I. Validity of tender shall be 60 days from the date of opening of Bid. Part-B. NIT along with all the terms & conditions is available on Delhi Govt. Web Site https://govtprocurement.delhi.gov.in .
II. Successful bidders shall comply the EPF & MP act 1952, along with other labour laws. Agency may contact the office of EE (NW)-II for additional information / any clarification.
III. The work includes various activities which are to be taken up simultaneously for there should be arrangement for sufficient labour and T&P.
IV. Provision of GST Act 2017 shall have the superseding effect over the all earlier taxes like VAT/WCT/Service Tax/other like taxes as contemplated in the Act. Accordingly the terms VAT/WCT/Service Tax etc. appearing anywhere in the bid document may be read as the applicable tax under the GST Act 2017.
V. A letter from Jt. Dir.(F&A) has been written to Commissioner VAT/GST, Govt. of NCT of Delhi and issued vide D. No. 200 dated 23.10.2017. The out come of this letter will be implemented if any changes occur from Commissioner VAT/GST, Govt. of NCT of Delhi.

Sd/-
Executive Engineer (NW) –II

No. DJB/EE(NW)- II /2018-19/ **Dated-**

Copy to:-

1. Secretary to CEO (DJB)
2. P.S. to Vice Chairman (DJB)
3. Member (WS)/ Member (Dr.)/ Member (F)
4. CE (West)/Dir. (F&A)/DOV/SE (NW)
5. AO (NW)/AAO (NW)II/ZEs/DM1st/Cashier (NW) Notice Board.
6. Manager, Syndicate Bank, Rani Jhansi Road New Delhi-110055.

Executive Engineer (NW) –II

INSTRUCTIONS TO BIDDERS

Invitation to Tender:

1. The Delhi Jal Board hereafter referred to as "the Board" will receive tenders for the works mentioned in NIT.

2. Earnest Money:

Bidder shall submit the EMD amount electronically on or before the last date & time of bid submission in DJB EMD A/c.90231010012261 at Syndicate Bank, Rani Jhansi Road Branch, New Delhi (IFSC / RTGS Code No. SYNB0009023) through Bidder's bankers. While submitting EMD through RTGS mode (RTGS timing are 10:00 hrs to 16.00 hrs on all working days except Saturday, (timing for Saturday are 10:00 hrs to 13:00 hrs), Bidder must mention NIT No., Name of Division, closing date & time of tender and Bidder's Name and address in the Applicant details column in the RTGS form as shown in the example below:-

DETAILS OF APPLICANT		
A	Account No.	90231010012261
B	Name	NIT NO, Item No., Earnest Money, Name of Division, closing date & time of tender, Bidder's Name
C	Address	Bidder's Address

a) Bids submitted without the exact amount of EMD & Tender processing fee and the requirements prescribed above shall be Liable for rejection.
b) For any further assistance, the bidder may be advised to contact, Manager/ Sr. Manager, Syndicate Bank, 43, Rani Jhansi Road, New Delhi.110055, Contact No.23528976.
c) Bidder must upload the scanned copy of RTGS customer payment confirmation along with the Bid, before the date and time of closing of the bids.
d) The EMD of all the participating firms except first lowest bidders will be returned after the opening of price bid. For successful bidder it will be adjusted against retention/ security deposit.

3. Tender Fee.

Bidder shall submit non-refundable Tender Fee amount electronically on or before the last date & time of bid submission in DJB A/c.90231010012261 at Syndicate Bank, Rani Jhansi Road Branch, New Delhi (IFSC / RTGS Code No. SYNB0009023) through Bidder's bankers. While submitting Tender Fee through RTGS mode (RTGS timing are 10:00 hrs to 16.00 hrs on all working days except Saturday, (timing for Saturday are 10:00 hrs to 13:00 hrs), Bidder must mention NIT No., Name of Division, closing date & time of tender and Bidder's Name and address in the Applicant details column in the RTGS form as shown in the example below:-

DETAILS OF APPLICANT		
A	Account No.	90231010012261
B	Name	NIT NO, Item No., Tender Fee Amount , Name of Division, closing date & time of tender, Bidder's Name
C	Address	Bidder's Address

(a) Bids submitted without the exact amount of Tender Fee and the requirements prescribed above shall be Liable for rejection.

4. The tenderer shall submit the offer under two bid system i.e.
Bid Part-A (Technical) & Part-B (Financial Bid)

Bid Part A: (Technical):

Bid Part-A should contain scanned documents giving detail of Eligibility Criteria as Annexure-A.

Annexure-A:-

A) Scan copy of Registration certificate.
B) Scan Copy of Pan Card and Mandate from duly fill and Singed by Firm Owner.
C) Scan copy of Registration of GST.
D) Scan copy of under taking for not been debarred/ blacklisted as on date in any department.
E) Scanned copies of fresh/new RTGS/NEFT details of Tender Fees and EMD.
F) Scan copy of undertaking for NSIC certificate holder regarding not crossed monetary limit in current Financial Year.
G)Scanned copy of affidavit regarding employment of their close/near relatives in DJB which may include the relatives in Blood, Uncles (paternal or maternal), cousins (Paternal or maternal), Father, Mother, son, Daughter, Mother-in-law, Brother-in-law, Sister-in-Law, Nephew and Niece etc.(This list is not exhaustive)

Bid Part B: (Financial Bid):

Online Bid Part-B tender shall consist of tender form Annexure B & the bill of quantity.The bidders are required to fill all the columns of the priced bid as uploaded. Financial bids of only those bidders would be opened whose bid is substantially responsive to the NIT/Addendum/pre-bid replies issued by department. Tenders will be received only online on Date up to Time and Part A shall open on Date & Time for further scrutiny. Bid part-B shall also be opened after the completion of technical bid only for those bidders, who fulfil the eligibility criteria/the required documents if found in order under bid part-A. If any of the above date happens to be holiday, the next working day will be considered for all purposes. Conditional tender shall not be considered.

100% Earnest Money Shall Stand forfeited in Case:-

A) If contractor withdraws the offer within the Validity Period of bid.
B) The Contractor who neither executes the C.A. Within stipulated period as stated in work order nor takes up the execution of work even after lapse of date of start of work.

5. **Submission of tenders:** The tenders are to be submitted through electronic tendering process. The bidders shall down load the entire document and upload only the scanned copies supporting their experience and other details as has been asked in different sections of the document. The Bidder shall be deemed to have read and examined the Tender Documents before quoting the rates in all the formats given in the bid document. The drawing(s), Specifications, Clauses and Conditions, etc are to be considered as explanatory of each other and no advantage shall be taken of any omission in Tender Documents. Before submission of tender, the bidders are advised to go through the eligibility criteria, terms & conditions and specifications given in tender documents carefully. The complete tender document is available on the web Site http://govtprocurement.delhi.com which shall form the part of contract agreement with the successful bidder. The tenders are to be submitted in two parts i.e. Part A & Part B. The part A of the tender is technical bid and part B as financial bid. The bidders are required to upload the scanned copies of the certificates and other supporting documents as technical bid. The requirement of documents for uploading is given in the tender document. The price schedule as per formats given under BOQ is required to be filled in on line as a financial bid. The tenders shall be submitted online only.

6. **Validity of tender**: The validity of rate shall be 60/90/120 days counted from the next day of submission of Bids. (Validity Period of rates mentioned in the NIT)

7. **FORFEITURE OF EARNEST MONEY:**

If any Bidder withdraws his tender before the expiry of validity period, or before the issue of letter of acceptance, whichever is earlier, or makes any modification in terms and conditions of the tender which are not acceptable to the department, then the department shall, without prejudice to any other right or remedy, be at liberty to forfeit 100 % of the Earnest Money absolutely. This provision would naturally apply only to the lowest bidder once the earnest money of all the bidders except the lowest are refunded.

If the contractor fails to furnish the prescribed Performance guarantee within the prescribed period, the earnest money is absolutely forfeited to DJB.

In case the contractor fails to commence the work specified in the tender documents on 15th day or such period as mentioned in the letter of award, after the date on which the Engineer-in-charge issues written orders to commence the work, or from the date of handing over of the site whichever is later, the department shall, without prejudice to any other right or remedy, be at liberty to forfeit whole of the earnest money absolutely.

If only a part of the work as shown in the tender is awarded and the contractor does not commence the work, the amount of the earnest money to be forfeited to the department should be worked out with reference to the estimated cost of the work so awarded. In case of forfeiture of earnest money as prescribed above, the tenderer shall not be allowed to participate in the re-tendering process of the work.

8.0 **OPENING AND EVALUATION OF TENDER:**

The Tender received will be opened as per the specified program in the office as mentioned in the Tender notice in the presence of intending bidder or their authorized representatives who choose to remain present on the opening day at the scheduled time. Following procedure will be adopted for opening of the tender: EMD and its contents will be verified and scrutinized. The Technical Bid of the bidders whose EMD submitted was found in order will be opened.

The Delhi Jal Board, if needed, will obtain clarifications by requesting such information from any or all the Bidders in writing (through e mail) as may be necessary. The Bidder will not be permitted to change the substance of his tender after it has been opened. Non-compliance with this provision within prescribed time could be a cause for disqualification. In comparing the tenders, the Delhi Jal Board will consider such factors as compliance with the Tender Specification, past experience, after sales service facilities and the Bidder's capacity to perform shall form the basis for evaluating the prices. In addition, specific aspects, if any, mentioned elsewhere in Tender Specifications will also be considered. The Delhi Jal Board reserves the right to reject any or all the Tenders without assigning any reason.

9.0 **AWARD OF CONTRACT:**

The contract will be awarded to the Bidder whose Tender is adjudged in accordance with this Tender Specification, to be in the best interest of the Delhi Jal Board. The successful bidder shall submit the documents like Constitution of firm, Partnership deed, power of attorney of authorized representative signing the documents etc, Non Judicial Stamp Paper of Rs.50/-, Downloaded Bid documents i/c corrigendum, addendum etc, if any, as applicable for execution of Contract Agreement within 15 days from the Notification of Award of work. The authorized representative will present himself in the office of Delhi Jal Board with seals etc. for signing of documents.

10.0 **DOCUMENTS:**

Bidders shall carefully examine the Tender Specification and fully inform themselves as to all the conditions and matters, which may in any way affect the work or the cost thereof. Should a Bidder find discrepancies in or omissions from the Tender Specification or should he be in doubt as to their meaning, he should at once address a query to the DJB with a copy to the Consulting Engineers two days before scheduled date of receipt of tender. Any resulting interpretation or modifications of the Tender Specification shall be issued as an Addendum.

DJB reserves the right to cancel the work order in case of failure of bidder to meet the time and quality specifications and may transfer the order to any other qualified bidder or retender the balance part of scope of contract.

11. ADDRESSES FOR CORRESPONDENCE:

Any correspondence pertaining to this Tender will be addressed to Delhi Jal Board at the address given below:

EXECUTIVE ENGINEER (NW) -II
DELHI JAL BOARD, H-BLOCK,
SECTOR-15: ROHINI: DELHI-89

Executive Engineer (NW) –II

SPECIAL CONDITIONS FOR ENGAGEMENT OF S.G.BELDASRFOR ITEM NO. 3

1. The work consists of sewer maintenance which includes de-silting of sewer manholes ,sewer lines, removal of blockages, carriage of malba/material from silt to its disposal etc., and keeping sewer system in running conditions as directed by Engineer-in-charge.
2. The work shall be carried out as per safety code related to sewer works as contained in DJB contract.
3. The contractor will provided all necessary safety equipments as per DJB safety code to the workers on his own cost.
4. The contractor shall be responsible for proper supervision and safety of workers. No compensation shall be entertained by DJB in case of any injury/causality takes place.
5. The contractor will provided T&P to the workers required for de-silting work and nothing shall be paid extra.
6. No underage/overage person shall be engaged against the work issued by NHRC. The latest guidelines with sewer work shall be strictly ad head to illness.
7. Duty duration shall be of 8 hours. If working period exceed 08 hours shift extra hours of work shall be compensated in the next duty shift. No extra payment shall be made on this account.
8. In case of absence of engaged worker substitute worker shall be provided by the contractor.
9. Contractor shall issue oil/soap as required by engaged workers on his own & no extra payment shall be made to him on this account.
10. In case of any dispute between workers engaged and the contractor or any third party, the decision of engineer in charge shall be final.
11. All instructions issued by the Engineer-in-charge shall be followed strictly. In case of any disobedience, misbehavior by the staff of contractor. Engineer-in-charge may also orders for removal of such person(s) from the site of work for which is agency shall have to comply strictly and promptly. The decision of Engineer-in-Charge in such events shall be final and binding to the contractor.
12. The payment shall be made on monthly basis and contractor has to submit a certificate by 5th of every month that payment has been made to S.G.Beldars as per minimum wages/revised vide labour Department of GNCT of Delhi Notification No. **Addl.L.C/Lab/MW/2016/4859 dated 03.03.2017**.
13. Maintenance of contract can be extended for further period with mutual consent.
14. The contractor shall be responsible for engaging the staff after due verification of their character and past antecedents.
15. He will ensure that such labour/staff engaged should not stay /reside at the sites/office beyond their duty hours.
16. He will ensure that their medical examination should be got done on regular basis at frequency of six months.
17. Copy of insurance of all engaged workers shall be submitted before start of work.
18. Copy of wages slip of workers engaged shall be submitted to Engineer-in-charges at the time of submission of bills.
19. All such record should be maintenance by the contractor and has to be produced as and when required by the authority/officer of Delhi Jal Board.
20. The firm shall be responsible for engaging appropriately, qualified /trained staff for the respective job.
21. Contractor shall quoted rates including all expenses and taxes.
22. No extra for transportation for labour as well as T&P, safety equipments will be paid.
23. All permission will be taken by the agency, department will only assist in this matter.

EXECUTIVE ENGINEER (NW) II

GENERAL CONTRACT CONDITIONS

1.0 Definitions & Interpretations
1.1 Definitions

"**Commencement Date"** means the date of commencement of the Works and shall generally be from the 10th day of issue of Work Order or unless otherwise specified in the Contract.

"**Completion Certificate**" means the certificate issued by the Engineer-in-Charge to the Contractor, on request after successful completion of Works, pursuant to clause 15.1.

"**Completion Date"** means the actual date of completion or commissioning of the Works, whichever is later, as recorded by the Engineer-in-Charge.

"**Contract**" means the present Contract Agreement, Letter of Intent, Work Order, Tender, Special Conditions of Contract, these Conditions, the Technical Specifications, the Drawings, the Schedules and such other documents as may be expressly incorporated in the present Contract Agreement.

"**Contractor"** means a person or a corporate body and the legal successor in title to such person whose bid to carry out the Works has been accepted by the Employer and the Contract is signed.

"**Contractor's Bid"** means the completed bidding document submitted by the Contractor to the Employer.

"Contract Price" means the agreed price for executing the Works as defined in Letter of Acceptance/ Work Order, and includes any adjustments in accordance with the Contract, thereafter.

"Cost" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

"**Defects"** means any part of the Works not completed in accordance with the Contract, or completed with deficiencies and flaws and includes deficiencies, flaws, etc. developed during the execution of Works and during the Defect Liability Period.

"**Defects Liability Period"** means the period from the Completion Date as certified by the Engineer-in-Charge and specified in clause 16.1.

"Drawings" mean maps, drawings, plans, tracings or prints thereof, calculations and technical information of a like nature provided by the Employer to the Contractor or annexed to the Contract, and any modifications of such drawings and further drawings that may be issued by the Engineer-in-Charge from time to time or approved by the Engineer-in-Charge in writing and includes such other drawings as are made from time to time and furnished by the Contractor and approved by the Engineer-in-Charge.

"**Employer"** means the Board of the Delhi Jal Board (DJB), New Delhi, having its registered office at Varunalaya Complex, Jhandewalan, Karol Bagh, New Delhi, constituted through an Act of the Delhi Legislative Assembly on 6th April, 1998, acting through its Chief Executive Officer or any other officer so nominated by the Chief Executive Officer and shall include their legal successors and permitted assignees.

"**Engineer-in-Charge"** means the person appointed by the Employer, with due notification to the Contractor, who is responsible for signing the Contract, supervising the Contractor, administering the Contract, release of payments due to the Contractor as per Contract provisions, and taking any other decisions as per provisions of Contract. Any other approval including, but not limited to, extension of time, imposition of damages/ penalty, approval of additional scope, approval of any other deviations will be done as per extant delegation of power of Employer.

"Good Engineering Practice" means, Works carried out in accordance with the following standards/ specifications,

- As specified in BIS, ISO or relevant standards of particular product
- Work done as per norms of relevant work described in CPHHEO, PHED, CPWD, Electricity Board, amongst others.
- Manufacturers' instructional manual for construction, erection, O & M of respective products
- Specification prepared drafted & approved by Engineer-in-Charge for undertaking the work, if not specified in above

"Good Industry Practice" means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced Contractor engaged in the same type of undertaking as envisaged under this Contract and which would be expected to result in the performance of its obligations by the Contractor in accordance with this Contract, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner.

"**Letter of Acceptance"** means the letter from the Employer or the Engineer-in-Charge, or a person nominated by them on their behalf for this purpose, to the Contractor, conveying acceptance of the Tender, subject to any modifications agreed to between the parties and includes advance acceptance of the tender.

"Materials" means all equipment, components, fittings, and other materials including consumables, raw materials etc. required to execute and complete the Works.

"Parties" means Employer or the Contractor or both, as the context requires.

"Physical Completion of Works" means completion of construction of all physical structures such that it is ready to use for all intended purposes.

"Schedule" means the document(s) entitled schedule, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

"**Site"**means the places provided by the Employer where the Works are to be executed and any other places as may be specifically designated in the Contract as forming part of the Site.

"Specification" means the specifications of the Works included in the Contract and any modification or addition of such Works and approved by the Engineer-in-Charge.

"Special Conditions of Contract" means terms and conditions that sets out the rights and obligations of the parties that are peculiar to a specific contract, or as necessitated by the circumstances of specific works, and that forms a part of the Contract as laid out in clause 1.4.

"Stipulated Date of Completion" means date of completion of the Contract as specified in the Work Order.

"Stipulated Period of Completion" means the time period for completion of Contract as specified in the Work Order. This period shall start from the Commencement Date and shall end at the Stipulated Date of Completion.

"**Sub Contractor"** means a person or corporate body who has a Contract with the Contractor to carry out a part of the Works in the Contract.

"Taxes" means any Indian taxes and duties including excise duties, customs duties, value added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, material, equipment and services incorporated in and forming part of the Works charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

"**Variation"** means any change to the Works which is instructed or approved as variation by Engineer-in-Charge, which causes a variation in the scope of work from what is contained in the Contract.

"**Works"** means permanent and/or temporary work to be executed by the Contractor in accordance with the Contract.

"Work Order" means the document of the Employer communicating its decision to award the Works to the Contractor at the agreed Contract Price and specifying the Commencement Date and Stipulated period of Completion.

"**Writing**" means any hand-written, type-written or printed communication, email when followed by written confirmation, including facsimile transmission resulting in a permanent record in Contract.

1.2 Interpretation of documents

In this Contract, unless the context otherwise requires:

(i) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;

(ii) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or reenacted;

(iii) references to a "person" and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;

(iv) the table of contents, headings or sub-headings in this Contract are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Contract;

(v) the words "include" and "including" are to be construed without limitation and shall be deemed to be followed by "without limitation" or "but not limited to" whether or not they are followed by such phrases;

(vi) references to "construction" or "building" include, unless the context otherwise requires, survey and investigation, design, developing, engineering, procurement, supply of Plant, Materials, Equipment, labour, delivery, transportation, installation, processing, fabrication, testing, commissioning and maintenance of the project (water/ waste water, networks, treatment and storage as applicable) including removing of Defects, if any, and other activities incidental to the construction and "construct" or "build" shall be construed accordingly;

(vii) references to "development" include, unless the context otherwise requires, construction, renovation, refurbishing, augmentation, up-gradation and other activities incidental thereto, and "develop" shall be construed accordingly;

(viii) any reference to any period of time shall mean a reference to that according to Indian Standard Time;

(ix) any reference to day shall mean a reference to a calendar day as per the Gregorian calendar;

(x) references to a "business day" shall be construed as a reference to a day (other than Sundays and other holidays for Employer) on which banks in [Delhi] are generally open for business;

(xi) any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;

(xii) references to any date, period or project milestone shall mean and include such date, period or project milestone as may be extended pursuant to this Contract;

(xiii) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Contract is not a business day, then the period shall run until the end of the next business day;

(xiv) the words importing singular shall include plural and vice versa;

(xv) references to any gender shall include the other and the neutral gender;

(xvi) "lakh" means a hundred thousand (100,000) and "crore" means ten million (10,000,000);

(xvii) "indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;

(xviii) references to the "winding-up", "dissolution", "insolvency", or "reorganization" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the jurisdiction of law in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;

(xix) save and except as otherwise provided in this Contract, any reference, at any time, to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this sub clause shall not operate so as to increase liabilities or obligations of the Employer hereunder or pursuant hereto in any manner whatsoever;

(xx) any agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Contract from or by any Parties or the Engineer-in-Charge shall be valid and effective only if it is in writing under the hand of a duly authorized representative of such Parties or the Engineer-in-Charge, as the case may be, in this behalf and not otherwise;

(xxi) the Schedules and Recitals to this Contract form an integral part of this Contract and will be in full force and effect as though they were expressly set out in the body of this Contract;

(xxii) references to Recitals, Articles, clauses, Sub-clauses or Schedules in this Contract shall, except where the context otherwise requires, mean references to Recitals, Articles, clauses, Sub-clauses and Schedules of or to this Contract, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Contract or of the Schedule in which such reference appears; and

(xxiii) the damages payable by either Parties to the other of them, as set forth in this Contract, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Parties entitled to receive the same and are not by way of penalty (the "Damages")

(xxiv) Time shall be of the essence in the performance of the Parties' respective obligations. If any time period specified herein is extended, such extended time shall also be of the essence.

1.3 Ambiguities and Discrepancies

In case of ambiguities or discrepancies within this Contract, the following shall apply:

(i) between two or more clauses of this Contract, the provisions of a specific clause relevant to the issue under consideration shall prevail over those in other clauses;

(ii) between the clauses of this Contract and the Schedules, the clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;

(iii) between any two Schedules, the Schedule relevant to the issue shall prevail;

(iv) between the written description on the Drawings and the technical specifications, the latter shall prevail;

(v) between the standard in CPWD manual and the relevant standard, the latter shall prevail;

(vi) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail;
(vii) between any value written in numerals and that in words, the latter shall prevail; and
(viii) for any discrepancy in the Contract relating to BOQ (Bill of Quantities), the nomenclature as given in CPWD manual/ DSR/ EMPLOYER analyzed rates, as the case may be, shall prevail, unless specified in the Contract

1.4 Order of precedence

The Contract Agreement shall comprise the following documents in the given order of precedence:-
(i) Agreement on non judicial stamp paper
(ii) Work order
(iii) Letter of Acceptance
(iv) Correspondence between parties
(v) Corrigendum/ Addendum issued, including bidders' queries
(vi) Special Conditions of Contract
(vii) General Conditions of Contract
(viii) Technical Specifications
(ix) Accepted bid
(x) NIT or any other document

1.5 Correlation of document

The Contract documents are complementary and what is called for by any one of them shall be as binding as if called for by all of them.

1.6 Signing of Contract

The Contract should be signed by either parties within 21 (twenty one) days of issue of Work Order or any such time period as decided by the Employer, failing which the Employer shall have the right to forfeit the Earnest Money deposited during the bidding stage. The Employer shall also have the right to forfeit the Performance Guarantee, submitted as per clause 6.1, in case Contractor fails to sign the Contract in the stipulated time. However, Employer shall give a 10 days' notice before forfeiting the Performance Guarantee. Further, the Contractor shall not be allowed to participate in retendering, if any, for the Works.

1.7 Communication

All notices, communications, references and representation by either Parties to the Contract shall be in writing only.

1.8 Language

The Contract document shall be drawn up in English.

1.9 Law governing the Contract

The Contract shall be governed by the laws of India, including but not limited to laws of GNCTD and DWB act, in force and as amended from time to time and the Courts in Delhi shall have exclusive jurisdiction in all matters under the Contract**.**

1.10 Compliance with bylaws and regulations

The Contractor shall comply with the provisions of any statute relating to the Works, regulations and by-laws of any local authority and undertaking, including those controlling the utilities such as, but not limited to, roads, railways, telephones and power supply, in whose area / jurisdiction the Works is to be executed. The Contractor shall also comply with court directives, if any after signing of Contract.

2.0 Engineer-in-Charge & its representatives

2.1 Duties and authority of Engineer-in-Charge and its representatives

2.1.1 The Engineer-in-Charge shall carry out the duties specified or implied in the Contract including issue of instructions, decisions, certificates and orders, for administration of the Contract and expeditious and timely completion of the Work. Should the Engineer-in-Charge exercise any specific authority for which, as per the terms of his appointment, he has to obtain the approval of the Employer, the Contractor shall deem such approval to have been given by the Employer. Further, the Engineer-in-Charge may be assigned any other duty by the Employer in interest of Work.

Duties and Authority of Engineer-in-Charge's representative

(i) The Engineer-in-Charge's representative shall be appointed by and be responsible to the Engineer-in-Charge and shall carry out such duties and exercise such authority as may be delegated to him by the Engineer-in-Charge including the duty to supervise the Works and to test and examine any materials to be used or workmanship employed in connection with the Works.

Provided that the Engineer-in Charge's representative shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract, or to order any work involving delay or any extra payment by the Employer, or to make any variation of or in the Works, except as expressly provided in the Contract.

(ii) The Engineer-in-Charge may, from time to time, in writing delegate to the Engineer-in-Charge's representative, any of the powers and authorities vested in the Engineer-in-Charge, and he may any time revoke such delegation. Any such delegation or revocation shall be in writing and the Engineer-in charge shall furnish to the Contractor and to the Employer, a copy of all such written delegation or revocation of powers and authorities. Any written instruction, decision or approval given by the Engineer-in-Charge's representative to the Contractor within the terms of such delegation, but not otherwise, shall bind the Contractor and the Employer, as though it had been given by the Engineer-in-Charge. Provided always as follows:

- Failure of the Engineer-in-Charge's representative or his assistants, to disapprove any Works or materials shall not prejudice the authority of the Engineer-in-Charge or Employer thereafter, to disapprove such Works or materials or plant and order the pulling down, removal or breaking up or replacement thereof. The Engineer-in-Charge's representative shall have similar authority to disapprove any Works or material or plant passed by his Assistants, appointed in terms of provision of sub-clause 2.1.2herein.
- If the Contractor shall be dissatisfied by reason of any instruction or decision of the Engineer-in-Charge's representative, or questions any communication of the Engineer-in-Charge's representative, he may refer the matter to the Engineer-in-Charge, who shall thereupon confirm, reverse or vary such decision or vary the contents of such communication. The Engineer-in-Charge's representative shall have similar authority to confirm, vary, or, reverse any instructions and decisions issued by his Assistants, appointed in terms of sub-clause 2.1.2 herein.

2.1.2 The Engineer-in- Charge or his representative may appoint any number of persons to assist them in carrying out their duties under Sub-clause 2.1.1. The Engineer-in- Charge or his representative shall notify to the Contractor the names, duties and scope of authority of such persons. Such persons/assistants shall have the authority to issue instructions / give decisions to the extent of duties assigned and powers delegated to them.

2.2 Works to be executed under direction of Engineer-in-Charge

All Works to be executed under the Contract shall be executed under the direction and subject to the approval of the Engineer-in-Charge. The Engineer-in-Charge shall be entitled to direct at what point or points and in what manner the Works are to be commenced and scheduled.

2.3 Instructions in writing

2.3.1 The instructions issued by Engineer-in-Charge shall be in writing or through email. However, if the Engineer-in-Charge issues any oral instructions to the Contractor, the Contractor shall comply with them.
Provided that the Engineer-in charge shall confirm in writing the oral instructions within 2 [two] working days of issuing them.

2.3.2 In case the Contractor does not receive the written confirmation of the oral instruction within the time prescribed in Sub-clause 2.3.1, the Contractor shall seek the written confirmation of the oral instructions from the Engineer-in-Charge who issued the oral instructions. In case of failure of the Engineer-in-Charge to reply to the Contractor within 2 (two) working days of the receipt of the communication from the Contractor, the Contractor shall not carry out the instruction.

2.4 Time Compensation for delay in handing over the site

2.4.1 The Employer shall ordinarily grant the Contractor the Right of Way which may, however, not be exclusive to the Contractor:

(i) on the date(s) stated in Special Conditions of Contract; and
(ii) In the event Special Conditions of Contract does not specify any time schedule for providing the Right of Way for any part of the Site , the Employer shall provide to the Contractor the Right of Way to such part(s) within 30 (thirty) days of the Start Date.

2.4.2 Where Right of Way of a part of the Site is not given within fourteen days of the date specified in sub-clause 2.4.1 for any reason other than Force Majeure or breach of this Contract by the Contractor, the Contractor shall be entitled to extension of time. The extension of time shall be equal to the period of delay in handing over the possession of the Site provided that if delays involve time overlaps, the overlaps shall not be additive.

2.4.3 The Special Conditions of Contract shall state the present status of all clearances, including land availability, obtained or awaited, as the case may be, indicating the expected dates of obtaining clearances.

2.4.4 The Contractor shall allow access to and use of the Site and/or the Works for laying/installing telegraph lines, electric lines or for such other public purposes as the Employer may require.

3.0 Contractor & Contractor's obligations

3.1 Contractor and its representatives

3.1.1 A Contractor may be an individual, firm, company, corporation, Joint Venture, or consortium whether incorporated or not, who enters into the Contract with the Employer, and shall include his heirs, his executors, administrators, successors, legal representatives, as the case may be.

3.1.2 Contractor's representative shall mean a person in supervisory capacity who shall be so declared by the Contractor and who shall be authorized under a duly executed power of attorney to comply with the instructions and to receive materials issued by the Engineer-in Charge to the Contractor for Works. He shall be capable of taking responsibility for proper execution of Contract.

3.2 Subcontracting

3.2.1 A minimum of following activities shall be performed by the Contractor and shall not be sub contracted:

(i) Project Management
(ii) Planning, Scheduling, Monitoring
(iii) Quality Assurance

3.2.2 Prior approval of Employer shall be required before subcontracting any portion of Contract. The approval shall be based on competency of subcontractor to do similar kind of activity which is to be subcontracted.

3.2.3 Where the Contractor fails to comply with instructions under sub-clauses 3.2.1, the Engineer-in-Charge shall have the power to adopt the course specified in clause 11.1 and in the event of such course being adopted, the consequences specified in the said clause 11.1 shall ensue.

3.2.4 The Contractor shall, at all times, be responsible and liable for all its obligations under this Contract notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, and no default under any such agreement shall excuse the Contractor from its obligations or liability hereunder.

3.3 Removal of worker or subcontractor by Employer

The appointment of key personnel and subcontractor for the Contract shall be authenticated by the Employer.

The Engineer-in-Charge may require the Contractor to dismiss or remove from the Site any person or persons or sub-contractor who is found to be incompetent or indulging in misconduct and the Contractor shall forthwith comply with such requirements within 21 days of such notice from the Engineer-in-Charge. Such person(s) shall not be employed again at Site without the written permission of the Engineer-in-Charge and the person(s) so removed shall be replaced as soon as possible by competent substitutes. The decision of Engineer-in-Charge shall be final and binding.

3.4 Contractor to keep Site clean

During the progress of Works, the Contractor shall keep the Site reasonably free from obstructions and shall store neatly any construction equipment and surplus materials and clear away and remove from Site any rubbish or temporary work no longer required. On completion of the Works, the Contractor shall clear away and remove from Site all construction equipment, surplus material and temporary work. He should leave the whole of the Site and Works in a clean and tidy condition to the satisfaction of the Engineer-in-Charge.
Provided that where the Contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get this Works done at the cost of the Contractor either departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days notice in writing to the Contractor.

It shall be the sole responsibility of Contractor to follow the provisions of Environment (Protection) Act, 1986 during the execution of Works and existence of this Contract.

3.5 Unauthorized occupancy at the construction site

It shall be the responsibility of the Contractor to see that the Site is not occupied by any unauthorized person during construction, and that Site is handed over to the Engineer-in-Charge with vacant possession of complete building or site, as applicable and free from all encumbrances. Provided that where such construction site is occupied illegally, and notwithstanding that the Works on the Site is executed by the Contractor, the Engineer-in-Charge shall have the option to refuse to accept the said site in that condition. Any delay in acceptance on this account will be treated as per provisions of clause 10.3, and the Contractor shall be liable to pay compensation for delays. Provided further that for such delay a levy up to maximum of 5% of Contract Price may be imposed by the Engineer-in-Charge whose decision shall be final both with regard to the justification and quantum of levy and shall be binding on the Contractor.

Provided further that the Engineer-in-Charge may require through a written notice removal of any illegal occupation of Site that comes into his/her knowledge at any time during the execution of the Contract.

3.6 Changes in firms constitution to be intimated

Where the Contractor is a partnership firm, the previous 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 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 the said previous approval is not obtained, the Contract shall be deemed to have been assigned in

contravention of clause 3.2 hereof and hence shall be liable for cancellation in which case the Employer shall have the authority to forfeit the Performance Guarantee submitted for the Contract.

3.7 Indemnity by Contractor

3.7.1 Indemnity against All Actions of Contractor

The Contractor shall hold and save harmless and indemnify the Employer, from and against all actions, suits, proceedings, loss, costs, damages, charges, claims and demands of every nature and description brought or recovered against the Employer, by reason of any act or omissions of the Contractor, his representative or his employees, in the execution of the Works or in the guarding of the same. All sums payable by way of compensation under any of these conditions, shall be considered as reasonable compensation payable to the Employer by Contractor, without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

3.7.2 Indemnity against All Claims of Patent Rights and Royalties

The Contractor shall hold and save harmless and indemnify the Employer, its agents and employees from and against all claims and proceedings, for or on account of infringement by the Contractor of copyright, any patent rights, design trademark or name, secret process, patented or unpatented invention, articles or appliances manufactured or used for or in connection with the Works and from and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Except where otherwise stated, the Contractor shall pay all royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Works.

3.8 Employment of technical staff and employees

The Contractor shall employ a qualified engineer(s) for supervision of the Works as under:-

- For Works costing above Rs.50 lakhs - qualified graduate engineer(s) for the required domain
- For Works upto 50 lakhs - A recognized diploma holder engineer(s) for the required domain

Where the Contractor fails to employ the qualified engineer as aforesaid he shall be liable to pay a sum of Rs.20,000/- (Rupees twenty thousand only) per week of default in the case of graduate engineer's and Rs.10,000/- (Rupees ten thousand only) per week of default in the case of diploma holder. The technical staff of the contractor should be available at Site on full time basis, to take instructions.

The Contractor shall provide all necessary superintendence during execution of the Works and for as long thereafter as may be necessary for proper fulfilling of the obligations under the Contract.

The Contractor shall immediately after receiving Letter of Acceptance of the tender and before commencement of the work, intimate in writing to the Engineer-in-Charge the name, qualifications, experience, age, address and other particulars along with certificates, of the principal technical representative to be in charge of the work. Such qualifications and experience shall not be lower than specified in Special Conditions of Contract. The Engineer-in-Charge shall within 15 days of receipt of such communication intimate in writing his approval or otherwise of such a representative to the Contractor. Any such approval may at any time be withdrawn and in case of such withdrawal the Contractor shall appoint another such representative according to the provisions of this clause. Decision of the Employer shall be final and binding on the Contractor in this respect. Such a principal technical representative shall be appointed by the Contractor soon after receipt of the approval from Engineer-in-Charge and shall be available at Site within fifteen days of start of work.
Where the Contractor (or any partner in case of firm/company) himself has such qualifications, it will not be necessary for the said Contractor to appoint such a principal technical representative but the Contractor shall designate and appoint a responsible agent to represent him and to be present at the Works whenever the Contractor is not in a position to be so present. All the provisions applicable to the principal technical representative under the clause will also be applicable in such a case to Contractor or his responsible agent. The principal technical representative and/or the Contractor shall on receiving reasonable notice from the Engineer-in-Charge or his designated representative(s) in charge of the Works in writing or in person or otherwise, present himself to the Engineer-in-Charge and/or at the Site, as required, to take instructions. Instructions given to the principal technical representative or the responsible agent shall be deemed to have the same force as if these have been given to the Contractor. The principal technical representative and/or the Contractor or

his responsible authorized agent shall be available at Site at least two working days every week. These days shall be determined in consultation with the Engineer-in-Charge.
The principal technical representative and/or the Contractor or his responsible authorized agent shall be present daily during important stages of execution of work, during recording of measurement of work and whenever so required by the Engineer-in- Charge by a notice as aforesaid and shall also note down instructions conveyed by the Engineer-in- Charge or his designated representative in the site order book and shall affix his signature in token of noting down the instructions and in token of acceptance of measurements.

There shall be no objection if the representative/agent looks after more than one Works and not more than three works provided these details are disclosed to the Engineer-in-Charge and he shall be satisfied that the provisions and the purpose of this clause are fulfilled satisfactorily. Where the Engineer-in-Charge, whose decision in this respect is final and binding on the Contractor, is convinced that no such technical representative or agent is effectively appointed or is effectively attending or fulfilling the provision of this clause, a recovery shall be effected from the Contractor as specified in Special Conditions of Contract and the decision of the Engineer-in-Charge as recorded in the site order book and measurement recorded in measurement books shall be final and binding on the Contractor. Provided that if the Contractor fails to appoint a suitable technical representative or responsible agent and if such appointed persons are not effectively present or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the Works until such date as a suitable agent is appointed and the Contractor shall be held responsible for the delay so caused to the work. The Contractor shall submit a certificate of employment of the technical representative/responsible agent along with every account bill/fixed bill and shall produce evidence if at any time so required by the Engineer-in-Charge.
The Contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work.

The Contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work.

3.9 Work Program Schedule

The Contractor shall within 10 days from the date of Work Order submit a detailed program for completion of Works within the stipulated period, in specified format, as categorized below, and covering all major activities.

- Bar Chart: for Contract Price Rs. 1,00,00,000 - Rs. 3,00,00,000 (Indian Rupees one crore to three crores only)
- Bar Chart and PERT chart: for Contract Price > Rs. 3,00,00,000 (Indian Rupees three crores only)

Non submission of above shall attract liquidated damages as described below:

- For projects with Contract Price $\leq$ Rs.100 Crore: Rs. 1000/- per day
- For projects with Contract Price > Rs.100 Crore: Rs. 5000/- per day

Modifications suggested by the Engineer-in-Charge shall be incorporated in the work program schedule.

It shall be the responsibility of the Contractor to upload the approved work program schedule in the PMS (Project Monitoring System)
The Contractor shall ensure that the time schedule as laid down in the aforesaid work program schedule is adhered to. Provided that on failure to achieve milestone requisite action shall be taken as per the provisions given under clause 10.3.

In the event of any rescheduling of milestone, it shall be responsibility of the Contractor to incorporate the same in work program schedule and resubmit the schedule within 10 days of receipt of such communication from the Engineer-in-Charge, failing which liquidated damages of Rs. 1000/- per day shall be levied on the Contractor.

3.10 Site office

For Contract Price above Rs. 50 Crores:-Within 42 days of issue of Work Order the Contractor shall provide the site office with air-conditioning and false ceiling of 3nos. of cabins for the Engineer-in-Charge and staff and meeting room (total area approximately 80 sq. m.) with pantry and toilet facilities. Facilities shall include basic furniture, required office equipments i.e. Fax, photocopy, internet/email, computer with colo (iii) The work includes various activities which are to be taken up simultaneously for there should be arrangement for sufficient labour and T&P.

(iv).**Provision of GST Act 2017 shall have the superseding effect over the all earlier taxes like VAT/WCT/Service Tax/other like taxes as contemplated in the Act. Accordingly the terms VAT/WCT/Service Tax etc. appearing anywhere in the bid document may be read as the applicable tax under the GST Act 2017.**

Agencies may contact the office of EE (C) NW-II for additional information/any clarification

(i) Ur laser printer, software (MS Projects, MS office, Primavera, AutoCAD), Laptops (1 no.) and orderly staff including one English stenographer. The location and layout of the site office shall be approved by the Engineer–in-Charge before providing the same.

(ii) **For Contract Price between Rs. 3 to Rs. 50 Crores**:-Within 42 days of issue of Work Order the Contractor shall provide the site office with air-conditioning and false ceiling of 2nos. of cabins for the Engineer-in-Charge and staff (total area approximately 40 sq. m.) with pantry, toilet facilities and basic furniture. The location and layout of the site office shall be approved by the Engineer–in-Charge before providing the same.

(iii) **For Contract Price between 1 to 3 Crores**:-Within 30 days of issue of Work Order the Contractor shall provide the site office for the Engineer-in-Charge and staff with total area approximately 30 sq. m. with toilet facilities and furniture.. The location and layout of the site office shall be approved by the Engineer – in- Charge before providing the same.

Two nos. of 4-seater vehicle with driver, maintenance and fuel shall be provided for Contract Price greater than Rs. 75 Crores.

If available, Employer shall provide the Contractor with space for site office at no charges. Otherwise, Contractor shall on his own arrange for space for site office at his cost.

Contractor shall also be responsible to arrange a store for proper storage of material in a weather proof environment as required for a particular kind of material.

Note: In case of supply projects there is no requirement of site office.

3.11 Sign Board/ Caution/ Diversion Board

The Contractor shall provide sign/ caution/ diversion board indicating complete name of work, date of start, date of completion, Contract Price, name of Employer, name of the Executive Engineer with office address and telephone number, name of the executive agency, at his own cost at the Site.

3.12 Benchmark

The Contractor shall establish at his own cost, at suitable points, additional reference points/lines, benchmarks as may be necessary. The Contractor shall remain responsible for the sufficiency and accuracy of all benchmarks and reference lines. The temporary benchmarks shall be connected with permanent standard benchmarks.

3.13 Responsibility of damage to person or property

3.13.1 The Contractor shall be responsible for all risks to the Works and for trespass and shall make good, at his own expense, all loss or damage to the Works themselves or to any other property of the Employer or the lives, persons and property of others from whatsoever cause in connection with Works until they are taken over by the Employer. In the event the Employer is called upon to make

good any such costs, loss or damages, or to pay compensation, including that payable under the provisions of Workmen's Compensation Act or any statutory amendments thereof, to any person or persons sustaining damage as aforesaid by reason of any act, omission or negligence on the part of the Contractor the amount of any costs or charges, including costs and charges in connection with legal proceedings, which the Employer may incur in reference thereto, shall be charged to the Contractor. The Employer shall have the authority to pay or to defend or compromise any claim or threatened legal proceeding or in anticipation of legal proceedings being instituted consequent on the action or default of the Contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, as aforesaid. Any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expenses shall not be called in question by the Contractor.

3.13.2 The Contractor shall not disturb, damage or pull down any hedge, tree, building etc within the Site without the written permission of the Engineer-in-Charge.

3.13.3In the event of any damage occurring to any work, life and property during the execution of Works included in the Contract clause due to settlement of ground slips, flooding from any sources breakage of water main/ sewer line or any other cause, the Contractor shall be solely responsible and must reconstruct, repair and make good all such at his own cost.

3.13.4 When the work is done near a place where there is risk of danger or accident, all necessary equipments shall be provided and kept ready for use, all necessary steps shall be taken for prompt rescue of any person in danger and adequate provision shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

3.13.5If any accident occurs, the Contractor shall report to the Employer and Labor Commissioner under Workman's Compensation Act, within 24 hours of its occurrence.

3.13.6 Any compensation decided by the Labor Commissioner shall be borne by the Contractor.

3.14 Inconvenience caused to public

The Contractor shall not dump/deposit materials on Site which will seriously cause inconvenience to the public. The Engineer-in-Charge may require the Contractor to remove any materials which are considered by him to be of danger or inconvenience to public or cause them to be removed at the Contractor's cost.

3.15 Electricity for construction of Works

3.15.1 The Contractor shall arrange on his own, the electricity/power connection of required capacity for carrying out the Works only till Completion Date. The Employer shall issue the recommendation letter to concerned electrical authorities for getting the electrical power connection. In the event the authorities refuse to provide or sanction electric/ power in favour of Contractor, the connection shall be applied for by the Engineer-in- Charge. All the steps in this regard including the required payments, if any, shall be made by the Contractor. The Contractor shall pay all the charges towards security installation, consumption of electricity/power till Completion Date.

3.15.2 The payment of final bill to the Contractor shall be made by Employer on submission of no dues/clearance certificate from the electric supply authority/the authority in charge of the electric power.

3.15.3 The temporary electric fitting shall be provided and maintained as per the power sanctioning/maintaining authority rules and regulations by the Contractor at his own cost and nothing extra shall be paid by the EMPLOYER.

3.15.4 If for any reason of the feasibility or whatsoever the authorities are not in a position to sanction the electric connection, the Contractor shall make his own arrangements i.e. required numbers of generators etc. to execute the Works or in case the sanction of electric connection is

delayed by the authority it shall also be the responsibility of the Contractor to arrange electricity and no claim whatsoever shall be entertained on this account.

3.15.5 The Contractor shall also make necessary arrangements of his own diesel generators for the Works, so that the same can be used by him during failure/non-availability of electricity/power. The quoted rates shall be inclusive of the POL (petroleum, oil and lubricants) cost and other miscellaneous expenditure including labour for running and maintaining, the generator. It shall be the Contractor's responsibility to obtain all approvals, consents and permissions from any of the authority as for example, CPCB/DPCC required for operating the generators in accordance with the statutory rules and regulations of the Government. No additional payment shall be made to the Contractor for the purposes of procuring all the applicable approvals, consents and permissions.

3.16 Supply of water

The Contractor shall make his own arrangements for water required for the Works and nothing extra will be paid for the same. The Contractor shall submit necessary proof such as tanker receipts, amongst others, if the water is arranged by him.

(i) If Employer water is available, it shall be supplied to contractor for construction and drinking purposes and recovery @ 1% of the gross amount of Contract Price shall be made. The ferrule connection with the Employer's main and the pipe line upto the Site and adequate storage shall be provided by the Contractor at his own cost.

(ii) In case the Employer is not able to make available Employer water due to non-availability, shortage of water or any other reasons, the Contractor will have to make his own arrangement of water as per standard by sinking tube well etc. for construction and drinking purposes.

(iii) The water used by Contractor shall be fit for construction purposes and human consumption as per B.I.S standards IS 456-2000 and IS 3025 respectively.

(iv) The water shall be tested from Employer laboratory before commencement of work and thereafter once in every 3 months till the completion of the work. The cost of testing shall be borne by the Contractor.

(v) Water required for hydraulic testing shall be arranged by the Contractor and Employer will only facilitate the process of obtaining approvals or permissions as required.

(vi) In case the Employer's water is not available as well as ground water at the Site is not found fit, the Contractor may arrange the water from other source. The water of the said source shall be tested from the Employer's laboratory at Contractor's own cost and may be allowed to be used only when found suitable for use. Necessary arrangements for carrying the water by tankers and its storage at the Site shall be made by the Contractor at his own cost. Any statutory requirements of registration/permissions for boring/installation of tube-wells either at the Site or elsewhere shall be taken by the Contractor at his own cost and nothing shall be payable.

Water when supplied to the Contractor by the Employer shall subject to the following conditions:

The Employer do not guarantee to maintain uninterrupted, supply of water and it shall be incumbent on the Contractor to make alternative arrangements for water at his/their own cost in the event of any temporary break down in Employer water main so that the progress of his/their Works is not held up for want of water. No claim of damage or refund of water charges will be entertained on account of such break down.

3.17 Clearance of site

The Site shall be cleared off all malba/ debris and other waste materials after completion of Works and shall ensure removal of temporary structure erected for execution of Works including hutments put up by his laborers at site, if any, before handing over the Site to the Employer in workable condition. No final payment for the Works shall be made to the Contractor till full satisfaction of the Engineer-in-Charge.

3.18 Relics and treasures

All gold, silver, coins, oil and other minerals of any description, and all precious stones of all kinds, treasures, antiques, fossils and other similar things, which shall be found in or at site, shall be the property of the Employer, and the Contractor shall duly preserve the same to the satisfaction of the Employer, and shall from time to time deliver the same to such person or persons, as the Employer may appoint to receive the same.

3.19 Excavated materials

The Contractor shall not sell or otherwise dispose off, or remove, except for the purpose of this Contract, sand, stone, clay, ballast, earth, rock or any other substance or materials, which may be obtained from any excavation made for the purpose of the Works, or any building or produce existing at the Site at the time of delivery of possession thereof. All such substances, materials, buildings and produce, shall be the property of the Employer; provided that the Contractor may with the permission of the Engineer-in-Charge use the same for the purpose of Works either free of cost or on payment of cost, as provided for under the Special Conditions of the Contract or in the absence of such conditions, as per mutually accepted terms and conditions.

3.20 Works during night, Sundays & National Holidays

Unless specifically provided in the Special Conditions of Contract, the Contractor shall not carry out any work between sunset and sunrise and/ or holidays without the prior permission of the Engineer-in-Charge. In case of any grave emergency or in order to avoid risk to property and life or to prevent damage to utilities or to restore them, work may be done at night also without the prior permission of the Engineer-in-Charge, but intimation to this effect should be sent to him immediately. No increase in rates or extra payments shall be admissible for night work.

The Contractor shall make adequate lighting and safety arrangements. He shall also be responsible for any claim on account of any injury to or loss of life, of any one, arising out of inadequate lighting and safety arrangements if work is done during night or holidays.

3.21 Care of work

Subject to the insurance obligations of the Parties, the Contractor shall bear full risk in and take full responsibility for the care of the Works and Materials, goods and equipment for incorporation therein from the Commencement Date until the Completion Certificate is issued, except and to the extent that any loss of or damage to the same shall arise out of any default or neglect of the Employer.

3.22 Employment of foreign nationals

The Contractor acknowledges, agrees and undertakes that employment of foreign personnel by the Contractor and/or its Sub-Contractors and their Sub-contractors shall be subject to grant of requisite regulatory permits and approvals including employment/residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. Notwithstanding anything to the contrary contained in this Contract, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-Contractors or their sub-Contractors shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Contract.

3.23 Precautions during execution

(i) The Contractor shall comply with instructions issued by the Employer in respect of road maintenance and inter utility code of conduct for excavating trenches across and along various roads and other places, in all respects. In case of non-compliance the contractor shall be liable to pay liquidated damages for various lapses as indicated below:

a) Non-installation of boards on either ends of trenches: Rs. 500/- per day till implementation

b) Non shoring of walls of trenches to prevent collapse of the excavated portion (beyond 1.5 m) and where proper stopping not proved: Rs. 1000/- per day till the shoring is fixed.

c) Digging of trenches beyond a stretch of 500 meter for Electrical Authority and Employer and otherwise 1000 meter in case of telephone: Rs. 500/- per day till the damage is restored.

d) Non barricading of trenches of more than 1.5 meter: Rs. 500/- per day till completed.

e) Excavation of trenches across and along roads during day time (at 8 AM to 8PM) without permission: Rs. 500/- per day.

f) Non removal of excess earth and other stones etc. which are causing inconvenience to the road users: Rs. 1000/- per day till completed.

g) Non consolidation of earth while back filling of trenches to the original level: Rs. 500/- per day till completed.

h) Non adherence to prescribed methodology for reinstatement of trenches: Rs. 500/- per day.

i) Road cutting without written or oral permission: Rs. 1250/- per day.

j) Non stacking of materials pipes etc. in an orderly manner during execution causing inconvenience to the road users: Rs. 1000/- per day.

(ii) The contractor shall have to provide MS sheet barricading or as provided in BOQ up to a minimum height of 2 metres above ground level all around the Site of excavation and trenches as per direction of Engineer-in-Charge. Such barricading must be provided before taking up the excavation work and must remain in position till complete filling back of excavated trenches and resurfacing work, if any. The sheets must be painted in red & White stripes with fluorescent paint.

(iii) Proper supporting of all underground services such as water mains, sewers, cables, drains, and water and sewer connections shall be provided by the contractor without any additional cost. If the services/connections are damaged the contractor will be responsible for the restoration of the same to original specifications at his own cost.

(iv) Imposition of liquidated damages by Employer shall not absolve Contractor from any other civil/ criminal liabilities.

(v) Contractor should maintain first aid box, electric shock recovery devices, safety equipment such as breathing apparatus, safety personal protective equipment and/ or other safety equipment as per NHRC guidelines and/ or factory act. The Engineer-in-Charge shall decide to impose suitable damages as mentioned under Clause 17.6.

4.0 The Site

4.1 Site description

The Site shall comprise the real estate described in Special Conditions of Contract in respect of which the right of way shall be provided by the Employer to the Contractor. The Employer shall be responsible to the Contractor for:

(i) Acquiring and providing physical possession of the Site free from all encroachments and encumbrances, and free access thereto for the execution of the Contract; and
(ii) Prior environment clearance for the Site as per the Environment Impact Assessment Notification 2006 under the Environment (Protection) Act, 1986, wherever applicable

Unless specifically mentioned in the Contract, the Contractor shall be responsible to obtain all the necessary permits, permissions and/or approvals from the relevant department/ authority in relation to execution and completion of Works. The Employer shall only facilitate the process and will reimburse the charges paid by the Contractor after due verification.

4.2 Inspection of site

(i) The Employer shall have made available to the Contractor with the tender documents such data on hydrological and sub-surface conditions as may have been obtained by or on behalf of the Employer from investigations undertaken relevant to the Works and the tender shall be deemed to have been based on such data, but the Contractor shall be responsible for his own interpretation thereof.

(ii) The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself, so far as is practicable, before submitting his tender, as to the form and nature thereof, including the sub-surface conditions, the hydrological and climatic conditions, the extent and nature of work and materials necessary for the completion of the Works, the means of access to the Site and the accommodation he may require and, in general, shall be deemed to have obtained all necessary information, subject as above mentioned, as to risks, contingencies and all other circumstances which may influence or affect his Tender.

5.0 Specifications & Drawings

5.1 Works To Be Executed In Accordance With Specifications, Drawings, Orders, Etc.

5.1.1 The Contractor shall execute the whole and every part of the Works in the most substantial and workman like manner in every respect and in strict accordance with the specifications. The Contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions of the Engineer-in-Charge in respect of the work. The Contractor shall be furnished free of charge one copy of the Contract documents together with specifications, designs, drawings and instructions as are not included in the standard specifications of Employer specified in Special Conditions of Contract or in any BIS document.

5.1.2 The Contractor shall comply with the provisions of the Contract and with care and diligence execute and maintain the Works and provide all labour and materials, tools and plants 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.

5.2 Action in Case work Not Done as per Specifications

5.2.1 All work 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

representatives and assistants in charge of the Works and all senior officers, officer of the quality control division of the Employer, third party hired by Employer, and of the chief technical examiner's office. 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 his responsible agent, present for that purpose.

5.2.2 In the event it appears to the Engineer-in-Charge or his representative in charge of the Works or any nominated officer (as described above in this clause), that any work has been executed with unsound, imperfect, or unskillful workmanship, or is against Good Engineering Practice or with material or articles 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 during construction and upto six months after completion of the Works by the Engineer-in-Charge specifying the work, materials or articles complained (notwithstanding that the same may have been passed, certified and paid for forthwith) rectify, or remove and reconstruct the Works so specified in whole or in part, as the case may require, 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 failing to do so within a period specified by the Engineer-in- Charge in his demand aforesaid, the Contractor shall be liable to pay compensation at the same rate as under clause 10.3 of the Contract (for non-completion of the Works in time) for this default.

5.2.3*Provided that in such an event* the Engineer-in-Charge may not accept the item of Works at the rates applicable under the Contract but may accept such items at reduced rates as the Employer 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 Works 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 shall be final and binding on the Contractor.

5.3 Action where there are no Specifications

In the case of any class of work for which there is no such specifications as referred to in clause 5.2, such work shall be carried out in accordance with the CPWD/ Bureau of Indian Standards Specifications or any other applicable standards specific to the Works.
Provided that where there is no such specification in CPWD/ Bureau of Indian Standards, the Works shall be carried out as per manufacturers' specifications. Provided further that where there are no such specifications as required above, the Works shall be carried out in all respects in accordance with Good Engineering Practice and Site requirements under the instructions and requirements as communicated by the Engineer-in-Charge.

5.4 Estimates

The estimate is based on CPWD's DSR 2016 as applicable to Employer, analyzed rates of Employer and in other cases on market rates. The Works shall be carried out as per CPWD specifications /latest editions of the specifications, with upto date (on the date of issue of NIT) correction slips, for work at Delhi and other specifications laid down by Indian or other standards (CPHEEO, ASTM, WRC, etc.) and best practices being followed by Employer

5.5 Execution of work

5.5.1 The Works is to be carefully executed strictly in accordance with the approved drawing supplied to the Contractor or with such modifications as may be approved by the Engineer-in-Charge from time to time. Any additional amended, revised or detailed drawings that does not have a significant impact on the scope of work, issued by the Engineer-in-Charge or approved in writing by him during the progress of the Works are to be considered to form the part of the Works and as such being included in the Contract. No claim whatsoever shall be considered on this account.

5.5.2 The order of sequence of execution of Works and general condition of the Works shall be subject to the approval and direction of the Engineer-in-Charge. Any such approval or direction by

the Engineer-in-Charge shall in no way relieve the Contractor of the responsibility for the proper and satisfactory execution of the Works according to the terms of Contract and within stipulated period. No claim of the Contractor whatsoever shall be considered on this account.

5.5.3 The information given in the drawing including the conditions of ground or the information regarding of the depth of water to be met with means of access, or any other such matter shall not relieve the Contractor from the fulfillment of the Contract.

5.5.4 The Contractor shall be responsible and must check and satisfy himself the accuracy of levels, lines positions, dimensions, sizes etc. of the finished Works in accordance with the Contract.

5.6 Contractor's understanding of documents

(i) The Contractor shall be deemed to have satisfied himself, before tendering, as to the correctness and sufficiency of his tender for the Works and of the rates and prices stated in the priced bill of quantities and the schedule of rates and prices, if any, all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and maintenance of the Works. If, however, during the execution of the Works, the Contractor shall encounter physical conditions, other than climatic conditions on the site, or artificial obstructions, which conditions or obstructions could, in his opinion, not have been reasonably foreseen by an experienced Contractor, the Contractor shall forthwith give written notice thereof to the Engineer-in-Charge and if, in the opinion of the Engineer-in-Charge, such conditions or artificial obstructions could not have been reasonably foreseen by an experienced Contractor, then the Engineer-in-Charge shall certify and the Employer shall pay reasonable additional cost to which the Contractor shall have been put by reason of such conditions in the following cases:

a. for complying with any instruction which the Engineer-in-Charge may issue to the Contractor in connection therewith, and
b. For any proper and reasonable measures approved by the Engineer-in-Charge which the Contractor may take in the absence of specific instructions from the Engineer-in-Charge, as a result of such conditions or obstructions being encountered.

(ii) The decision of the Employer as to the additional cost shall be final and binding.

6.0 Performance Guarantee and Security Deposit

PERFORMANCE GUARANTEE (DELEATED UPTO THE COST OF RS. 10.00 LACS) AS PER ORDER OF DIR.(F&A) DATED 29-4-2008).

6.1 Performance Guarantee

(i) The Contractor shall submit an irrevocable Performance Guarantee of 5%(five percent) of the amount as specified in Clause 6.1 (iv), (v) and (vi) below, in addition to other deposits mentioned elsewhere in the Contract for his proper performance of the Contract, (not withstanding and / or without prejudice to any other provisions in the Contract) within 15 days of issue of Letter of Acceptance. This period can be further extended by Engineer-in-Charge up to a maximum period of 5 days on written request of the Contractor stating the reason for delays in procuring the Guarantee to the satisfaction of Engineer–in-Charge. This guarantee shall be in the form of Bank Guarantee from a scheduled bank of India as per the format attached with General Conditions of Contract.

(ii) A Letter of Acceptance shall be issued in the first instance informing the Contractor of the decision of the Employer to accept his tender and the Work Order shall be issued only after the Performance Guarantee in prescribed form is received. In case of failure by the Contractor to furnish Performance Guarantee within the specified period Employer shall without prejudice

to any other right or remedy available in law, be at liberty to forfeit the Earnest Money absolutely and debar the Contractor to participate in the Works, if retendered

(iii) The Performance Guarantee shall be initially valid up to 60 days beyond the Stipulated Date of Completion. In case the time for completion of Works gets enlarged the Contractor shall get the validity of Performance Guarantee extended within 30 days of receiving such notice from Engineer-in-Charge to cover such enlarged time plus 60 days. After recording of the Completion Certificate for the Works by the Employer, the Performance Guarantee shall be returned to the Contactor.

(iv) For pure construction contracts (EPC, DB, etc.) the Performance Guarantee shall be calculated for capital construction cost only.

(v) For pure O&M works, the Performance Guarantee shall be calculated for the complete value of O&M works which shall be reduced annually after adjusting the cost of O&M works for previous year. For example, the total Contract Value for a 10 years O&M contract is Rs. 100 Crores i.e. Rs. 10 Crores for each year. Then, the Performance Guarantee for Year 1 shall be 5% of Rs. 100 Crores, for Year 2 shall 5% of Rs. 90 Crores, for Year 3 shall be 5% of Rs. 80 Crores and so on and so forth.

(vi) For DBO contracts initially the Performance Guarantee shall be calculated for the capital construction cost. However, 2 months before the construction completion date, the Contractor shall submit another Performance Guarantee calculated for the total operation cost which shall be reduced annually after deducting the cost of one year of O&M works in the manner as described in Clause 6.1 (v).

(vii) The cost of complying with the requirements of this clause shall be borne by the Contractor, unless the Contract otherwise provides.

(viii) The Engineer-in-Charge shall not make a claim under the Performance Guarantee except for amounts to which Employer is entitled under the Contract (notwithstanding and / or without prejudice to any other provisions in the Contract) in the event of:

a. Failure by the Contractor to extend the validity of the Performance Guarantee as described herein above within 30 days of receipt of notice from the Engineer-in-Charge, in which event the Engineer–in-Charge may claim the full amount of the Performance Guarantee.
b. Failure by the Contractor to pay Employer any amount due either as agreed by the Contractor or determined under any of the clauses / conditions of the Contract, within 30 days of the service of notice to this effect by Engineer-in-Charge.
c. In the event of the Contract being determined or rescinded under provision of any of the clause/ condition of the Contract the Performance Guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Employer.

6.2 Security Deposit

(i) The Contractor shall permit Employer at the time of making any payment to him for Works done under the Contract to deduct a sum at the rate of 10% of the gross amount of each running bill till the sum along with the sum already deposited as earnest money, will amount to 5% of the amount as specified under Clause 6.2 (ii), (iii) and (iv). Such deductions will be made and held by Employer by way of Security Deposit. The security deposit shall be in addition to the performance guarantee amount.

(ii) For pure construction contracts (EPC, DB, etc.) the Security Deposit shall be calculated for capital construction cost only.

(iii) For pure O&M works, the Security Deposit shall be calculated for the total value of O&M works. The deduction will be made from each running payment till such amount reaches 5% of the total value of O&M works.

(iv) For DBO contracts, initially the Security Deposit shall be calculated for the capital construction cost. However, upon completion of capital works, the Security Deposit will be calculated for complete O&M works and deduction shall be made from each running payment till such amount reaches 5% of complete value of O&M works. The Security Deposit collected during the capital construction phase shall be released upon successful completion of DLP and the Security Deposit collected during the O&M phase shall be released 60 days after successful completion of the O&M works.

(v) The Security Deposit as deducted above can be released against Bank Guarantee issued by a scheduled bank, on its accumulations to a minimum of

Rs. 5 lakhs for Contract Value upto Rs. 3 Crore
Rs. 10 lakhs for Contract Value between Rs. 3 Crore and Rs. 25 Crore
Rs. 25 lakhs for Contract Value greater than Rs. 25 Crore

Subject to the condition that amount of such Bank Guarantee, except last one shall not be less than the stipulated amount.

(For e.g. Suppose for a project the total Security Deposit deduction is Rs. 6 lakhs, to be deducted equally from running payment of 12 months. Hence a net deduction of Rs. 50,000 will be made from each running account bill. Till the 9th running bill a sum of Rs. 4.5 lakhs will be retained for Security Deposit. Then, in the 10th bill when the amount retained reaches Rs. 5 lakhs, the Contractor will submit a bank guarantee of Rs. 5 lakhs and will get the amount released. However, in the 12th bill (final bill) the amount retained will be only Rs. 1 lakh and hence the Contractor will submit a bank guarantee of Rs. 1 lakhs and will get the sum released.)

Provided further that the validity of Bank Guarantee shall be 60 days beyond the completion of Defect Liability Period or Stipulated Completion Date plus 60 days in case of O&M contract. Validity of such bank guarantee shall be extended from time to time depending upon extension of Contract granted under provisions of clause 10.3 and clause 10.4. It shall be responsibility of the Contractor to timely renew the bank guarantee submitted as per provision of clause 6.1 and 6.2 or as required under any other clause of the Contract.

(vi) All compensations or the other sums of money payable by the Contractor under the terms of this Contract may be deducted from, or paid by the sale of a sufficient part of his Security Deposit or from any sums which may be due to or may become due to the Contractor by Employer on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the Contractor shall within 10 days make good in cash the amount deducted from, or raised by sale of his Security Deposit or any part thereof. The Security Deposit shall be collected from the running bills of the Contractor at the rates mentioned above and the earnest money if deposited in cash at the time of tenders will be treated a part of the Security Deposit.

6.3 Refund of Security Deposit

The Security Deposit shall be returned to the Contractor on certification after the Engineer-in Charge has satisfied himself that all the terms of this Contract have been duly and faithfully carried out by the Contractor or 60 (sixty)days after successful completion of Defect Liability Period as per clause 16.1 and on submission of the following :

(i) No demand/claim certificate of the Contractor for executed value of the Contract.
(ii) Material and Payment reconciliation and no recovery certificate of the Engineer-in Charge.
(iii) Labour clearance certificate of the Contractor issued by the labour officer as per clause 15.1.2.
(iv) Statutory requirement compliance certificate of the Engineer-in-Charge.
(v) Completion Certificate of the Engineer-in-Charge.
(vi) Insurance Policy release certificate of the Engineer-in-Charge.
(vii) Updated recording of the PMS reports

(viii) Submission of all required GIS details, O&M plans, etc.
(ix) Any other requirement as per Contract.

7.0 Reporting, Inspection & Quality

7.1 Quality Control Systems

7.1.1 The Contractor shall establish a suitable quality control mechanism to ensure compliance with the requirements of the Specifications and Standards in accordance with the provisions of this Contract (the **"Quality Assurance Plan"** or **"QAP"**).

7.1.2The Contractor shall, within 21 days of the issue of Work Order, submit to the Engineer-in-Charge and upload in the Employer's PMS (Project Monitoring System) for approval, the proposed Quality Assurance Plan which shall include the following:

(i) organization, duties and responsibilities, procedures, inspections, documentation;
(ii) quality control mechanism including sampling and testing of materials, plant, project assets, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, proformas for testing and calibration; and
(iii) Internal quality audit system.

7.1.3 The Contractor shall provide and procure all reasonable assistance, documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Material, samples, and qualified personnel as are necessary for examining and testing the Works and workmanship in accordance with the Quality Assurance Plan.

7.1.4 The cost of supplying samples and testing of Works and workmanship for the tests provided for in the Quality Assurance Plan or in the Contract shall be borne by the Contractor. Provided that the testing charges will be reimbursed to Contractor by Employer at actual on verification of proof submitted.

7.1.5The Contractor shall on the directions issued by the Engineer-in-Charge carry out such tests including those not provided for in the Contract that are in accordance with the good and sound industry practice to assess the quality of the Works or workmanship. The Contractor shall bear the cost of the tests and samples if the quality of the Works or workmanship is not in compliance with the Specifications and Standards. In any other case, the cost of test shall be a determined by the Engineer-in-Charge and shall be payable by the Employer.

7.1.6 It shall be the responsibility of the Contractor to attend to the defects pointed out/observation made by the senior officers of the Employer during their inspections in respect of the required quality of material, mandatory test for materials, items of the Works, fittings and on specifications of the work being executed.

7.2 Reporting, inspection and checking of Works

7.2.1 The Contractor shall enter the online progress reports in the format of project management system (for quality monitoring, physical and financial progress monitoring) on 1st and 15th of every month during the Contract. The Contractor shall have to upload DPR/ other report/ Bar or PERT Chart/ site photographs, amongst others, with date of submission by 8th and 23rd of every month. The Engineer-in-Charge shall verify the entries made. No payment shall be released if the progress has not been entered at the prescribed frequency and in the prescribed format. If so required, Contractor (for quality monitoring) may seek help of Engineer-in-Charge for getting 1 (one) person trained for the purpose.

7.2.2 The record of inspections carried out by the Chief Engineer/SE/EE and checking of the Works as per the check features as given in the Contract and a few samples shall be maintained at the Site for taking necessary action by the executing agency.

7.2.3The stages of inspections for S.E. / C.E. are given as under: -

(i) up to 3rd running bill
(ii) 4th to 6th bill
(iii) 7th to 9th running bill
(iv) And so on.

The Engineer-in-Charge shall upload in PMS the observations made by the S.E./ C.E. during the inspections made by them.

7.2.4 Sample check features (over and above the check features given in the Contract for reference of inspecting officers and compliance to the observations by the Contractor.

(i) To check the hindrance at Site and the hindrance register
(ii) To check the observations and instructions issued by the field staff on the site order book and compliance.
(iii) To check the adequacy of mandatory test being carried out, maintenance of test records in the proper format.
(iv) To check whether the samples are being filled by the competent officer, AE/JE and the field test are being carried out at the required frequencies.
(v) To check whether the water being used is tested and the number of test have been carried quarterly
(vi) To have a look (if applicable) at the cubes strength, Honey combing, cover to reinforcement, adequacy of Lap length, filling of mortar in brick work, jointing of pipes, water tightness, quality of pipes, gradient, bedding under sewer line, workmanship etc.

7.2.5 For electrical & mechanical supply items, the inspection tests at manufacturers' work will be in accordance with Employer's specifications, BIS specifications and suppliers' norms, as applicable.

7.2.6 The Works valued Rs.200 lakhs and above may be subjected to inspection and checking by Chief Technical Examiner, Government of India (C.T.E.).

7.2.7The Works is also liable to be inspected and checked by a 3rd party fixed by Employer/vigilance Wing of Employer or by any other statutory body. The Works may be checked by the agencies as mentioned above simultaneously, subsequently, jointly or independently and the Contractor shall be responsible for removing of all defects/deficiencies pointed out by them at its own cost.

7.2.8 The inspection by one agency/team shall not absolve the Contractor of his responsibility to the defects pointed out by the other agencies and rectification thereto.

Recoveries, if any, proposed by any of the inspection agency on account of short comings in respect of quality/quantity in the Works shall be recovered from the Contractor's payments or guarantees and deposits available with Employer.

8.0 Insurance

8.1 Insurance of Works

8.1.1**Requirements**

Before commencing execution of Works, it shall be obligatory for the Contractor to obtain at his own cost stipulated insurance cover under the following requirements:

(i) Contractor's All Risk and Third Party Cover.
(ii) Liability under the Workmen's compensation Act, 1923, and other applicable labour laws.
(iii) Accidents to staff, Engineer-in-Charge, Supervisors and others who are not governed by Workmen's Compensation) Act.
(iv) Damage to material, machinery and Works due to fire, and theft.

(v) Damage to existing assets, in case of a rehabilitation project. Employer shall provide the valuation of existing assets before submission of bids.
(vi) The Contractor's equipments and other things brought onto the site by the Contractor, for a sum sufficient to provide for their replacement at the Site.
(vii) Any other risk to be covered by Insurance as may be specified by the Employer in the Special Conditions of Contract.

8.1.2**Policy in joint names of Contractor and Employer**
The policy referred to under sub-clause 8.1.1 shall be obtained in the joint names of the Contractor and the Employer and shall inter-alia provide coverage against the following, arising out of or in connection with execution of Works, its maintenance and performance of the Contract.
(i) Loss of life or injury involving public, employee of the Contractor, or that of Employer and Engineer-in-Charge.
(ii) Injury, loss or damages to the Works or property belonging to public, Government bodies, local authorities, utility organizations, Contractors, Employer or others.

8.1.3**Currency of Policy**
The policies shall remain in force throughout the period of execution of the Works and till the expiry of the Defect Liability Period. The Contractor shall produce to the Engineer-in-Charge or his representative the various insurance policies obtained by him and also the rates of premium and the premium paid by him to ensure the adequacy of the insurance at all times and ensure that the policies continue to be in force.

8.1.4 Remedy on Contractor's Failure to insure
If the Contractor fails to effect or keep in force or provide adequate cover in the insurance policies mentioned in sub-clause 8.1.1,or any other insurance it might be required to effect under the Contract, then in such cases, the Employer may effect and keep in force any such insurance or further insurance and the cost and expenses incurred by Employer in this regard shall be deductible from payments due to the Contractor or from the Contractor's Performance Security, Security Deposit or any other guarantees available with the Contractor.

9.0 Material & Workmanship

9.1 Materials supplied by Employer

9.1.1 Materials, which, Employer will supply, are provided in Special Conditions of Contract which, also stipulates quantum, place of issue and rate(s) to be charged in respect thereof. The Contractor shall be bound to procure them from the Engineer-in-Charge.

9.1.2 As soon as the Contract is awarded, the Contractor shall finalize the program for the completion of Works of this Contract and shall give his estimates of materials required on the basis of drawings/or Schedule of quantities of the work. The Contractor shall give in writing his requirement to the Engineer-in- Charge which shall be issued to him keeping in view the progress of Works as assessed by the Engineer-in-Charge, in accordance with the agreed phased program of Works indicating monthly requirements of various materials. The Contractor shall place his indent in writing for issue of such materials at least 7 days in advance of his requirement.

9.1.3 The material shall be provided within such timeframe as may enable the Contractor to complete the Works on the agreed Work Program Schedule. If there is any delay on part of the Employer in the supply of material or stores due to a cause not attributable to the Contractor, the Contractor shall be eligible for extension of time as per clause 10.4. If a part of the materials only has been supplied within the period then the Contractor shall be bound to do so much of the work as may be possible with the materials and stores supplied in the aforesaid period. For the completion of the rest of the work, the Contractor shall be entitled to such extension of time as may be determined by the Engineer-in-Charge whose decision in this regard shall be final and binding on the Contractor.

9.1.4 Such materials shall be supplied for the purpose of the Contract only and the value of the materials so supplied at the rates specified in the aforesaid Schedule shall be set off or deducted, as

and when materials are consumed in items of work (including normal wastage) for which payment is being made to the Contractor, from any sum then due or which may therefore become due to the Contractor under the Contract or otherwise or from the security deposit. At the time of submission of bills the Contractor shall certify that balance of materials supplied is available at Site in original good condition.

9.1.5 The Contractor shall bear the cost of getting the material issued, loading, transporting to site, unloading, storing under cover as required, cutting assembling and joining the several parts together as necessary. Notwithstanding anything to the contrary contained in any other clause of the Contract all stores/materials so supplied to the Contractor or procured with the assistance of the Employer shall remain the absolute property of Employer. The Contractor shall be the trustee of the stores/materials, and the said stores/materials shall not be removed/disposed off from the Site on any account and shall be at all times open to inspection by the Engineer-in- Charge or his authorized agent. Any such stores/materials remaining unused shall be returned to the Engineer-in-Charge in as good a condition in which they were originally supplied at a place directed by him, at a place of issue or any other place specified by him as he shall require, but in case it is decided not to take back the stores/materials the Contractor shall have no claim for compensation on any account of such stores/materials so supplied to' him as aforesaid and not used by him or for any wastage in or damage to in such stores/ materials.

9.1.6 The Contractor shall submit along with every running bill (on account or interim bill) material-wise reconciliation statements supported by complete calculations reconciling total issue, total consumption and certified balance (diameter/section-wise in the case of steel) and resulting variations and reasons therefore. Engineer-in- Charge shall (whose decision shall be final and binding on the Contractor) be within his rights to follow the procedure of recovery in clause 9.6 at any stage of the Works if reconciliation is not found to be satisfactory.

9.1.7 The Contractor shall see that only the required quantities of materials are issued. Any such material remaining unused and in perfectly good/original condition at the time of completion or determination of the Contract shall be returned to the Engineer-in-Charge at the stores from which it was issued or at a place directed by him by a notice in writing. The Contractor shall not be entitled for loading, transporting, unloading and storing of such unused material except for the extra lead, if any involved, beyond the original place of issue. The Contractor shall hand over the stores/ materials at such price as the Engineer-in-Charge shall determine, having due regard to the condition of the stores/materials. The price allowed for credit to the Contractor, however, shall be at the prevailing market rate not exceeding the amount charged to him, excluding the storage charge, if any. The decision of the Engineer-in-Charge shall be final and conclusive. In the event of breach of this clause, the Contractor shall in addition to being in contravention of the terms of the licenses or permit and/or for criminal breach of trust, be liable to Employer for all advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach. Provided that the Contractor shall in no case be entitled to any compensation or damages on account of any delay in supply or non-supply thereof of all or any such materials and stores.

9.2 Materials to be supplied by Contractor

9.2.1 The Contractor shall, at his own expense, provide all materials, required for the Works other than those, which are stipulated, to be supplied by the Employer.

9.2.2 The Contractor shall, at his own expense and without delay; supply to the Engineer-in-Charge samples of materials to be used on the Works and shall get these 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 Engineer-in-Charge shall within 30 (thirty) days of supply of samples, intimate the Contractor in writing whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval fresh samples complying with the specifications laid down in the Contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

9.2.3 The Contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and shall not make use of or incorporate in the Works any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the Works or due to any corrective measures required to be taken on account of and as a result of testing of materials.

9.2.4 The Contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer-in-Charge 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 in obtaining the right to such access.

9.2.5 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 powers 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 attend such removal and substitution shall be borne by the Contractor.

9.3 Dismantled Material

The Contractor shall treat all materials (including bricks, scarp, stone soling, trees, etc.) obtained during dismantling of a structure, excavation of the Site, etc. as Employer's property and such materials shall be disposed off to the best advantage of Employer according to the instructions in writing issued by the Engineer-in-Charge.

Further, the following material will be made available to Contractor, at the following specified rates or as circulated from time to time:

(i) Bricks: Rs **2900/ 1000 bricks**
(ii) CI/ MS Scrap: Rs 30/ kg
(iii) Stone soling: Rs 1050/ m^3
(iv) Hard rock---Rs 850/- per cum
(v) **Soft rock --Rs 750/-** Per cum.

9.4 Contractor to supply tools & plants etc.

The Contractor shall provide at his own cost all materials (except such special materials If any, as may in accordance with the Contract be supplied from the Employer) stores, plants, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary work required for the proper execution of the work, whether original, altered or substituted and whether included in the specification 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. 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 for examination at any time of the Works or materials. In the event the Contractor fails to supply such requisite number of persons with the means and materials 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.

9.5 Hire of plant and machinery

(i) The Contractor shall arrange at his own expense all tools, plant, machinery or equipment (hereinafter referred to as T&P) required for execution of the Works except for the Plant & Machinery listed in Special Conditions of Contract and stipulated for issue to the Contractor. If the Contractor requires any item of T&P on hire from the T&P available with the Employer over and above the T&P stipulated for issue, the Employer will, if such item is available, hire it to the Contractor at rates to be agreed upon between him and the Engineer-in-Charge. In such a case all the conditions hereunder for issue of T&P shall also be applicable to such T&P as is agreed to be issued.

(ii) Plant and Machinery when supplied on hire charges as shown in Special Conditions of Contract shall be taken from the departmental equipment yard/shed and the Contractor shall bear the cost of carriage from the place of issue to the Site and back. The Contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him, and shall be responsible for all damage caused to the said plant and machinery at the Site or elsewhere during operation and otherwise during transit including damage to or loss of plant and for all losses due to his failure to return the same, soon after the completion of the Works for which it was issued. The Engineer-in-Charge shall be the sole judge to determine the liability of the Contractor and its extent in this regard and his decision shall be final and binding on the Contractor

(iii) The plant and machinery as stipulated above shall be issued as and when available and if required by the Contractor. The Contractor shall arrange his work program schedule according to the availability of the plant and machinery and no claim whatsoever will be entertained from him for any delay in supply by the Employer. If such re-arrangement results in delay in completion of work, and such delay, in the opinion of Engineer-in-Charge are unavoidable, the contractor shall be entitled to shall be eligible for extension of time as per clause 10.4.

(iv) The hire charges shall be recovered at the prescribed rates from and inclusive of the date the plant and machinery made over up to and inclusive of the date of the return in good order even though the same may not have been working for any cause except major breakdown due to no fault of the Contractor or faulty use requiring more than three working days continuously (excluding intervening, holidays and Sundays) for bringing the plant in order. The Contractor shall immediately intimate in writing to the Engineer-in- Charge when any plant or machinery gets out of order requiring major repairs as aforesaid. The Engineer-in-Charge shall record the date and time of receipt of such intimation in the log sheet of the plant or machinery. Based on this if the breakdown occurs before lunch period or major breakdown will be computed considering half a day's breakdown on the day of complaint. If the breakdown occurs in the post lunch period of major breakdown will be computed starting from the next working day. In case of any dispute under this clause the decision of the Engineer-in-Charge shall be final and binding on the Contractor.

(v) The hire charges shown above are for each day of 8 hours (inclusive of the one hour lunch break) or part thereof.

(vi) Hire charges shall include service of operating staff as required and also supply of lubricating oil and stores for cleaning purposes. Power fuel of approved type, firewood, kerosene oil etc. for running the plant and machinery' and also the full time chowkidar for guarding the plant and machinery against any loss or damage shall be arranged by the Contractor who shall be fully responsible for the safeguard and security of plant and machinery. The Contractor shall on or before the supply of plant and machinery sign an agreement indemnifying the Employer against any loss or damage caused to the plant and machinery either during transit or at Site.

(vii) Ordinarily, no plant and machinery shall work for more than 8 hours a day inclusive of one hour lunch break. In case of an urgent work however, the Engineer-in-Charge may, at his discretion, allow the plant and machinery to be worked for more than normal period of 8 hours a day. In that case the hourly hire charges for overtime to be borne by the Contractor

shall be 50% more than the normal proportionate hourly charges (1/8th of the daily charges) subject to a minimum of half day's normal charges on any particular day. For working out hire charges for overtime a period of half an hour and above will be charged as one hour and a period of less than half an hour will be ignored.

(viii) The Contractor shall release the plant and machinery every 7 (seventh) day for periodical servicing and/or wash out which may take about three to four hours or more. Hire charges for full day shall be recovered from the Contractor for the day of servicing/ wash out irrespective of the period employed in servicing

(ix) The plant and machinery once issued to the Contractor shall not be returned by him on account of lack of arrangements of labour and materials, etc. on his part, the same will be returned only when they are required for major repairs or when in the opinion of the Engineer-in- Charge the Works or a portion of Works for which the same was issued is completed.

(x) Log Book for recording the hours of daily work for each of the plant and machinery supplied to the Contractor shall be maintained by the Employer and shall be countersigned by the Contractor or his responsible agent daily. In case the Contractor contests the correctness of the entries and/or fails to sign the Log Book, the decision of the Engineer-in- Charge shall be final and binding on him. Hire charges shall be calculated according to the entries in the Log Book and will be binding on the Contractor. Recovery on account of hire charges for road rollers shall be made for the minimum number of days worked out on the assumption that a roller can consolidate per day and maximum quantity of materials or area surfacing, the data for which shall be provided by Employer later on request. DJB may use GPS tracking devices for on-line monitoring of movements and recording of log book.

(xi) In the case of concrete mixers, the Contractors shall arrange to get the hopper cleaned and the drum washed at the close of the work each day or each occasion. In case rollers for consolidation are employed by the Contractor himself, log book for such rollers shall be maintained in the same manner as is done in case of departmental rollers, maximum quantity of any items to be consolidated for each roller-day shall also be same as in data under clause 9.5(x). For less use of rollers recovery for the less roller days shall be made at the stipulated issue rate.

(xii) The Contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him and he shall be responsible for all damage caused to the said plant and machinery at the Site or elsewhere in operation or otherwise or during transit including damage to or loss of parts, and for all losses due to his failure to return the same soon after the completion of the Works for which it was issued. The Engineer-in-Charge shall be the sole judge to determine the liability of the Contractor and its extent in this regard and his decision shall be final and binding on the Contractor.

(xiii) The Contractor shall be exempted from levy of any hire charges for the number of days he is called upon in writing by the Engineer-in-Charge to suspend execution of the work, provided Employer plant and machinery in question have, in fact, remained idle with the Contractor because of the suspension.

(xiv) In the event of the Contractor not requiring any item of plant and machinery issued by Employer though not stipulated for issue in Contract any time after taking delivery at the place of issue, he may return if after 2 (two) days written notice or at any time without notice it he agrees to pay hire charges for 2 (two) additional days without, in any way, affecting the right of the Engineer-in-Charge to use the said plant and machinery during the said period of 2 (two) days as he likes including hiring out to a third party.

9.6 Return of material and recovery for excess material issued

(i) After completion of the Works and also at any intermediate stage in the event of non-reconciliation of materials issued, consumed and in balance (see clause 9.1), theoretical quantity

materials issued by the Employer for use in the Works shall be calculated on the basis and method given hereunder:

a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required for different items of Works as shown in the schedule of rates mentioned in Special Conditions of Contract. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above mentioned schedule or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer-in-Charge.
b) Theoretical quantity of steel reinforcement or structural steel sections shall be taken as the quantity required as per design or as authorized by Engineer- in-Charge, including authorized lap , chairs etc. plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual issues each diameter wise, section wise and category wise separately.
c) Theoretical quantity of G.l. &C.l. or other pipes, conduits, wires and cables, pig lead and G.l./M.S. sheets shall be taken as quantity actually required and measured plus 2% for wastage due to cutting into pieces (except in the case of G.I./M.S. sheets it shall be 1.5%), such determination & comparison being made diameter wise & category wise.
d) For any other material as per actual requirements.

(ii) Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Special Conditions of Contract. The difference in the net quantities of material actually issued to the Contractor and the theoretical quantities including such authorized variation, if not returned by the Contractor or if not fully reconciled to the satisfaction of the Engineer-in-Charge within 15 (fifteen) days of the issue of written notice by the Engineer-in-Charge to this effect shall be recovered at the rates specified in Special Conditions of Contract, without prejudice to the provision of the relevant conditions regarding return of materials governing the Contract. The decision of Engineer-in-Charge in regard to theoretical quantities of materials, which should have been actually used as per the standard schedule of rates and recovery at rates specified in Special Conditions of Contract, shall be final & binding on the Contractor. For non-scheduled items, the decision of the Engineer-in-Charge regarding theoretical quantities of materials, which should have been actually used, shall be final and binding on the Contractor.

(iii) Any action under this clause shall be without prejudice to the right of Employer to take action against the Contractor under any other conditions of Contract for not doing the Works according to the prescribed specifications.

9.7 Leveling instrument/ survey equipment

The Contractor shall always make available and accurate leveling instrument at the Site. Necessary levels shall be given by the Contractor or his authorized site engineer and the same will be checked by the site staff of the Employer.

9.8 Material brought at site

Materials brought at Site consisting of plant, machinery, tools, tackles, raw material etc. required for execution of Works shall not be removed except for use in the Works unless permission in writing is given by the Engineer-in-Charge. The Contractor shall be responsible for loss or damage such materials and goods.

10.0 Suspension & Delays

10.1 Suspension of Work

10.1.1

(i) The Contractor shall within 3 days of receipt of the order in writing of the Engineer-in- Charge, (whose decision shall be final and binding on the Contractor) suspend the progress of the work or any part thereof for such time and in such manner as the Engineer- in-Charge may consider necessary so as not to cause any damage the work already done or endanger the safety in general thereof for any of the following reasons:

a. on account of any default on the part of the Contractor or;
b. for proper execution of the Works or part thereof for reasons other than the default of the Contractor;
c. for safety of the Works, public and or public property; or
d. to avoid hindrance to other works; or
e. as communicated by Engineer-in-Charge for any other reason.

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.

(ii) If the suspension is ordered for reasons (b), (c), (d) or (e) in sub- Para (i) above:

a. The Contractor may be granted on merits an extension of time equal to the period of every such suspension plus 25% or 1 month, whichever is less, of period for mobilization and demobilization,
b. Further, the Contractor shall be compensated for any variation in price of material, labour, etc. as per provisions of clause 14.1 & 14.2.

(iii) If the Engineer-in-Charge orders for suspension of the Works or part of the Works for more than three months, when the suspension of the Works is ordered for reason as mentioned in sub-para (i) (b), (c), (d) or (e) hereinabove, the Contractor may serve a written notice on Engineer-in-Charge. The said notice issued by the Contractor shall be for requiring permission to proceed with the Works or part thereof in regard to which progress has been suspended. Within 15 [fifteen] days of receipt of such notification from Contractor the Engineer-in-Charge shall either grant the said permission OR shall explain in detail the reasons because of which work cannot be resumed for such suspended portions.

(iv) If the Engineer-in-Charge does not respond within the said time of 15 [fifteen] days, the Contractor, if he intends to treat the suspension:
(a) where it affects only a part of the Works as an omission of such part by Employer; or
(b) where it affects whole of the Works, as an abandonment of the Works by Employer shall within 10 days of expiry of said period of 15 days give notice in writing of his intention to the Engineer-in-Charge.

10.1.2 In the event of the Contractor treating the suspension as an abandonment of the Contract by Employer, the Contractor shall have no claim to payment of any compensation on account of any profit or advantage which he might have derived from the execution of the Works in full but which he could not derive in consequence of the abandonment. The Contractor shall, however, be entitled to such compensation, as the Engineer-in-Charge may consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the Contractor provided the Contractor submits his claim supported by details to the Engineer-in- Charge within 30 days of the expiry of the period of 3 months.

Provided, further, that the Contractor shall not be entitled to claim any compensation from Employer for the loss suffered by him on account of delay by Employer in the supply of materials as per the provisions of clause 9.1, where such delay is covered by difficulties relating to the supply of wagons, force majeure including non-allotment of such materials by controlling authorities, acts of enemies of the state/country or any reasonable cause beyond the control of the Employer.

10.2 Incentive for early completion

(for Contract Price more than Rs. 3 Crore only)
In case, the Contractor completes the Works ahead of Stipulated Date of Completion, a bonus @ 1% (one per cent) of the Contract Price per month computed on per day basis, shall be payable to the Contractor, subject to a maximum limit of 5% (five per cent) of the Contract Price. The amount of bonus, if payable, shall be paid along with final bill after completion of work.
Provided further that the provision for bonus shall not be applicable if there has been any modification or rescheduling of the Stipulated Date of Completion of the Contract, on any grounds.

10.3 Compensation for delays

10.3.1 In the event the Contractor fails to maintain the required progress in terms of clause 10.4 or to complete the Works and clear the Site on or before the Stipulated Date of Completion, he shall, without prejudice, to any other right or remedy available under the law to the Employer, on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below or as the Engineer-in-Charge (whose communication in writing shall be final and binding) may communicate on the Contract Price for every completed day/month (as applicable) that the progress remains below that specified in clause 10.4 or that the Works remains incomplete.

Provided that the same provision shall also apply to items or group of items for which a separate period of completion from that provided under clause 10.4 has been specified.

Compensation for delay of Works shall be @ 1.5% of Contract Price, for each month of delay to be computed on per day basis.

Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Contract Price or the Contract Price of the item or group of items of Works for which a separate period of completion is given.

10.3.2 The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other Contract with the Employer. In case, the Contractor fails to achieve a particular milestone mentioned in Special Conditions of Contract, or the rescheduled milestone(s) in terms of clause 10.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation to be levied for the final grant of extension of time. Withholding of this amount on failure to achieve milestones shall be automatic and without any notice to the Contractor.
Provided that if the Contractor catches up with the progress of Works on the subsequent milestone(s), the withheld amount shall be released.
Provided further that where the Contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. No interest, whatsoever, shall be payable on such withheld amount.

10.4 Time extensions for delay

10.4.1 The time allowed for execution of the Works as specified in the Special Conditions of Contract or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the Works shall commence from the 10th calendar day or such time period as mentioned in Work Order. Where the Contractor commits default in commencing the execution of the Works, the Employer shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money & performance guarantee absolutely.

Within 10 days of date of award of work, the Contractor shall submit a work program schedule as required under clause 3.9 for each milestone and get it approved by the Engineer-in-Charge. The Schedule shall be prepared in direct relation to the time stated in the Contract for completion of items of the Works. It shall indicate the forecast of the dates of commencement and completion of various sections of the Works and may be amended as necessary by Contract between the Engineer-in-Charge and the Contractor within the time prescribed in the Contract. To ensure good progress during the execution of the Works, the Contractor shall in all cases in which the time allowed for any Works, exceeds one month, except for special jobs for any work where a separate program has been agreed upon, complete the Works as per milestone given below:

$1/8^{th}$ Works in $1/4^{th}$ time
$3/8^{th}$ Works in $1/2^{th}$ time
$3/4^{th}$ Works in $3/4^{th}$ time
full Works in full time

10.4.2If the Works be delayed by:

(i) Force majeure as defined under clause 10.5, or
(ii) Delay on the part of other contractors or suppliers engaged by Engineer-in-Charge executing some other work not forming part of the Contract, or
(iii) Non-availability of stores, if provided by Employer or
(iv) Non-availability or break down of tools and plants, if being supplied or supplied by the Employer, or
(v) Non-availability of Site as per clause 2.4
(vi) Any other cause, but not including predictable events such as rainy season, clearance of site, etc. which in the opinion of the Engineer-in-Charge is beyond the Contractors control.

Then upon the happening of any such event causing delay, the Contractor shall within 7 (seven) days give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use his best endeavors to prevent or make good the delay and shall undertake all delay mitigation measures to the satisfaction of the Engineer-in-Charge before proceeding with the Works. If neither Parties issues notice regarding the event within 7 (seven) days of occurrence of such event, the said event shall be deemed not to have occurred and the Contract will continue to have effect as such.

It shall be the responsibility of the Contractor to record any hindrance and reasons thereof in the PMS within 7 (seven) days of occurrence of such event.

Neither Parties shall by reason of such event be entitled to terminate the Contact or have claim for damages against the other in respect of such non-performance or delay in performance except as may be provided under provisions of clause 11.1.

10.4.3 Request for rescheduling of Milestones as specified in Special Conditions of Contractand 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. The Contractor may also, wherever feasible, indicate in such a request the period for which extension is desired.

In any such case the Engineer-in-Charge may give a fair and reasonable extension of time and reschedule the milestones for completion of work. However, while according any such extension, the Contractor shall have to prove that the activity is lying on the critical path of the work program schedule as submitted under clause 3.9.

Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing, within 3 months of the date of receipt of such request. The failure of the Contractor to apply in writing for the extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and such extension of time shall be binding on the Contractor.

10.5 Force Majeure

As used in this Contract, the expression "Force Majeure" or "Force Majeure Event" shall mean occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in clauses 10.5.1, 10.5.2, and 10.5.3 respectively, if it affects the performance by the Parties claiming the benefit of Force Majeure (the "Affected Party") of its obligations under this Contract and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has material adverse effect on the Affected Party.

10.5.1. **Non-Political Event**

A Non-Political Event shall mean one or more of the following acts or events:

(i) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);

(ii) strikes or boycotts (other than those involving the, Contractor, Subcontractors or their respective employees/representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Site for a continuous period of 24 (twenty four) hours and an aggregate period exceeding 7 (seven) days in an Accounting Year, and not being an Indirect Political Event set forth in clause 10.5.2;

(iii) any failure or delay of a Sub-contractor/Contractor but only to the extent caused by another Non-Political Event and which does not result in any offsetting compensation being payable to the Employer by or on behalf of such Contractor;

(iv) any judgement or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Contract, or (iv) exercise of any of its rights under this Contract by the Employer;

(v) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or

(vi) any event or circumstances of a nature analogous to any of the foregoing.

10.5.2. **Indirect Political Event**

An Indirect Political Event shall mean one or more of the following acts or events:

(i) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;

(ii) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty four) hours and exceeding an aggregate period of 7 (seven) days in an Accounting Year;

(iii) any civil commotion, boycott or political agitation which prevents construction of the Works by the Contractor for an aggregate period exceeding 7 (seven) days in an Accounting Year;

(iv) any failure or delay of a Contractor to the extent caused by any Indirect Political Event and which does not result in any offsetting compensation being payable to the Employer by or on behalf of such Contractor;

(v) any Indirect Political Event that causes a Non-Political Event; or

(vi) any event or circumstances of a nature analogous to any of the foregoing.

10.5.3. **Political Event**

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

(i) Change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of clause 14.3;

(ii) compulsory acquisition in national interest or expropriation of any project assets or rights of the Contractor or of the Sub-Contractors;

(iii) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, licence, permit, authorisation, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Contract; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, licence, authorisation, no objection certificate, exemption, consent, approval or permit;

(iv) any failure or delay of a Contractor but only to the extent caused by another Political Event and which does not result in any offsetting compensation being payable to the Employer by or on behalf of such Contractor; or

(v) any event or circumstance of a nature analogous to any of the foregoing.

***10.5.4* Effect of Force Majeure**

Neither Parties shall be considered to be in default or in breach of his obligations under the Contract to the extent that performance of such obligations is prevented by any circumstances of Force Majeure which arises after the date of the letter of Acceptance or the date when the Contract becomes effective, whichever is the earlier.

***10.5.5* Notice of Occurrence**

If either Parties considers that any circumstances of Force Majeure have occurred which may affect performance of his obligations he shall promptly notify the other Parties and the Engineer-in – Charge.

***10.5.6* Performance to Continue**

Upon the occurrence of any circumstance of Force Majeure the Contractor shall endeavor to continue to perform his obligations under the Contract so far as reasonable practicable. The Contractor shall notify the Engineer-in-Charge of the steps he proposes to take including any reasonable alternative means for performance which is not prevented by Force Majeure. The Contractor shall not take any such steps unless directed so to do by the Engineer-in- charge.

Provided that if the Contractor incurs additional costs in complying with the Engineer–in-Charge's directions under this clause, the amount thereof shall be certified by the Engineer-in charge and added to the Contract Price.

11.0 Termination of Contract

11.1 When can Contract be terminated

11.1.1 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 Completion Date has or has not elapsed, by notice in writing absolutely determine the Contract in any of the following cases, if the Contractor:

(i) 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

(ii) having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the Works is being performed in an inefficient or otherwise improper un-workman like" manner shall omit to comply with the requirement of such notice for a period of seven days thereafter, or

(iii) has without reasonable cause, suspended the progress of the Works or has failed to proceed with the Works 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 Works by Completion

Date and continues to do so after a notice in writing of seven days from the Engineer-in-Charge' or

(iv) fails to complete the Works within the Completion Date or items of Works 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

(v) 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

(vi) being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order; or

(vii) shall offer or give or agree to give to any person in Government 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 act in relation to the obtaining or execution of this or any other Contract for Government; or

(viii) shall obtain a Contract with Government as a result of wrong tendering 'or other non-bona-fide methods of competitive tendering; or

(ix) shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or

(x) assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the Works, 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 the prior written approval of the Employer

(xi) doesn't start the Works within 1/8th of the stipulated time; or

(xii) is found to have a conflict of interest. Conflict of interest is defined in the general eligibility criteria shared with the Contractor during the bidding stage.

11.1.2 When the Contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of Employer shall have powers:-

(i) To determine or rescind the Contract as aforesaid (of which termination or rescission notice in writing to the Contractor under the hand of Engineer-In- Charge shall be conclusive evidence). Upon such determination or rescission, the Earnest Money Deposit, Security Deposit already recovered and performance guarantee under the Contract shall be liable to be forfeited and shall be absolutely at the disposal of the Employer

(ii) "After giving notice to the Contractor to measure up the Works of the Contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another Contractor to complete the Works at risk and cost of the defaulting Contractor. The Contractor, whose Contract is determined or rescinded as above, shall not be allowed to participate in the tendering process for the balance Works besides being subject to appropriate legal action as per the provisions of Contract.

In the event of above course(s) 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 material or entered into any engagements or made any advance on account or with a view to the execution of the Works 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.

11.2 Contractor liable to pay compensation even if action not taken under clause 11.1

In any case in which any of the powers conferred upon the Engineer-in-Charge by clause 11.1 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 the preceding 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 workflow 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.

11.3 Cancellation of Contract in full or part

11.3.1 The Employer may, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to Employer, by a notice in writing to cancel the Contract as a whole or only such item of Works in default from the Contractor due to occurrence of any of the events mentioned in clause 11.1 above.

The Engineer-in-Charge shall on such cancellation by the Employer have powers to:

(i) Take possession of the Site and any materials, constructional plant, implements stores, etc., thereon; and/or

(ii) Carry out the incomplete work by any means at the risk and cost of the Contractor,

On cancellation of the Contract in full or in part, the Engineer-in-Charge shall determine what amount, if any, is recoverable from the Contractor for completion of the Works or part of the Works or in case the Works or part of the Works is not to be completed, the loss of damage suffered by Employer. In determining the amount, credit shall be given to the Contractor for the value of the Works executed by him up to the time of cancellation, the value of Contractor's materials taken over and incorporated in the Works and use of plant and machinery belonging to the Contractor.

11.3.2 Any excess expenditure incurred or to be incurred by Employer in completing the Works or part of the Works or the excess loss or damages suffered or may be suffered by Employer as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Employer in law be recovered from any money 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.

11.3.3 Any sums in excess of the amounts due to Employer and unsold materials, constructional plant, etc., shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by Employer 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.

11.4 Termination of Contract on death of Contractor/ Partner

If the Contractor is an individual or a sole proprietary concern, and the individual or the sole proprietor dies, or if the Contractor is a partnership concern and one of the partners dies, in that case unless the Employer is satisfied that the legal representative of the individual Contractor or of the sole proprietor, as the case may be, or in the case of a partnership firm, all surviving partners, are capable of carrying out and completing the Contract, the Employer shall be entitled to terminate the Contract as to its incomplete part. In that event, the Employer shall not be liable to pay any compensation to the legal heirs of the deceased Contractor and / or to the surviving partners of the Contractor's firm, on account of such cancellation of Contract. DJB's decision, as to whether the legal representatives of the deceased Contractor or surviving partners of the Contractor firm can or cannot carry out and complete the Contract, shall be final and binding on the parties. Any liability incurred by the deceased Contractor, or by the deceased partner of the contracting firm, before his death, shall be recovered from the legal representatives of the deceased Contractor or from the surviving partners of the said contracting firm as the case may be.

11.5 Termination due to Force Majeure Event

11.5.1 If a Force Majeure Event, as specified under clause 10.5, subsists for a period of 60 days or more within a continuous period of 120 days, either Parties may in its discretion terminate this Contract by issuing a termination notice to the other Parties without being liable in any manner whatsoever, save as provided in provisions of clause 11.1. Upon issue of such termination notice, this Contract shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith;
Provided that before issuing such termination notice, the Parties intending to issue the termination notice shall inform the other Parties of such intention and grant 15 (fifteen) days time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the termination notice.

11.5.2 In the event of the Contract being terminated under clause 11.5.1 on account of Force Majeure Event, the Engineer-in-Charge shall issue a payment certificate which shall include:

(i) An amount equal to the value of the construction work less payments already made, less advance payments outstanding against the Contractor up to the date of issue of termination notice, less other recoveries due in terms of the Contract, less taxes due to be deducted at source in accordance with applicable Law
(ii) the cost of plants and materials ordered for the Works which have been delivered to the Contractor. Provided that such Plants and Materials shall become property of Employer when paid for by the Employer and the Contractor shall place the same at the Employer's disposal
(iii) and the Contractor's cost of protecting and securing the Works.

12.0 Measurement & Payments

12.1 Measurement of work done

12.1.1 The Engineer-in-Charge shall, except as otherwise provided, ascertain and determine, by measurement, the value of Works done in accordance with the Contract.

Measurement of all items having financial value shall be entered in measurement book and/or level field book so that a complete record is obtained of all Works performed under the Contract. All measurements and levels shall be taken jointly by the Engineer-in-Charge or his authorized representative and by the Contractor or his responsible agent from time to time during the progress of the Works and such measurements shall be signed and dated by the Engineer-in-Charge and the Contractor or their representatives as 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.

12.1.2 If for any reason the Contractor or his responsible agent is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and the Employer shall not entertain any claim from Contractor for any loss or damages on this account. If the Contractor or his responsible agent does not remain present at the time of such measurements after the Contractor or his responsible agent 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 have been accepted by the Contractor.

12.1.3 The Contractor shall, without extra charge, provide all assistance with every instrument, labour and other things necessary for measurements and recording levels.

12.1.4 Except where any general or detailed description of the Works expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the technical specifications notwithstanding any provision in the relevant standard method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.

12.1.5If any part of Works shall be covered up or placed beyond the reach of measurements without notice been given to the Engineer-in-Charge or without his consent being obtained in writing, the Works shall be uncovered at Contractor's expense, or in default thereof no payment or allowance shall be made for such Works or the materials with which the same was executed.

12.1.6 Engineer-in-Charge or his authorized representative may cause either themselves or another officer of the Employer to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

12.1.7 It is also a term of this Contract that recording of measurements of any item of Works in the measurement book and/or its payment in the interim, on-account or 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 other measurements or defects noticed till completion of the defects liability period.

12.2 Payments of running bills

12.2.1 The payment of the monthly running bill for the Works shall be released in 90 days from the date of recording of pay order. No excuse for delay in completion of work/prolongation of the Contract shall however be entertained on account of the reason of delay in payment. The bidder therefore, must take into consideration of its financial capability to carry out and to continue the work without any hindrances.

12.2.2In the event of the failure of Employer to release payment as per clause 12.2.1, the Employer shall be liable to pay interest @ 10% per annum on net payable amount computed for period beyond 90 days. Provided always, that no interest shall be payable on any amount disallowed or disputed by the Engineer-in-Charge or the Employer, even if such amount is later on determined to be payable to the Contractor, as a result of any process resorted to for the settlement of the dispute as per Contract.

12.2.3 It shall be the contractual obligations on the part of the Contractor to submit with each running bill photocopies of the:-

(i) Challans for the main items purchased for the Works like CI/DI/MS/RCC/PSC Pipes, E&M equipment, manhole frame and covers, footrests, sluice valves, fire hydrants and other fixtures and accessories used in the Works;
(ii) Guarantee/ warranty certificates, wherever applicable;
(iii) Manufacturer's test reports of cement, steel, MS plates, sluice valves etc.

(iv) GIS maps of pipelines and other related key components (to be submitted only with the final bill)

Note: Contractor shall solely be responsible for the authenticity of the challans and other documents submitted along with each running and final bills.

12.2.4 The original challans shall be produced before the Engineer-in-Charge for verification, as and when desired by him.

12.3 Currency of payment

Unless specifically provided for in the Contract, all payments shall be in Indian rupees only. Unless specified otherwise, payment, if any, in foreign currencies, shall be made only to the extent and in the manner laid down in the Contract. In case of items of Works requiring payments in foreign exchange, the Contractor shall furnish the details in the Bill of Quantities. For such items, payments will be arranged in Foreign Currency.

12.4 Payment of Contractor's bills to banks

Payments due to the Contractor shall be made to his bank instead of direct to him.
The Contractor shall submit to the Engineer-in-Charge: (1) an authorization in form of a legally valid document such as a power of attorney conferring authority on the bank to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by Employer or his signature on the bill or other claim preferred against Employer before settlement by the Engineer-in-Charge of the account or claim by payment to the bank, registered financial, cooperative or thrift societies or recognized financial institutions. While the receipt given by such bank; registered financial, cooperative or thrift societies or recognized financial institutions shall constitute a full and sufficient discharge for the payment, the Contractor shall whenever possible present his bills duly receipted and discharged through his bank, registered financial, cooperative or thrift societies or recognized financial institutions.

Nothing herein contained shall operate to create any rights or equities vis-à-vis Employer in favor of the bank.

12.5 Payment of final bill

The final bill shall be submitted by the Contractor within three months of Completion Date or within one month of the date of issue of Completion Certificate furnished by the Engineer-in-Charge whichever is earlier. In case commissioning is delayed beyond a period of one year from the Physical Completion of the Works, the final bill shall be settled upon completion of the Defect Liability Period, as per clause 16.1(iii), or upon successful commissioning whichever is earlier. No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in Charge, will, as far as possible be made within the period specified herein under, the period being reckoned from the date of receipt of the bill by the Engineer-in-Charge or his representative, complete with account of materials issued by the Employer and dismantled materials.

12.6 Lump sum provisions in a composite tender

When the Contract Price is lump sum in respect of parts of the Works, the Contractor shall be entitled to payment in respect of the items of Works involved or the part of the Works in question at the same rates as are payable under this Contract for such items, or if the part of the Works in question is not in the opinion of the Engineer-in-Charge payable of measurement, the Engineer-in-Charge may at his discretion pay the lump-sum amount entered in the estimate, and the certificate

in writing of the Engineer-In-Charge shall be final and conclusive against the Contractor with regard to any sum or sums payable to him under the provisions of the clause.

12.7 Withholding and lien in respect of sums due from Contractor

(i) Whenever any claim or claims for payment of a sum of money arises out of or under the Contract against the Contractor, the Engineer-in-Charge or the Employer shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from any sum or sums found payable or which may at any time thereafter become payable to the Contractor under the Contract. In the event of the payment from such sums being insufficient to cover the claimed amount, the Employer shall be entitled to withhold and have a lien to retain to the extent of such claimed amount from the security deposit, if any. Further, for the purpose of this clause, the Employer shall be entitled to withhold and also have a lien to retain to the extent of the claimed amount or amounts, from any sum or sums found payable or which may at any time thereafter become payable to the Contractor under any other Contract with the Engineer-in-Charge or the Employer pending finalization of adjudication of any such claim.

(ii) The sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in- Charge or Employer will be kept withheld or retained as such by the Engineer-in-Charge or Employer till the claim arising out of or under the Contract is determined by the arbitrator (if the Contract is governed by the arbitration clause) or by the competent 'court, as the case may be 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 Employer 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 be, whether in his Individual capacity or otherwise.

(iii) The Employer 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. 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 is found not to have been executed, the Contractor shall be liable to refund the amount of over-payment and it shall be lawful for Employer to recover the same from him in the manner prescribed in sub-clause (i) 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 if any work executed by him under it, the amount of such under payment shall be duly paid by Employer to the Contractor, without any interest thereon. Provided that the Employer shall not be entitled to recover any sum overpaid, nor the Contractor shall be entitled to payment of any sum paid short where such payment has been agreed upon between the Engineer-in-Charge on the one hand and the Contractor on the other under any term of the Contract permitting payment for Works after assessment by the Engineer-in-Charge.

12.8 Rates

12.8.1 The tendered rate (%age rate tender/item rate tender) for all items of the Works shall be considered inclusive of all leads and lifts, unless otherwise specified by BOQ, skilled or unskilled labour & material required for working at all heights and depths, making any shape of the masonry as per the drawings.

12.8.2 Nothing extra shall be paid unless otherwise specified on account of cutting of grass, bushes, leveling of undulation in the ground, existence of drain and temporary structures etc. requiring removal and difficulty due to space constraints.

12.8.3Nothing extra shall be paid for working in foul conditions unless otherwise specified. The tendered rates shall not be subject to any revisions for want of any information.

12.8.4 Nothing extra shall be paid for Works required as per Good Engineering Practice, BIS, manufacturer recommendation even if it is not specifically provided in the Contract.

12.9 Levy / Taxes payable by Contractor

All taxes, duties, levies, cess, etc. in respect of this Contract shall be payable by the Contractor and the Employer shall not entertain any claim whatsoever in this respect.

(i) The Contractor shall deposit royalty and obtain necessary permit for supply of the red bajri, stone, kankar, etc. from local authorities.

(ii) Where pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Employer and does not any time become payable by the Contractor to the State Government or Local authorities in respect of any material used by the Contractor in the Works, then in such a case, it shall be lawful to the Employer and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the Contractor.

12.10 Taxes

12.10.1 Unless otherwise specified in Special Conditions of Contract, the Contract Price shall be inclusive of all the taxes, duties, cess/GST or any other taxes on the materials.

12.10.1(i) Tenderer will examine the various provisions of the Central Goods and Service Tax Act, 2017/(CGST). Integrated Goods and service Tax Act, 2017/(IGST)/Union Territory Goods and Services Tax Act,2017(UTGST)/respective state's State Goods and Service Tax Act(SGST) also , as notified by Central/State Govt& as amended from time to time and applicable taxes before bidding. Tenderer will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.

(ii)The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST act to DJB immediately after the award of contract, without which no payment shall be released to the contractor. The contractor shall be responsible for deposition of applicable GST to the concerned authority.

(iii). Every tenderer/ bidders is required to be registered compulsorily himself under CGST/IGST/UTGST/SGST act.
(iv). TDS under the provision GST law shall be deducted from the bills and /or payment of advances as and when made applicable under the Act.

(v) Provision of GST Act 2017 shall have the superseding effect over the all earlier taxes like VAT/WCT/Service Tax/other like taxes as contemplated in the Act. Accordingly the terms VAT/WCT/Service Tax etc. appearing anywhere in the bid document may be read as the applicable tax under the GST Act 2017.

(vi) Any other statutory variation shall be applicable.

12.10.2 Service Tax: STANDSDELETED
12.10.3 Excise Duty Exemption: STANDSDELETED
12.10.4 Form C Issuance: STANDS DELETED

13.0 Alterations, Additions & Omissions

13.1 Deviations / Variation Extent and Pricing

13.1.1 The Engineer-in-Charge shall have power:

(i) to make alteration , omissions , additions , or substitutions in the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and
(ii) to omit a part of the Works in case of non-availability of a portion of the Site or for any other reasons.

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. Any altered, additional or substituted Works which the Contractor may be directed to do in the manner specified above as part of the Works, shall be carried out by the Contractor on the same conditions in all respects including price on which he agreed to do the Works except as hereafter provided.

Instructions for any variations shall be communicated to the Contractor by the Engineer-in Charge in writing with a copy to the Employer.

13.1.2The time for completion of the Works shall, in the event of any deviations resulting in additional cost over the Contract Price be extended, if requested by the Contractor, as follows:

(i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original Contract Price and
(ii) Upto 25% of the time calculated in (i) above or as may be considered reasonable by the Engineer-in-Charge.

13.1.3 If any extra item of material and/ or labour is involved during execution of work, the Contractor shall have to execute the same as per the direction of Engineer-in-Charge and the payment shall be made as per applicable DSR plus/ minus Contractor's enhancement as applicable. In case, the extra item of material and/ or labour is not available in the schedule of rate, the Contractor will be paid analyzed rates based on either DSR with Contractor's enhancement (+/-) or prevailing market rates plus 15% Contractor's profit but without Contractor's enhancement.

13.1.4 In case of reduction of scope due to action under clause 13.1.1, the reduction in payments shall be calculated based on schedule of rates for the Contract.

13.2 Foreclosure of Contract due to abandonment or reductions in scope of work

13.2.1 If at any time after issuance of Work Order, the Employer decides to abandon or reduce the scope of the Works for any reason whatsoever and hence not require the whole or any part of the Works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the Contractor and the Contractor shall act accordingly in the matter. The Contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the Works in full but which he did not derive in consequence of the fore closure of the whole or part of the Works.

13.2.2 The Contractor shall be paid at Contract rates full amount for Works executed at Site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilized on the Works to the full extent in view of the foreclosure:

(i) Any expenditure incurred on preliminary site work, e.g. temporary access roads, temporary labour huts, staff quarters and site office, storage accommodation and water storage tanks.
(ii) Employer shall not take over Contractor's materials or any part thereof either brought to Site or of which the Contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work). However, the Engineer-in- Charge/ Employer may consider providing cost for such materials as deemed reasonable. The cost shall, however, take into

account purchase price, salvage value, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the Contractor.

(iii) If any materials supplied by Employer are rendered surplus, the same except normal wastage shall be returned by the Contractor to Employer at rates not exceeding those at which these were originally issued less allowance for any deterioration or damage which may have been caused whilst the materials were in the custody of the Contractor. In addition, cost of transporting such materials from Site to Employer's stores, if so required by Employer, shall be paid by the Employer.

(iv) Reasonable compensation for repatriation of Contractors site staff and imported labour to the extent necessary.

The Contractor shall, if required by the Engineer- in-Charge furnish to him books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition.

The reasonable amount of items on (i)and (iv) above shall not be in excess of 2% of the cost of the Works remaining incomplete on the date of closure, i.e., total stipulated cost of the Works as per accepted tender less the cost of Works actually executed under the Contract. Provided always that against any payments due to the Contractor on this account or otherwise, the Engineer-in-Charge shall be entitled to recover or be credited with any outstanding balances due from the Contractor for advance paid in respect of any tool, plants and materials and any other sums which at the date of termination were recoverable by the Employer from the Contractor under the terms of the Contract.

13.3 Permissible variation in Cement & Steel

After completion of the Works, the theoretical quantity of cement/ steel to be used in Works shall be calculated on the basis of statement showing quantity of cement/ steel to be used in different items of Works as provided in Schedule of Rates. In case any item is executed for which the standard coefficient for the consumption of cement/ steel are not available in the above mentioned statement or cannot be derived, the same shall be calculated on the basis of analysis by the Engineer-in-Charge. Over this theoretical quantity of cement, a variation up to 2% (two percent) and for steel, a variation up to 3% (three percent) plus/minus for Works shall be allowed. In the event of it being discovered that the quantity of cement/ steel used is less than the quantity required (allowing variation on the minus side as stipulated above), the portion of Works executed will be rejected and the same shall be demolished and reconstructed by the Contractor at his own cost. The decision of concerned Engineer-in-Charge, in this regard, shall be final and binding on the Contractor. Provided that, cement/ steel used in excess over permissible variation shall not be payable.

14.0 Changes in Contract Price

14.1 Payments due to variation in prices of material, POL and labour after receipt of tender for Item Rate/ Percentage Contract

(Would apply for EPC/ DB/ DBO contracts also when exact quantity of material consumed is measured)

If during the operative period of the Contract, there shall be any variation in the prices of material (not being the material supplied by Employer as under clause 9.1 and/ or services rendered at fixed prices as under clause 9.5 and the material for which the price variation is being calculated for actual quantities used as under clause 14.1.3) and/ or in the wages of labour required for execution of Works and/ or in POL (fuel, oil and lubricant), the Contract Price shall be adjusted as per the provisions detailed below.

For working out the percentages of the values of material, labour and POL components in the work, the total of these three components should be taken as 100. Standard labour, material & POL components indicated in the table below can be used for the Works related to water supply and waste water projects.

14.1.1 Standard labour, material & POL components to be used for the Water and Wastewater Supply Projects[1]

Sr. No	Description	(k) Percentage to be used for component		
		Labour (K_1)	Material (K_2)	Petrol, oil & Lubricant (K_3)
1	River Head Works including approach bridges approach bunds, coffer dam etc	40	55	5
2	Raw & Pure water pumping main, Leading Mains, Distribution System etc	25	70	5
3	WTP M.B.R (Elevated R.C.C) E.S.R. R.C.C G.S.R	40	55	5
4	Wastewater pumping main, Leading Mains, Distribution System etc	25	70	5
5	WWTP	40	55	5

14.1.2 Guiding formulae to be used to calculate Price Variation for different components of work

(i) Formula for Labour Component

$$V_L = 0.85*W* \frac{K_1}{100}*\frac{(L_1-L_0)}{L_0}$$

where;

V_L = Amount (in INR) of price variation for the labour component
W = Cost of Work done during the quarter under consideration **minus** the cost of the Bitumen, HYSD, Mild Steel reinforcement, Structural Steel, Mild Steel plates , Cement, Liquid Chlorine, Alum/ PAC and CI/DI/HDPE/MDPE pipes as covered under clause 14.1.3
K_1 = Percentage of labour component as indicated above
L_0 = Consumer Price Index for Industrial workers, published in the Reserve Bank of India Bulletin, as applicable to Delhi area for the month in which the tender was opened.
L_1 = Average of monthly Consumer Price Index for Industrial workers, published in the Reserve Bank of India Bulletin, as applicable to Delhi area for the quarter under consideration.

(ii) Formula for Material Component

$$V_M = 0.85*W* \frac{K_2}{100}*\frac{(M_1-M_0)}{M_0}$$

where;

V_M = Amount (in INR) of price variation for the material component
W = Cost of Work done during the quarter under consideration **minus** the cost of the Bitumen, HYSD, Mild Steel reinforcement, Structural Steel, Mild Steel plates , Cement,

[1] The standard percentages are indicative in nature and has to be verified and confirmed by the concerned Chief Engineer before issuing the tender document to the bidders

Liquid Chlorine, Alum/ PAC and CI/DI/HDPE/MDPE pipes as covered under clause 14.1.3

K_2 = Percentage of material component as indicated above

M_0 = Relevant All India Wholesale Price Index as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce as valid on the base date.

M_1 = Average of relevant All India Wholesale Price Index as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce for the quarter under consideration.

(iii) Formula for POL Component

$$V_P = 0.85*W* \frac{K_3*(P_1-P_0)}{100\ P_0}$$

where;

V_F = Amount (in INR) of price variation for the POL component

W = Cost of Work done during the quarter under consideration **minus** the cost of the Bitumen, HYSD, Mild Steel reinforcement, Structural Steel, Mild Steel plates , Cement, Liquid Chlorine, Alum/ PAC and CI/DI/HDPE/MDPE pipes as covered under clause 14.1.3

K_3 = Percentage of POL component as indicated above

F_0 = All India Wholesale Price Index for High Speed Diesel as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce as valid on the base date.

F_1 = Average of All India Wholesale Price Index for High Speed Diesel as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce for the quarter under consideration.

14.1.3 Guiding formulae to calculate Price Variation in rupees for different material components as per actual quantities used

(i) Formulae for Bitumen Component

$$V_B = Q_B *(B_1-B_0)$$

where;

V_B = Amount of price variation in Rupees to be allowed for Bitumen Component.

Q_B = Quantity of Bitumen (Grade) in MT used in the permanent Works and approved enabling Works during the quarter under consideration.

B_0 = Basic rate of Bitumen for the grade of bitumen under consideration in rupees per MT as considered in Tendered cost of work.

B_1 = Current, average Mathura refinery price per metric ton of Bitumen (Grade) under consideration including taxes (octroi, excise, sales tax) during period under consideration

(ii) Formula for HYSD, Mild Steel reinforcement, Structural Steel , Steel Plates Component

$$V_H = T1* H0*\frac{(H1_1-H1_0)}{H1_0}$$

Where;

V_H = Amount of price variation in Rupees to be allowed for HYSD / Mild Steel / Structural Steel / Steel Plates Component.

H_0 = Basic rate of HYSD / Mild Steel / Structural Steel / Steel Plates Component in rupees per MT as considered in Tendered cost of work.

$H1_0$ = Basic Wholesale Price Index for Stainless Steel & Alloys shall be the average Wholesale Price Index ascertained as above on the base date.

$H1_1$ = Average Wholesale Price Index for Stainless Steel & Alloys ascertained as above during the period under consideration.
T1 = Tonnage of steel used in the permanent Works for the period under consideration

(iii) Formula for Cement component

$$V_C = T2 * C_0 * \frac{(C1_1 - C1_0)}{C1_0}$$

where;

V_C = Amount of price variation in Rupees to be allowed for Cement component
C_0 = Basic rate of Cement Component in rupees per MT as considered in Tendered cost of work.
$C1_0$ = Basic Wholesale Price Index for cement shall be the average Wholesale Price Index ascertained as above on the base date.
$C1_1$ = Average Wholesale Price Index for cement ascertained as above during the period under consideration
T2 = Tonnage of cement used in the permanent Works for the period under consideration

(iv) Formula for C.I./ D.I./ HDPE pipe component

$$V_{CD} = T3 * D_0 * \frac{(D1_1 - D1_0)}{D1_0}$$

where;

V_{CD} = Amount of price variation in Rupees to be allowed for C.I./ D.I. pipe component
D_0 = Basic rate of C.I./ D.I./ HDPE pipe Component in rupees per MT as considered in Tendered cost of work.
$D1_0$ = Basic Wholesale Price Index for Pig-Iron shall be the average Wholesale Price Index ascertained as above on the base date.
$D1_1$ = Average Wholesale Price Index for Pig-Iron ascertained as above during the period under consideration
T3 = Tonnage of C.I. / D.I./ HDPE pipe used in the permanent Works for the period under consideration

(v) Formula for Liquid Chlorine Component

$$V_{LC} = T4 * LC_0 * \frac{(LC1_1 - LC1_0)}{LC1_0}$$

where;

V_{LC} = Amount of price variation in Rupees to be allowed for Liquid Chlorine component
LC_0 = Basic rate of Liquid Chlorine Component in rupees per MT as considered in Tendered cost of work.
$LC1_0$ = Basic Wholesale Price Index for Chlorine shall be the average Wholesale Price Index ascertained as above on the base date.
$LC1_1$ = Average Wholesale Price Index for Chlorine ascertained as above during the period under consideration
T4 = Tonnage of Liquid Chlorine used in the permanent Works for the period under consideration

(vi) Formula for Alum/ PAC Component

$$V_A = T5 * A_0 * \frac{(A1_1 - A1_0)}{A1_0}$$

where;

V_A = Amount of price variation in Rupees to be allowed for Alum/ PAC component

A_0 = Basic rate of Alum/ PAC Component in rupees per MT as considered in Tendered cost of work.

$A1_0$ = Basic Wholesale Price Index for Basic Inorganic Chemicals shall be the average Wholesale Price Index ascertained as above on the base date.

$A1_1$ = Average Wholesale Price Index for Basic Inorganic Chemicals ascertained as above during the period under consideration

T5 = Tonnage of Alum/ PAC used in the permanent Works for the period under consideration

14.1.4 The following conditions shall prevail

(i) Price Variation shall not be applicable for Contracts with original Stipulated Period of Completion less than 12 months.

(ii) For Contracts with original Stipulated Period of Completion greater than 12 months, Price Variation shall be applicable on the entire duration of Contract. No price variation will be made for Contracts where the extension in time is because of default of Contractor. The decision of Engineer-in-Charge shall be final and binding on the Contractor.

(iii) The base date for the purpose of this clause shall be 7 days before the last date of submission of final bid.

(iv) In case of extension in the date of completion of works, the compensation under price variation shall be limited to indices prevailing at the time of Stipulated Period of Completion or as prevailing for the period under consideration, whichever is less.

(v) Clause 14.1 is operative both ways, i.e. if the price variation as calculated above is on the plus side, payments on account of the price variations shall be allowed to the contractor and if it is on the negative side, the Employer shall be entitled to recover the same from the Contractor and the amount shall be deductible from any amounts due and payable under the Contract.

(vi) To the extent that full compensation for any rise or fall in costs to the Contractor is not entirely covered by the provision of this or other clauses in the Contract, the unit rate and prices included in the Contract shall be deemed to include amounts to cover the contingency of such other actual rise or fall in costs.

14.1.5 For E&M (electrical & mechanical) tenders, price variation shall be made as per the latest publication and guidelines issued by IPMA/ IEEMA

14.2 Payments due to variation in prices of material, POL and labour after receipt of tender for EPC/ DB/ DBO contracts

(Would apply for EPC/ DB/ DBO contracts when exact quantity of material consumed is not measured)

If during the operative period of the Contract, there shall be any variation in the prices of material (not being the material supplied by Employer as under clause 9.1 and/ or services rendered at fixed prices as under clause 9.5) and/ or in the wages of labour required for execution of Works and/ or in POL (fuel, oil and lubricant), the Contract Price shall be adjusted as per the provisions detailed below.

For working out the percentages of the values of material, labour and POL components in the work, the total of these three components should be taken as 100. Standard labour, material & POL components indicated in the table below can be used for the Works related to water supply and wastewater projects.

14.2.1 Standard labour, material & POL components to be used for the Water and Wastewater Supply Projects[2]

Sr. No	Description	(k) Percentage to be used for component		
		Labour (K_1)	Material (K_2)	Petrol, oil & Lubricant (K_3)
1	River Head Works including approach bridges approach bunds, coffer dam etc	40	55	5
2	Raw & Pure water pumping main, Leading Mains, Distribution System etc	25	70	5
3	WTP M.B.R (Elevated R.C.C) E.S.R. R.C.C G.S.R	40	55	5
4	Wastewater pumping main, Leading Mains, Distribution System etc	25	70	5
5	WWTP	40	55	5

14.2.2 Guiding formulae to be used to calculate Price Variation for different components of work

(i) Formula for Labour Component

$$V_L = 0.85*W* \frac{K_1}{100}*\frac{(L_1-L_0)}{L_0}$$

where;

V_L = Amount (in INR) of price variation for the labour component
W = Cost of Work done during the quarter under consideration
K_1 = Percentage of labour component as indicated above
L_0 = Consumer Price Index for Industrial workers, published in the Reserve Bank of India Bulletin, as applicable to Delhi area for the month in which the tender was opened.
L_1 = Average of monthly Consumer Price Index for Industrial workers, published in the Reserve Bank of India Bulletin, as applicable to Delhi area for the quarter under consideration.

(ii) Formula for Material Component

$$V_M = 0.85*W* \frac{K_2}{100}*\frac{(M_1-M_0)}{M_0}$$

where;

V_M = Amount (in INR) of price variation for the material component
W = Cost of Work done during the quarter under consideration
K_2 = Percentage of material component as indicated above
M_0 = Relevant All India Wholesale Price Index as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce as valid on the base date.
M_1 = Average of relevant All India Wholesale Price Index as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce for the quarter under consideration.

[2] The standard percentages are indicative in nature and has to be verified and confirmed by the Engineer-in-Charge before issuing the tender document to the bidders

(iii) Formula for POL Component

$$V_P = 0.85*W* \frac{K_3*(P_1-P_0)}{100\ P_0}$$

where;

V_F = Amount (in INR) of price variation for the POL component
W = Cost of Work done during the quarter under consideration
K_3 = Percentage of POL component as indicated above
F_0 = All India Wholesale Price Index for High Speed Diesel as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce as valid on the base date.
F_1 = Average of All India Wholesale Price Index for High Speed Diesel as published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce for the quarter under consideration.

Note: The basic rate considered in tender cost, applicable for price variation NOT APPLICABLE

1. **Cement: Rs. ……./ MT** **NOT APPLICABLE**
2. **HYSD & Mild Steel: Rs. ……./ MT** **NOT APPLICABLE**
3. **M.S. Plate: Rs. ……/ MT** **NOT APPLICABLE**
4. **Pig Iron: Rs. ……./ MT** **NOT APPLICABLE**

14.2.3 The following conditions shall prevail

(i) Price Variation shall not be applicable for Contracts with original Stipulated Period of Completion less than 12 months.

(ii) For Contracts with original Stipulated Period of Completion greater than 12 months, Price Variation shall be applicable on the entire duration of Contract. No price variation will be made for Contracts where the extension in time is because of default of Contractor. The decision of Engineer-in-Charge shall be final and binding on the Contractor.

(iii) In case of extension in the date of completion of works, the compensation under price variation shall be limited to indices prevailing at the time of Stipulated Period of Completion or as prevailing for the period under consideration, whichever is less.

(iv) The base date for the purpose of this clause shall be 7 days before the last date of submission of final bid.

(v) The Clause 14.2 is operative both ways, i.e. if the price variation as calculated above is on the plus side, payments on account of the price variations shall be allowed to the contractor and if it is on the negative side, the Employer shall be entitled to recover the same from the Contractor and the amount shall be deductible from any amounts due and payable under the Contract.

(vi) To the extent that full compensation for any rise or fall in costs to the Contractor is not entirely covered by the provision of this or other clauses in the Contract, the unit rate and prices included in the Contract shall be deemed to include amounts to cover the contingency of such other actual rise or fall in costs.

14.2.4 For E&M (electrical & mechanical) tenders, price variation shall be made as per the latest publication and guidelines issued by IPMA/ IEEMA

14.3 Change in law

14.3.1"Change in Law" shall mean the occurrence of any of the following:

(i) the enactment of any new Indian law and its entering into effect;
(ii) the repeal, modification or re-enactment of any existing Indian law;
(iii) a change in the interpretation or application of any Indian law by a judgement of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the last date of submission of final bid; or
(iv) any change in the rates of any of the Taxes or royalties on Materials that have a direct financial effect on the Contract;

14.3.2 If as a result of Change in Law, the Contractor suffers any additional costs for the execution of this Contract, save and except as expressly provided for in this clause 14.3 or in accordance with the provisions of this Contract, the Contractor shall, within 30 (thirty)days from the date he becomes reasonably aware of such addition in cost, notify the Employer with a copy to the Engineer-in-Charge of such additional cost due to Change in Law.

14.3.3 If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Contract, save and except as expressly provided for in this clause 14.3 or in accordance with the provisions of this Contract, the Contractor shall, within 30 (thirty) days from the date he becomes reasonably aware of such reduction in cost, notify the Employer with a copy to the Engineer-in-Charge of such reduction in cost due to Change in Law.

14.3.4 The Contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by Engineer-in-Charge and further shall furnish such other information/document as the Engineer-in-Charge may require from time to time.

14.3.5 Where as a result of Change in Law, the Contractor suffers any additional costs for the execution of this Contract or benefits from any reduction in costs under clause 14.3.2 or 14.3.3 as the case may be, such additional or reduced cost shall be determined by the Engineer-in-Charge, after due consultation with the Employer and the Contractor, and shall be added to or deducted from the Contract Price and the Engineer-in-Charge shall notify the Contractor accordingly, with a copy to the Employer.

14.3.6 Change in Law shall be applicable on original Stipulated Period of Completion and where such period increases for reasons other than those attributable to the Contractor or as defined under clause 10.4.2 only.

15.0 Certificates

15.1 Completion certificate

15.1.1 Within 10 (ten) days of the Physical Completion of the work, the Contractor shall give notice of such completion to the Engineer-in-Charge. Within 30 (thirty) days of the receipt of such notice, the Engineer-in-Charge shall inspect the Works and if there is no defect in the work, shall furnish the Contractor with a Completion Certificate, otherwise a provisional certificate of Physical Completion indicating defects:
(i) to be rectified by the Contractor and/or
(ii) for which payment will be made at reduced rates, shall be issued.

Provided that no Completion Certificate shall be issued, nor shall the Works be considered to be complete until the Contractor shall have removed from the Site all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the Site and cleaned off the dirt from site, shall have obtained clearance from labour officer as under clause 15.1.2 and not until the Works shall have been measured by the Engineer-in-Charge. If the Contractor shall fail to comply with the requirements of this clause on or before the date fixed for the Physical 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.

15.1.2 *Immediately after Physical Completion of Works, the Contractor shall apply to the labour officer concerned for issue of clearance certificate against the Contract under intimation to the Engineer-in-Charge.*

On receipt of information from the Contractor, the Engineer-in-Charge shall also write to the labour officer concerned for issue of the clearance certificate. It shall be stipulated in the letter that the clearance certificate be given within a period of 30 days failing which it shall be presumed that there is no labour dispute against the Contract.

15.1.3The Completion Certificate of Works referred to in clause 15.1.1above shall not absolve the Contractor from his liability to make good defects, imperfections and shrinkages or faults, which may appear during the Defects Liability Period as per clause 16.1, arising in the opinion of the Engineer-in-Charge from materials or workmanship being not in accordance with drawings or specifications or instructions of the Engineer-in-Charge. These shall be amended and made good by the Contractor at his own cost. In case of default on the part of the Contractor, to so make good the defects or deficiencies, the Engineer-in-Charge may employ labour, plant and machinery and materials or appoint another agency or Contractor, to amend and make good such defects, imperfections, shrinkages and faults, and all expenses consequent thereto and incidental thereto, shall be borne by the Contractor and shall be recoverable from any moneys due to the Contractor under the Contract including the Performance Guarantee and/ or Security deposit amount or from any moneys payable to the Contractor by the Employer, under any other Contract.

15.2 Completion plans to be submitted by the Contractor

The Contractor shall submit completion plan, as built drawings and O&M (operation and maintenance) manuals, GIS details as required and as applicable within 30 (thirty) days of the completion of the work. In case, the Works involves creation of software, the source code and other user manual shall also be submitted by the Contractor.
In case, the Contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a minimum sum equivalent to 2.5% of the Contract Price or 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.

15.3 Mobilization Advance – NOT APPLICABLE

15.3.1 If requested by Contractor, the Employer may provide, on merit, mobilization advance, equal in amount to **10% (ten percent)** of the Contract Price for Design and Construction work, at the interest rate of **2 (two) percentage** point above the SBI Base Rate for mobilization expenses and acquisition of the equipment for the Construction Works. The mobilization advance shall be provided in two equal installments or such higher number of installments as requested by the Contractor.

15.3.2 The Contractor shall apply to the Engineer-in-Charge for the mobilization advance within 30 (thirty) days of the Commencement Date, enclosing with it an irrevocable and unconditional bank guarantee equal to 110% (one hundred and ten percent) of the amount of the mobilization advance installment paid, from a Scheduled bank of India to remain effective till the complete and full repayment/ settlement of the said amount along with interest thereon is made.

15.3.3 The first installment shall be paid to the Contractor within 30 (thirty) days of the date of receipt of the Contractor's request in accordance with the provisions of Sub-clause 15.3.2.

15.3.4 Within 3 (three) months after the payment of the first installment of mobilization advance, the Contractor shall submit to the Engineer-in-Charge a certificate of utilization of the advance, supported with evidence of its utilization, as certified by the Engineer-in-Charge, and an irrevocable and unconditional bank guarantee equal to the amount of the next mobilization advance installment from a Scheduled bank of India to remain effective till the complete and full repayment of the said amount with interest thereon is made.

15.3.5 The second installment shall be paid to the Contractor within 30 (thirty) days of the receipt of the utilization certificate and the Bank Guarantee in accordance with the provisions of Sub-clause 15.3.4.

15.3.6 The Contractor shall demonstrate the use of the second installment of the mobilization advance by supplying copies of invoices or other documentary evidence to the Engineer-in-Charge within 90 (ninety) days of receiving such second installment. The Engineer-in-Charge shall issue a certificate of the proper utilization of the installment. The unutilized amount of the mobilization advance shall be recovered from the next milestone payment to be made to the Contractor.

15.3.7 The mobilization advance shall be recovered from the running account bill of the Contractor @ 25% from each bill so as to recover the entire mobilization advance within a period before the expiry of the eighty percent of the originally defined Stipulated Period of Completion in the Work Order.

15.3.8 The recovery of mobilization advance shall commence from the 4 (fourth) running account bill or 120 (one-hundred and twenty) days from the Commencement Date, whichever is earlier. The interest due up to the date of start of recovery shall also be recovered from the fourth running account bill.

15.3.9 If the mobilization advance payment has not been fully repaid/ settled by the time specified in clause 15.3.7, or prior to termination under clause 10.1 (Suspension of work) or clause 11.1 (Termination), (as the case may be), the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Employer.

16.0 Defect Liability and Maintenance

16.1 Defect Liability Period: One *year*

(i) The Contractor shall be responsible for all the Defects in the Works or any part thereof, as the case may be, during the execution of the Works and during the defects liability period.

(ii) The Defect Liability Period for the Works shall be [1] one year or as defined as per nature of work from the Completion Date.

(iii) In case commissioning happens within 1 (one) year from the Physical Completion of the Works, the Defects Liability Period shall start from the commissioning date. However, if the commissioning is delayed beyond 1 (one) year, the Defects Liability Period shall be [4] years from the date of Physical Completion of the Works.

(iv) The Security Deposit, submitted as per clause 6.2, shall be refunded if no defects are noticed during the Defect Liability Period or the Defects pointed out are removed.

(v) Contractor shall be responsible for security (watch and ward) of the project assets/ facilities for the period between Completion Date and commissioning.

17.0 Labour Laws

17.1 Recovery of Compensation Paid to Workman

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Employee's Compensation Act, 1923, Employer is obliged to pay compensation to a workman employed by the Contractor, in execution of the Works, Employer will recover from the Contractor the amount of the compensation so paid; and, without prejudice to the rights of the Employer under sub-section (2) of Section 12, of the said Act, Employer 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. Employer shall not be bound to contest any claim made against it under sub-section (1) Section 12, of the said Act, except on the written request of the Contractor and upon his giving to Employer full security for all costs for which Employer might become liable In consequence of contesting such claim.

17.2 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, Employer 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 and the rules under clause 17.11 or under the Employer Contractor's Labour Regulations, or under the Rules framed by Employer from time to time for the protection of health and sanitary arrangements for workers employed by Employer's contractors. Employer will recover from the Contractor the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the Employer under subsection (2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, Employer 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 Employer to the Contractor whether under this Contract or otherwise Employer 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 Employer full security for all costs for which Employer might become liable in contesting such claim.

17.3 Labour Laws to Be Complied By the Contractor

The Contractor shall obtain a valid license under the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (Regulation and Abolition) Central Rules 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The Contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986 and the Child Labour (Prohibition and Regulation) Rules, 1988.

Any failure to fulfill this requirement shall attract the penal provisions of this Contract arising out of the resultant non-execution of the work.

17.4 Minimum age limit for labour

No labour below the age of 14 (fourteen) years shall be employed on the work.

17.5 Payment of Wages

(i) The Contractor shall pay to labour employed by him either directly or through sub-Contractors, wages not less than fair wages as defined in the Employer's 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.

(ii) 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.

(iii) 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 labour regulations made by central government from time to time 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.

(iv) 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-fulfillment 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.

(v) Under the provisions 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. In the case of Union Territory of Delhi, however, as the all inclusive minimum daily wages fixed under notification of the Delhi Administration No.F.1 2(162) MWO/DAB/43884-91, dated 31-12-1979 as amended from time to time are inclusive of wages for the weekly day of rest, the question of extra payment for weekly holiday would not arise.

(vi) 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 Benefit its Act, 1961, Factories Act, 1948 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.

(vii) The Contractor shall indemnify and keep indemnified Employer against payments to be made under and for the observance of the laws aforesaid and the Employer Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-Contractors.

(viii) 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.

(ix) Whatever is the minimum wage for the time being, or if the wage payable is higher than such wage, such wage shall be paid by the Contractor to the workmen directly without the intervention of jamadar and that jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.

(x) The Contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the jamadar from the wage of workmen.

17.6 Safety provisions for labour

In respect of all labour directly or indirectly employed in the Works for the performance of the Contractors part of this Contract, the Contractor shall at his own expense arrange for the safety provisions as per Employer's safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the Contractor fails to make arrangement and provide necessary facilities as aforesaid he shall be liable to pay liquidated damages of Rs.200/- for each event of default subject to a maximum of 5% of Contract Value, and in addition the Engineer-in- Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the Contractor.

17.7 Submission of monthly record of labour

The Contractor shall submit by the 4th and 19th of every month, to the Engineering- Charge a true statement showing in respect of the second half of the preceding month and the first half of the current month respectively:

(i) The number of laborers employed by him on the work,
(ii) Their working hours,
(iii) The wages paid to them,

(iv) The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them, and
(v) The number of female workers who have been allowed maternity benefit according to clause 17.9 and the amount paid to them.

Failing which the Contractor shall be liable to pay to Employer a sum not exceeding Rs.1000/- for each default or materially incorrect statement. The decision of divisional officer shall be final in deducting from any bill due to the Contract the amount levied as fine and be binding on the Contractor.

17.8 Compliance with health and sanitary arrangements for workers

In respect of all labour directly, or indirectly employed in the Works for the performance or the Contractor's part of this Contract, the Contractor shall comply with or cause to be complied with all the rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by the Employer and its Contractors.

Further, the Contractor is required to follow the Employer's Safety Code and guidelines published by National Human Rights Commission (N.H.R.C) attached with the tender.

17.9 Leave and pay for female workers

Leave and pay during leave shall be regulated as follows:

1. Leave:
   (i) In the case of delivery - maternity leave not exceeding 8 weeks. 4 weeks up to and including the day of delivery and 4 weeks following that day,
   (ii) In the case of miscarriage - up to 3 weeks from the date of miscarriage.

2. Pay
   (i) In the case of delivery - leave pay during maternity leave will be at the rate of the women's average daily earnings, calculated on total wages earned on the days when full time work was done during a period of three months immediately preceding the date on which she gives notice that she expects to be confined.
   (ii) In the case of miscarriage - leave pay at the rate of average daily earning calculated on the total wages earned on the days when full time work was done during a period of three months immediately preceding the date of such miscarriage.

3. Conditions for the grant of Maternity Leave: No maternity leave benefit shall be admissible to a woman unless *she* has been employed for a total period of not less than six months immediately preceding the date on which she proceeds on leave.

4. The Contractor shall maintain a register of maternity (benefit) and the same shall be kept at the place of work.

17.10 Noncompliance with labour rules & regulations

17.10.1 In the event of the Contractor committing a default or breach of any of the provisions of the Employer, Contractor's labour Regulations and model rules for the protection of health and sanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and Rules which is materially incorrect, he/they shall, without prejudice to any other liability, pay to the Employer a sum as liquidated damages equal to Rs 200/- for each event of default per day subject to a maximum of 5% of the Contract Value. In the event of the Contractor defaulting continuously in this respect the liquidated damages may be enhanced to Rs.2000/- per event for each day of default subject to a maximum of 5 % of the Contract Value. The decision of the Engineer-in-Charge shall be final and binding on the Contractor.

17.10.2 Should it appear to the Engineer-in-Charge that the Contractor is not properly observing and complying with the provisions of labour regulations and model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (Regulation and Abolition) Central Rules 1971, for the protection of health and sanitary arrangements for work-people employed by the Contractor (hereinafter referred as "the said Rules") the Engineer-in-Charge shall have power to give notice in writing to the Contractor requiring that the said Rules be complied with an the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the Contractor shall fail within the period specified in the notice to comply with and/observe the said Rules and to provide the amenities to the work-people as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities hereinbefore mentioned at the cost of the Contractor. The Contractor shall erect, make and maintain at its own expense and to approved standards all necessary huts and sanitary arrangements required for its worker on the Site in compliance with the execution of the Works, and if the same shall not have been erected or constructed, according to approved standards, the Engineer-in-Charge shall have power to give notice in writing to the Contractor requiring that the said huts and sanitary arrangement be remodeled and/or reconstructed according to approved standards, and if the Contract shall fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in- Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the Contractor.

17.11 Labour camps and huts

The Contractor shall at his/her own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land to be approved by the Engineer-in-Charge. In case adequate space is available, the Contractor shall provide labour camps at site, the Employer shall not charge anything for the same. If the space available is not sufficient to house the labour camp, the Contractor shall arrange the land beyond the Site as per his requirement. The Employer may extend help in getting permissions from the land owning agencies but it shall be the responsibility of the Contractor for arranging the same at his own cost. No excuse whatsoever shall be entertained.

(i)

a. The minimum height of each hut at the eaves level shall be 2.10m (7 ft.) and the floor area to be provided will be at the rate of 2.7 sq.m. (30 sq.ft.) for each member of the worker's family staying with the labourer.
b. The Contractor shall in addition construct suitable cooking places having a minimum area of 1.80m x 1.50m (6'x5') adjacent to the hut for each family.
c. The Contractor shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per each hundred of the total strength, separate latrines and urinals being provided for women.
d. The Contractor shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened.

(ii)

a. All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in- Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall at least 15cm (6") above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the Contractor shall ensure that throughout the period of their occupation the roofs remain water-tight.
b. The Contractor shall provide each hut with proper ventilation.
c. All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.

d. There shall be kept an open space of at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft.) according to the available of Site with the approval of the Engineer-in-Charge. Back to back construction will be allowed,

(iii) Water Supply: The Contractor shall provide adequate supply of water for the use of labourers.

(iv) The site selected for the camp shall be high ground, removed from Jungle.

(v) Disposal of Excreta: The Contractor shall make necessary arrangements for the disposal of excreta from the latrines by trenching or Incineration, which shall according to the requirements, lay down by the Local Health Authorities. If trenching or incineration is not allowed the Contractor shall make arrangements for removal of the excreta through the Municipal Committee/Employer and inform it about the number of labourers employed so that arrangements may be made by such committee/authority for the removal of the excreta. All charges on this account shall be borne by the Contractor and paid direct by him to the Municipality/Employer. The Contractor shall provide one sweeper for every eight seats in case of dry system.

(vi) Drainage - The Contractor shall provide efficient arrangements for draining away a sullage water so as to keep the camp neat and tidy.

(vii) The Contractor shall make necessary arrangements for keeping the camp a sufficiently lighted to avoid accidents to the workers.

(viii) Sanitation - The Contractor (s) shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities.

On completion of the Works the Contractor shall remove hutments failing which the Employer will dismantle and clear the site at his risk and cost.

17.12 Employment of Controlled Area Labour Not Permissible

17.12.1 The Contractor shall not employ controlled area labour falling under any category whatsoever on or in connection with the Works or recruit labour from area within a radius of 32 km (20 miles) of the controlled area. Subject as above the Contractor shall employ imported labour only i.e., deposit imported labour or labour imported by Contractors from area, from which import is permitted.

17.12.2 Where ceiling price for imported labour has been fixed by State or Regional Labour Committees not more than that ceiling price shall be paid to the labour by the Contractor.

17.12.3 The Contractor shall immediately remove any labourer who may be pointed out by the Engineer-in-Charge as being a coal mining or controlled area labourer. Failure to do so shall render the Contractor liable to pay to Employer a sum calculated at the rate of Rs.10/- per day per labourer. The certificate of the Engineer-in- Charge about the number of controlled area labourer and the number of days for which they worked shall be final and binding upon all parties to this Contract.

17.12.4 It is declared and agreed between the parties that the aforesaid stipulation in this clause is one in which the 'public are interested within the meaning of the explanation in Section 74 of Indian Contract Act, 1872.

Explanation: Controlled Area means the following areas:
District of Dhanbad, Hazaribagh, Jamtara – a sub Division under SanthalPargana Commissioner, Districts of Bankuara, BirbhumBurdwan District or Bilaspur.

Any other area, which may be declared a Controlled Area by or with the approval of the Central Government.

17.13 Apprentices Act Provisions To Be Complied With

The Contractor shall comply with the provisions of the Apprentices Act, 1961, Apprenticeship Rules, 1992 and other rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the Contract and the Engineer-in-Charge may, in his discretion, cancel the Contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

17.14 Labour disputes

17.14.1The Contractor shall at all the times during the progress of Works take all requisite precautions and use his best endeavors for preventing any riotous or unlawful behavior by or among the workers and other employees at work and shall preserve peace and protection of the inhabitants and the security of property in the neighborhood of the Works.

17.14.2In case of any disputes with labour (skilled or unskilled) and charges are claimed against the Contractor, the Engineer-in-Charge shall have the full authority to deduct the same from the bill of the Contractor, so as to enable him to settle the disputes.

18.0 Miscellaneous Clauses

18.1 Dispute Resolution

18.1.1 Amicable Resolution

(i) Save where expressly stated to the contrary in this Contract, any dispute, difference or controversy of whatever nature between the Parties, howsoever arising under, out of or in relation to this Contract (the "Dispute") shall in the first instance be attempted to be resolved amicably with the Employer.

(ii) In case of failure to amicably resolve the dispute under clause (i) above either Parties may require such Dispute be referred to a 3- member body consisting of Chief Secretary of the Government of NCT of Delhi or his representative, as Chairman, the Chief Executive Officer of the DJB, and a nominee representative of the Contractor for amicable settlement. Upon such reference, both the Parties shall be required by such three member body to meet at the earliest mutual convenience and in any event within 15 (fifteen) days of such reference to discuss and attempt to amicable resolve the Dispute. If the Dispute is not amicably settled within thirty days of such meeting between the Parties, either Party shall have liberty to take further action in accordance with the law.

18.2 If Relation Working in Employer then Contractor Not Allowed to Tender

The Contractor shall not be permitted to tender for Works in the Employer zone (responsible for award and execution of contracts) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the junior engineer and Chief engineer (both inclusive). He 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 gazetted Officer with Employer. Any breach of this condition by the Contractor would render him liable to be removed from the approved list of Contractors of this Employer.
NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grand children, brothers and sisters.

18.3 No Gazetted Engineer to work as Contractor/ Consultant within one year of retirement/ resignation

No engineer of gazette rank or other gazette officer employed in engineering or administrative duties in an engineering department of the Government of Delhi shall work as a Contractor/ Consultant or employee of a Contractor/ Consultant for a period of one year after his retirement from government service without the previous permission of Employer in writing. This Contact is liable to be cancelled if either the Contractor/ Consultant or any of his employees is found at any time to be such a person

who had not obtained the permission of Government of Delhi as aforesaid, before submission of the tender or engagement in the Contractor's/ Consultant's service, as-the case may be.

18.4 Corruption or fraudulent practices

18.4.1 Employer defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution, and

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive them of the benefits of free and open competition;

18.4.2 The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract.

18.5 Use of Explosives

Subject to the Applicable Laws and the Applicable Permits, the Contractor shall comply with the following:

(i) the use of explosives by the Contractor shall be subject to the prior approval/authorization of the concerned Government Instrumentality;

(ii) the Contractor shall at all times take all such safety measures as may be required for the importation, handling, transportation, storage and use of explosives and shall, at all times when engaged in blasting operations, post sufficient warning flagmen to the full satisfaction of the Engineer-in-Charge.

(iii) the Contractor shall, by a notice in writing, **15** days prior to the blasting operation, notify all parties including Government Instrumentalities, private parties concerned or affected or likely to be concerned or affected by blasting operations for their prior approval; and

(iv) The Contractor shall pay all license fees and charges which may be required for storage of explosives or in respect of any other matter related thereto.

All operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Employer in respect thereof.

18.6 Confidentiality and Publicity

The Contractor shall treat the details of the Contract as private and confidential save in so far as may be necessary for the purpose thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the previous consent in writing of the Employer. Publication of approved articles, photographs or similar materials shall .carry acknowledgement to the Employer and state the name of the Engineer–in-Charge. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract the same shall be referred for decision to the Employer, whose decision shall be final.
Any advertising mentioning the subject of this Contract must be approved by the Employer prior to publication.

18.7 Individuals not personally Liable

No member or officer of the Employer nor the representative of Engineer-in-Charge nor any one of the respective staffs or the employees of the Employer shall be in any way personally liable for the acts or obligations of the Employer under the Contract or answerable for any default or omission of the Employer in the observance or performance of any of the acts, matters or things which are herein contained.

18.8 Limitation of Liability

18.8.1 Neither Parties shall be liable to the other Parties for loss of profit, loss of any Contract or for any indirect or consequential loss or damage which may be suffered by the other Parties in connection with the Contract, other than under clause 3.7 (Indemnity by Contractor) and Section 11 (Termination of Contract)

18.8.2 The total Liability of the Contractor to the Employer, under or in connection with the Contract, other than under clause 3.7 (Indemnity by Contractor), Clause 3.13 (Responsibility of damage to property and injury to persons) clause 3.15 (Electricity for construction of Works) and 3.16 (Supply of water) shall not exceed the Contract Price

18.8.3 This clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Parties. Further, this clause shall not limit any criminal action that may follow from any action.

18.9 Waiver and Consents Clause

18.9.1 Waiver by either Party of any default by other Party in the observance and performance of any provision of or obligations of or under this Contract

i) Shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Contract;

ii) Shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and

iii) Shall not affect the validity or enforceability of this Contract in any manner.

18.9.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Contract or any obligation there under nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

18.9.3 Any such waiver or consent may be given subject to any conditions thought fit by the Party giving it and shall be effective only in the instance and for the purpose for which it is given.

List of Items for which DJB can issue Form C (Stands Deleted)

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1.0 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-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (¼ horizontal and 1 vertical.)

2.0 Scaffolding of staging more than 3.6 m (12ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) high above the floor, or platform of such scaffolding or staging and extending along the entire length of the outside and ends there of 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.

3.0 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 than 3.6 m (12ft.) above ground level or floor level, they should be closely boarded; should have adequate width and should be suitably fastened as described in (2) above.

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

5.0 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 ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (1 11/2”) for ladder up to and including 3 m. (10 ft.) in length. For longer ladders this width should be increased at least 1/4” for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or 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 proceedings 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.

6.0 Excavation and Trenching - All trenches 1.2 m. (4ft.) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof Ladder shall extend from bottom of the trench to at least 90 cm. (3ft.) above the surface of the ground. The sides of the trenches which are 1.5 m. (5ft.) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m. (5ft) 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.

7.0 Demolition - Before any demolition work is commenced and also during the progress of the work,

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

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

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

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

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

ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes shall be provided with protective goggles.

iii) Those engaged in welding works shall be-provided with welder's protective eye. shields.

iv) Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

v) When workers are employed 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 to the public, in addition, the contractor shall ensure that the following safety measure are adhered to

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

b) 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 manhole for working inside.

c) 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.

d) 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.

e) 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.

f) 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.

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

h) 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.

i) 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.

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

k) 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 meters 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.

l) The workers engaged for cleaning the manholes/sewers should be properly trained before allowing working in the manhole

m) 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.

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

o) 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.

p) The extents 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.

vi) 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 precaution should be taken:-

a) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

b) 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 scraped.

c) Overalls shall be supplied by the contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on the cessation of work.

9.0 Contractor shall not employ women and men below the age of 18 on the work of painting with product containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following: principles must be observed for such use:

i) White lead, sulphate of lead or product containing these pigment, shall not be used in painting operation except in the form of pastes or paint ready for use.

ii) Measures shall be taken, wherever required in order to prevent danger arising from the application of paint in the form of spray.

iii) Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scraping

iv) Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.

v) Overall shall be worn by working painters during the whole of working period.

vi) Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled by painting materials.

vii) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority of DJB

viii) DJB may require, when necessary medical examination of workers.

ix) Instructions with regard to special hygienic precautions to be taken in the painting.

10.0 When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person In danger and adequate provision, should be made for prompt first aid treatment of all injuries likely to be obtained during the course of the work.

11.0 Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions

1. These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.
2. 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 detects.
3. 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 give signals to operator.
4. 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 pears 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 condition under which It Is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
5. In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-charge. As regards contractors machines the contractors 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 it verified by the Electrical Engineer concerned.

12.0 Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. 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 to 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 should be provided. The worker should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

13.0 All scaffolds, 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.

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

15.0 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 the Labour Officer or Engineer-in-Charge of the department or their representatives.

16.0 Notwithstanding the above clauses from (1) to (15) 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

SAFETY GUIDELINES AS PER DJB circular dated 12.06.2009

Following guideline /instructions should be adhered to in true spirit:-

1. The door may be fixed at the entry of the stair case and the open portion of the stair case of sump well should be protected by grill up to the height of 7 feet and compartments of the sump well should be covered with jallis/grating or should be barricaded property. Sewage pumping station should be secured by providing and fixing barbed wire fencing over the boundary wall.
2. An inspection register should be placed at the sewage pump house in which all the inspecting officers may record their observations. No unauthorized entry should be allowed.
3. Caution board showing the restricted entry area and name of components and moving mechanical part should be displayed.
4. The entry to all DJB infrastructures should be restricted to the person /persons authorized by DJB or having I.D cards issued by the chief security officer.
5. Just after entering the premises do's and don'ts should be displayed at prominent places in all four languages.
6. Even authorized visitors should be provided proper uniform /visitor badges helmet and relevant safety gear and given instruction before showing such infrastructure.

No person below 18 years age should be allowed on the premises where chances of emission of toxic gases are extensive.

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NHRC GUIDELINES

NHRC issued guidelines on safety code for operation/maintenance of sewerage system vide letter No.1069/30/2001-2002/F.C. dated 18.11.02. Same shall form part of agreement and has to be strictly followed during execution of work.

Direction given by Hon'ble Supreme Court in the matter of National Campaign for Dignity & Right of Sewerage & Allied workers.

1. The medical examination and medical treatment will be given free of charge to sewer workers and the treatment will continue for all such workers found to be suffering from an occupational disease, ailment or accident until the workman is cured or until death.

2. The services of the sewer workers are not to be terminated, either by the respondents or the contractors engaged by them during the period of illness and they shall be treated as if on duty and will be paid their wages.

3. The respondents shall pay on the death of any worker including any contract worker, an immediate ex-gratia solatium of One lakh with liberty to recover the same from contractors, if permissible in law.

4. The respondents shall pay/insure payment of all statutory dues such as Provident Fund, Gratuity and Bonus to all the sewer workers including contract workers, as applicable in law.

5. The respondents shall provide as soon as possible modern protective equipments to all the sewer workers in consultation with the petitioner organization.

6. The respondents shall provide soap and oil to all the workmen according to the present quota but on monthly basis and not at the end of the year.

7. The respondents shall provide all workmen including contract workmen with an accident-card-cum-wage-slip as set out in clause 8 of the CPWD/PWD(DA)/Delhi Jal Board Contractors Labour Regulations (for short "Labour Regulations").

8. The respondents shall authenticate by signing the payment of wages register for contract workers in terms of clause 5 of the Labour Regulations.

9. The Delhi Jal Board is directed to ensure that the ex-gratia payment in case of deaths of sewer workers has been paid to the families of deceased workmen.

Contractor **Executive Engineer (NW) –II**

NGT GUIDELINES

The following directions are hereby issued in compliance of the Hon'ble National Green Tribunal order in the matter of Vardhman Kaushik Vs UOI & Ors. Regarding air pollution in original application No. 21 of 2014.

1. No government, authority, contractor, builders or any person would be permitted to store/dump construction material or debris on the metalled road.

2. Beyond the metalled road the area where such construction, material or debris can be stored shall be physically demarcated by the officers of all the concerned Authorities/Corporation. It shall be ensured that such storage does not cause any obstruction to the free flow of traffic and /or inconvenience to the pedestrians. It should be ensured that no accidents occur on account of such permissible storage.

3. Every builder or owner shall put tarpaulin on scaffolding around the area of construction and the building. No person including builder, owner can be permitted to store any construction material particularly sand on any part of the street, roads in any colony.

4. The construction material of any kind that is stored at the site will be fully covered in all respects so that it does not disperse in the Air in any form.

5. All the construction material and debris shall be carried in the trucks or other vehicles which are fully covered and protected so as to ensure that the construction debris or the construction material does not get dispersed into the air or atmosphere, in any form whatsoever.

6. The dust emissions from the construction site should be completely controlled and all precautions taken in that behalf.

7. Every worker working at the construction site and involved in loading unloading and carriage of construction material and construction debris shall be provided with mask to prevent inhalation of dust particles.

8. Every owner and or builder shall be under obligation to provide all medical help, investigation and treatment to the workers, involved in the construction of building and carry of construction material and debris relatable to dust emission.

Contractor **Executive Engineer (NW) -II**

STANDARD SPECIFICATIONS FOR WORKS IN DELHI JAL BOARD (With D.I. Material)

1.1 Scope

This specification covers the requirement for manufacturing, supplying, laying, jointing, testing and commissioning of Ductile Iron pipeline and fittings including associated civil works required for the same.

1.2 Standards

The following standards, specifications and codes are part of this specification. In all cases, the latest revision of the codes including all applicable official amendments and revisions shall be referred to. In case discrepancy between this specification and those referred to herein, this specification shall govern.IS:8329 Centrifugally Cast Ductile Iron pipes for water, gas and sewageIS:9523 Ductile Iron pipes fittings for pressure pipes for water, gas andsewageIS:3764 Excavation work-code of safetyIS-8112 Specifications for 43 grade Ordinary Portland Cement

1.3 Manufacturing and Source for Supply of Ductile Iron Pipes and Fittings

1.3.1 General

(a) The Ductile Iron pipeline should confirm to IS: 8329 and the pipe should be ISI marked and manufacturer should have valid BIS License.
(b) The D.I. Pipes, if procured from country other than India, the manufacturer of pipesshall bear ISO certification mark. The manufacturer must have produced D.I. Pipesfor a minimum quantity of 40,000 MT per annum in any one year during the last threeyears. It shall be responsibility of Contractor to arrange testing of pipes including all incidentals at his own cost. The quoted rate shall be inclusive of all duties and levies and nothing extra shall be payable. No foreign exchange shall be payable for the pipe srocured and imported from outside the country.

(c) The bidder shall not deviate from the technical specification of pipe materials, fittings and valves etc. Alternative offers will be out rightly rejected.
(d) All tests specified either in this specification or in the relevant Indian standards specified above shall be performed by the supplier/contractor and in presence of Engineer-In-Charge, if desired. For this, sufficient notice before testing of pipes and fittings shall be given to the Engineer-In-Charge.

1.3.2 Materials

(a) The Ductile Iron pipes shall be centrifugally cast (spun) Ductile Iron pipes confirming to the IS: 8329. The pipes used will be with push on joints (rubber gasket joints). The class of pipes to be used shall be of the class K-9/K-7 as specified in bill of quantity. The pipes shall be coated with zinc and finishing layer of bitumen as per annexure 'C' of IS: 8329/2000 and shall have factory applied centrifugal cement mortar lining inside as per the provisions of appendix 'B' of the IS: 8329. The pipe shall be supplied in standard length of 5.50 and 6.00-meter length with suitably rounded or chamfered ends. Each pipe of the push on joint variety shall also be supplied with a rubber gasket. The gasket shall confirm to IS: 5382.

(b) The Ductile iron fittings shall be manufactured and tested in accordance with IS: 9523.The fittings shall be provided with cement mortar lining inside and outside bitumen coating. The Ductile Iron Fittings shall be of Class K-12/K-14 as specified in BOQ suitable for either push-on jointing or flanged jointing as per the site requirement. The Ductile Iron Fittings may preferably be procured from the same manufacturer who will be supplying Ductile Iron Pipes. The fitting may be of the following type as per site requirement:

- Flanged Socket
- Flanged spigot
- Double socket Bends (900, 450, 22½0, 11¼0)
- Double socket branch flanged tee
- Double socket taper

• All Flanged Tee
• All Flanged Taper
• Double Flanged Bends (900, 450, 22½0, 11¼0)
(c) The rubber gaskets for jointing should preferably be manufactured by the manufacturer of pipes. In case they are not, it will be the responsibility of the manufacturer of pipes to have them manufactured from a suitable manufacturer under its own supervision and have it tested at his/sub contractor's premises as per the contract. The pipe manufacturer will however be responsible for the compatibility and quality of the gaskets.
(d) Alternative to the standard Ductile Iron Fittings, fabricated M.S. fittings with inside cement mortar lining may be used, if necessary. If required, the MS flanges can also be welded to the D.I pipes, as per the procedures laid down by the manufacturer of D.I. Pipes.

1.3.3 Dimensions and Tolerances
The internal diameter thickness and length of barrel, dimensions of pipes and fittings shall be as per the relevant tables of IS: 8329/IS 9523 of different class of pipes and fittings.

1.4 Ductile Iron Pipes

1.4.1 Inspection and testing

The pipes will be subjected to following tests for acceptance:•Visual and dimensional check as per clause 13 and 15 of IS 8329
• Mechanical Test as per clause 10 of IS 8329
• Hydrostatic test as per clause 11 of IS 8329
• The test reports of the rubber gaskets shall be as per acceptance tests of the IS 5832 and will be in accordance to clause 3.8. The Sampling shall be as per provisions of the IS 8329.

1.4.2 Marking
All pipes will be marked as per clause 18 for IS 8329 and show below:
• Manufacturer name/stamp
• Nominal diameter
• Class reference
• A white ring line showing length of insertion at spigot end
• Delhi Jal Board

1.4.3 Packing and Transport:
The pipes should be preferably transported by road from the factory and stored as per the manufacturer specifications to protect damage.

1.5 Specials/Fittings for Ductile Iron Pipes

1.5.1 General
This section covers the general requirements for Ductile Iron (DI) fittings suitable for pushon-joints or flanged jointing to be used with Ductile Iron pipes with push-on-jointing and flanged system.

1.5.2 Supply:
All the DI fittings shall be supplied suitable for fixing with rubber ring. The rubber ring shall conform to IS: 5382 and as per socket profile of pipes.

1.5.3 Lubricant for Ductile Iron Pipes and Specials:

1.5.4 General:
This section covers the requirements for lubricant for the assembly of Ductile Iron pipes and specials suitable for push-in rubber ring joints.

1.5.5 Specification:
The lubricant has to have the following characteristics:
• must have a paste like consistency and be ready for use.
• has to adhere to wet and dry surfaces of DI pipes and rubber rings.
• to be applied in hot and cold weather; ambient temperature O-50 0C, must be non toxic.
• must be water soluble.
• must not affect the properties of the drinking water carried in the pipes.
• must not have an objectionable odour.
• has to inhibit bacterial growth.
• must not be harmful to the skin.
• must have a shelf life not less than 2 years Acceptance tests.

1.5.6 Packing:
All the DI fittings shall be properly packed with jute cloth. Rubber rings shall be packed in polyethylene bags. Rubber rings in PE bags and nuts, bolts etc. shall be supplied in separate jute bags.

1.6 Specifications for laying and jointing of Pipe line system for Water Supply:

1.6.1 Preparatory Work:
The pipeline alignment should be kept straight as far as possible. However, if there is need for deviation, it should be done with the use of necessary special or by deflection in pipe joints (limited to 75% of permissible deflection as per manufacturer).

1.6.2 Alignment and the L-Sections:
The alignments, L-section (depth of laying) and location of specials, valves and chambers may be changed at site in co-operation with and after approval of the Engineer-In-Charge. The minimum cover to the top of the pipe shall be 1 m if permitted as per site conditions otherwise as per the direction of engineer-in-charge.

1.6.3 Standards:
Except as otherwise specified in this technical specification, the Indian Standards and Codes of Practice in other latest version, National Building code, CPWD specifications and manual for water supply of GOI shall be adhered to for the supply, handling, laying, installation, and site testing of all material and works.

1.6.4 Tools and Equipment:
The contractor has to provide all the tools and equipment required for the timely, efficient and professional implementation of the work as specified in the various sections of the contract and as specified by the instructions of manufacturers of the pipes and other material to be handled under this contract.

1.6.5 Handling and Laying of pipes:

1.6.6 Transportation of pipes and specials & Storage:-
The Contractor has to transport the pipes and other materials from manufacturer to the site of laying as indicated by the Engineer-In-Charge. Pipes should be handled with care to avoid damage to the surface and the socket and spigot ends, deformation or bending. Pipes shall not be dragged along the ground or the loading bed of a vehicle. Pipes shall be transported on flat bed vehicles/trailers. The bed shall be smooth and free from any sharp objects. The pipes shall rests uniformly on the vehicle bed in their entire length during transportation. Pipes shall be loaded and un-loaded manually or by suitable mechanical means without causing any damage to the stacked pipes. The transportation and handling of pipes shall be made as per IS 12288. Whatever method and means of transportation is used, it is essential that the pipes are carefully placed and firmly secured against uncontrolled movement during transportation to the satisfaction of Engineer-In-Charge. Where using crane hooks at sockets and spigot ends hooks shall be broad and protected by rubber or similar material, in order to avoid damage to pipe

ends and lining. Damage to lining must be repaired before pipe laying according to the instructions of the pipe manufacturer. Pipes shall not be thrown directly on the ground. The Contractor shall provide proper and adequate storage facilities to protect all the materials and equipments against damage from any cause whatsoever and in case of any such damage/theft, the Contractor shall be held responsible.

1.6.7 Pipe trench:

1.6.7.1 Trench excavation:

The trench excavation of pipeline shall be in accidence with IS 12288. Pipe trenches shall be excavated to the lines and levels shown on the drawings or as directed by the Engineer-In-Charge. The width of the trench at bottom between the faces or sheeting shall be such as to provide 200 mm clearance on either side of the DI pipe. The depth should be sufficient to provide cover not less than 1000 mm so that the pipeline for protection against traffic loads. It may be necessary to increase the depth of pipeline to avoid land drains or in the vicinity of roads, railways or other crossings. Care should be taken to avoid the spoil bank causing an accumulation of rainwater. The bottom of the trench shall be trimmed and leveled to permit even bedding of the pipes. It should be free from all extraneous matter, which may damage the pipe or the pipe coating. Additional excavation shall be made at the joins of the pipes, so that the pipe is supported along its entire length.

To protect persons from injury and to avoid damage to property, adequate barricades, construction signs, torches, red lanterns and guards, as required, shall be placed and maintained during the progress of the work and until it is safe for traffic to use the roadways. All materials, piles equipment and pipes which may serve as obstruction to traffic shall be enclosed by fences or barricades and shall be protected by illuminating proper lights when the visibility is poor. Where water forms or accumulates in any trench the Contractor shall maintain the trench free of water during pipe laying. Wherever necessary to prevent caving, trench excavations in soils such as sand, gravel and sandy soil shall be adequately sheeted and braced. Where sheeting and bracing are used, the net trench width after sheeting shall not be less than that specified above. The sides of the excavation shall be adequately supported at all times and, except where described as permit under the Contract, shall be not battered. The Engineer-In-Charge in co-operation with the Contractor shall decide about the sheeting/bracing of the trench according to the soil conditions in a particular stretch and taking into account the safety requirements of the Contractor's and Engineer's staff. Generally, safety measures against caving have to be provided for trenches with vertical walls if they are deeper than 2.0 m.

1.6.7.2 Trench excavation to commensurate with the laying progress:

The work of trench excavation should be commensurate with laying and jointing of the pipeline. It should not be dug in advance for a length greater than 500 m ahead of work of laying and jointing of pipeline unless otherwise defined by the Engineer-In-Charge. The contractor has to ensure the following:

- Safety protections as mentioned above, have to be incorporated in the work process
- Hindrances to the public have to be minimized
- The trench must not eroded before the pipes are laid
- The trench must not be filled with water when the pipes are laid
- The trench must not be refilled before laying of the pipes.

The bed for the laying of the pipes has to be prepared according to the L-Section immediately before laying of the pipes.

1.6.7.3 Bedding of the pipes:

The trench bottom shall be even and smooth so as to provide a proper support for the pipe over its entire length, and shall be free from stones, lumps, roots and other hard objects that may injure the pipe or coating. Hole shall be dug in the trench bottom to accommodate sockets so as to ensure continuous contact between the trench and the entire pipe barrel between socket holes. Payment for such operations shall be made as per the executed work.

1.6.8 Laying and jointing of pipes:

1.6.8.1 General

The whole of the pipes shall be placed in position singly and shall be laid true to profile and direction of slope indicated on longitudinal sections. The pipes shall be laid without eflection in a straight alignment between bends and between high and low points. Vertical and horizontal deflection between individual pipes needs the approval of the Engineer-In- charge. In no case the deflection shall be more than 75% of those recommended by the manufacturer. Before pipes are jointed they shall be thoroughly cleaned of all earth lumps, stones, or any other objects that may have entered the interior of the pipes, particularly the spigot end and the socket including the groove for the rubber ring. The Contractor shall not leave a gap for fittings and shall lay line in a continuous stretch. Cutting of pipes shall be reduced to a minimum required to conform to the drawings. Cutting has to be made with suitable tools and according to the recommendations of the manufacturer. The spigot end has to be chamfered again at the same angle as the original chamfered end. Cutting shall be perpendicular to the center line of the pipe. If there is no mark for the insertion depth on the spigot ends of the (cut) pipe it shall be marked again according to the instructions of the manufacturer.

All specials like bends, tees etc. and appurtenances like sluice or butterfly valves etc. shall be laid in synchronization with the pipes. The Contractor has to ensure that the specials and accessories are ready in time to be installed together with the pipes.. When pipe laying is not in progress, the open ends of installed pipe shall be closed by approved means to prevent entrance of trench water and dirt into the line.

1.6.8.2 Laying and jointing of DI pipes On gradients of 1:15 or steeper, precautions should be taken to ensure that the spigot of the pipe being laid does not move into or out of the socket of the laid pipe during the jointing

operations. As soon as the joint assembly has been completed, the pipe should be held firmly in position while the trench is back filled over the barrel of the pipe. The designed anchorage shall be provided to resist the thrusts developed by internal pressure at bends, tees, etc.

Where a pipeline crosses a watercourse, the design and method of construction should take into account the characteristics of the watercourse to ascertain the nature of bed, scour levels, maximum velocities, high flood levels, seasonal variation, etc., which affect the design and laying of pipeline. The assembly for the pipes shall be made as recommended by the pipe manufacturer and using the suitable tools. The socket and spigot ends of the pipes shall be brushed and cleaned. The chamfered surface and the end of the spigot end have to be coated with a suitable lubricant recommended by the manufacturer o the pipes. Oil, petroleum bound oils, grease or other material, which may damage the rubber gasket, shall not be used as lubricant. The rubber gasket shall be inserted into the cleaned groove of the socket. It has to be checked for correct positioning. The two pipes shall be aligned properly in the pipe trench and the spigot end shall be pushed axially into the socket either manually or with a suitable tool specially designed for the assembly of pipes and as recommended by the manufacturer. The spigot has to be inserted up to the insertion mark on the pipe spigot. After insertion, the correct position of the socket has to be tested with a feeler blade. For ease of laying, the pipes shall be laid with socket facing the direction in which the work is progressing. For pipes on slope, the socket should be laid with socket facing uphill.

1.6.9 Anchoring of the pipeline:

Thrust blocks shall be provided at each bend, tee, taper, end piece to prevent undue movements of the pipeline under pressure. They shall be constructed as per designs submitted and approved by Engineer-In-Charge, according to the highest pressure during operation or testing of the pipes, the safe bearing pressure of the surrounding soil and the friction coefficient of the soil.

1.6.10 Testing of Pipelines:

1.6.11.1Sectional tests

After laying and jointing the pipeline shall be tested for tightness of barrels and joints, and stability of thrust blocks in sections approved by the Engineer-In-Charge. The length of the sections depends on the topographical conditions. Preferably the pipeline stretches to be tested shall be between two chambers (air valve, scour valve, bifurcation, other chamber). The

sectional testing shall however depend on the progress of the work and the feasibility as per site conditions. The engineer-in-charge may however decide in favor of testing of pipe line in full and final if site conditions so permits. The contractor himself shall arrange the water required for testing. The Contractor shall fill the pipe and compensate the leakage during testing. The Contractor shall provide and maintain all requisite facilities, instruments, etc. for the field-testing of the pipelines. The testing of the pipelines generally consists in three phases: preparation, pre-test/saturation and test, immediately following the pre-test. Generally, the following steps are required which shall be monitored and recorded in a test protocol if required:

• Complete setting of the thrust blocks.
• Partial backfilling and compaction to hold the pipes in position while leaving the joints exposed for leakage control
• Opening of all intermediate valves (if any)
• Fixing the end pieces for tests and after temporarily anchoring them against the soil (not against the preceding pipe stretch)
• At the lower end with a precision pressure gauge and the connection to the pump for establishing the test pressure
• At the higher end with a valve for air outlet
• If the pressure gauge cannot be installed at the lowest point of the pipeline, an allowance in the test pressure to be read at the position of the gauge to be made accordingly
• Slowly filling the pipe from the loEast point(s).
• The water for this purpose shall be reasonably clear and free of solids and suspended matter.
• Complete removal of air through air valves along the line.
• Closing all air valves and scour valves.
• Slowly raising the pressure to the test pressure while inspecting the thrust blocks and the temporary anchoring.
• Keeping the pipeline under pressure for the duration of the pre-test/saturation of the lining by adding make-up water to maintain the pressure at the desired test level. Make up water to be arranged by Contractor himself at his own cost.
• Start the test by maintaining the test pressure at the desired level by adding more make-up water; record the water added and the pressure in intervals of 15 minutes at the beginning and 30 minutes at the end of the test period.
• Water used for testing should not be carelessly disposed off on land, which would ultimately find its way to trenches.
• The testing conditions for the pipelines shall be as per the test pressures and condition laid out in IS 8329 for DI pipes.
• The pipeline stretch will pass the test if the water added during the test period is not exceeding the admissible limits.

On completion of a satisfactory test any temporary anchor blocks shall be broken out and stop ends removed. Backfilling of the pipeline shall be completed.

1.6.11.2 Leakage Test

The testing conditions for the pipelines are summarized as follows:

• Maximum hydrostatic test pressure for DI K-9 pipes shall be 1.5 times working Pressure in the pipeline.

The method of filling the pipeline with water shall be approved by the Engineer-In-Charge. The length under test shall be filled making certain that all the air is displaced through an air valve installed at the top of blank flange situated at the high end of the line. The length shall remain under constant moderate pressure 10 to 20 m of head of water, for a period of several hours until the pressure can be maintained without additional pumping. The pressure shall then be slowly increased at a maximum rate of 10 m per minute to the full test pressure and pumping discontinued for a 3 hours or until the pressure has dropped by 10 m, whichever occurs earlier. The quantity of water pumped to restore the pressure shall be the measure of leakage from discontinuation of pumping until its resumption. The pipe length shall pass the test if the leakage is not more than 1.00 liters per mm diameter per kilometer per 24 hours for each 100 m head of pressure applied and the full test pressure has been sustained for at least 3 hours. If

it is required to test pipeline with a free end, it is necessary to provide temporary support against the considerable end thrust developed by the application of the test pressure. The end support can be provide by inserting a wooden beam or similar strong material in a short trench excavated at right angle to the main trench and inserting suitable packing between the support and pipe end. On completion of a satisfactory test any temporary anchor blocks shall be broken out and stop ends removed. Backfilling for the pipeline shall be completed.

1.6.11.3 Failure to pass the test. All pipes or joints which are proved to be in any way defective shall be replaced or remade and re-tested as often as may be necessary until a satisfactory test shall have been obtained.
Any work, which fails or is proved by test to the unsatisfactory in any way shall be redone by the Contractor. No payments shall be made against replacement or remade and retested pipeline.

1.6.11 Flushing and disinfecting of pipelines. After testing and commissioning, the contractor shall flush the pipes with a velocity not less than 1 m/s or as approved by the Engineer-In-Charge. Disinfection of drinking water pipelines shall be done as directed by Engineer-In-Charge.

1.6.12 Backfilling of the pipe trench:

The backfilling of pipe trench should be done as approved by Engineer-In-Charge and as per the provisions of IS: 12288.1.7 Pillars for ductile iron pipes In case of unstable subsoil or in case of ductile iron pipes laid above ground they shall be laidon pillars. One pillar shall support the socket end of one and the plain end of other pipe. The pillars shall be of Cement Concrete and shall be founded on solid soil, not subject to erosion by wind or water. The foundation of the pillars has to be calculated according to the soil conditions. The pipes shall be laid on a coat of polyethylene of 2mm thickness, put on mortar. It has tobe ensured that the spigot end of the pipe is supported by the saddle and does not unduly compress the rubber ring in the lower part. Each pipe is fixed by one adjustable galvanized steel spanner, fixed to the pillar with anchor bolts. Payment for the work done shall be paid separately. In case of vertical deviations the pipes shall be protected against uplift by additional reinforced clamps of mid steel. In this case, the design of the pillar has to be made taking in account these uplift forces and design will be given by Employer.

1.8 Thrust Blocks

The thrust blocks shall be of plain cement concrete on site. This should be as per design and drawing to be given by the employer. The thrust blocks shall be cast directly against the undisturbed soil. If this is not possible, the backfilled soil at the contact surface shall be compacted well to full satisfaction of Engineer-In-Charge so that anchor block is not displaced during operation and testing.1.9 Backfilling around chambers and thrust blocks After the completion of chambers and thrust blocks the space between the structure and theExcavation shall be backfilled with compacted material. Such backfill shall be placed inlayers of 15 cm measured before compaction, wetted, if necessary, to optimum moisture and compacted well as per instruction of Engineer-In-Charge.

1.10 Other Civil and Related Works

1.11 Crossing of existing Distribution Pipes and connecting pipes

The work shall be carried out as per the directions of Engineer-In-Charge.

1.13 Testing and Commissioning

1.13.1 Commissioning

After successful pipe laying and other pre-commissioning tests after physical completion, the pipeline shall be commissioned by the Contractor. Dynamic commissioning shall be made in conjunction with or after the commissioning of the respective system. If any test result shows noticeable variation from the specification requirements for the system the Contractor shall immediately take steps to rectify the deficiency without any extra cost. The Contractor shall test and commission the system. On satisfactory testing, the system shall be taken over by the

Engineer-In-Charge and a taking-over certificate shall be issued by the Engineer-In-Charge, provided all defects and/or deficiencies noticed are rectified to the satisfaction of the Engineer-In-Charge. Generally, the timing of most of the commissioning tests will depend on the availability of the respective pumps, the water and power availability at the pumping station and the completion of the reservoir. Should the supply of water from the pumping station fail or should any other event beyond the Contractor's control interfere, the commissioning shall be during such a number of operational periods as the Engineer-In-Charges may consider equivalent. Any repairs or replacement require during this period shall be done by the Contractor.

The Contractor shall allow for commissioning to be conducted at any time during the commissioning period under the Contract.

- no leaks in pipes, joints, specials and valves
- all valves are properly installed and operational
- execution of the entire work including finishing according to the drawings and the specifications
- submission of as built drawings

1.14 Other Services:

Contractor shall take the necessary precautions to avoid the damage to other services such as water supply lines, telephone cables, electrical cables, storm water drains etc. in case of any damages to any of the services, contractor shall be responsible for restoring the facilities in bare minimum time at his own cost. However the services fouling the alignment and requiring shifting shall be paid to the contractor as per actual work done.

CONTRACTOR **EXECUTIVE ENGINEER-(NW)-II**

CONDITIONS FOR SEWER WORKS

1. Normally work should be taken up from downstream end.

2. Before starting the work, L-Section of the work along the alignment Up to connection point shall be prepared and bench mark be fixed at various intervals.

3. The alignment shall be given in reaches depending upon the resources and arrangement of contractor and to give minimum inconvenience to the residents. No claim of any kind shall be entertained in this regard.

4. Materials being used shall be as per specifications and no compromise is allowed in this respect. Testing of materials has to be done as per CPWD specifications and record shall be kept.

5. RCC pipes bearing ISI certification mark shall be used. The pipes shall be tested as per I.S. code 458 and the rubber rings as per I.S. 5382. Pipes shall be tested in the factory as well as at the site of work in the presence of Engineer-in-charge or hissubordinate. At the site of work the pipes shall be dismantled so as to ascertain the quantity of steel, as per requirement. Necessary payment for the pipes dismantled shall be made to the contractor at the rate given in the bill of quantity after deducting Salvage value of the steel.

6. Only ISI marked S.F.R.C. manhole frame and covers shall be used and shall bear the making as under or as per approval of Engineer-in-Charge:
   i) SEWER
   ii) DELHI JAL BOARD
   iii) YEAR OF MANUFACTURING
   iv) H.D./E.H.D.(as per B.O.Q)
   v) NAME OF MANUFACTURER.

7. All the pipes shall be loaded/ unloaded with suitable arrangements with mechanical devices like cranes, chain pulley blocks etc. and will not be unloaded on tyres. The pipes shall be so stacked/placed along the alignment that the flow of traffic is not affected.

8. Contractor shall have to get the joint of pipes (minimum 3 nos. joint in a row) tested at ground level before the lot of pipes supplied by a firm (manufacturer) is allowed to be laid. The Engineer-in-Charge reserves the right to cancel the supply of pipes froma particular suppliers, if the joints of pipes supplied by him are found not to be water tight and contractor has to get the pipes from a different manufacturer having ISI mark and the same test is to be repeated before allowing the use of pipes, after approval of Engineer-in-Charge.

9. Only such reach shall be given to the contractor which can be controlled, keeping into consideration the availability of cement, labour and other materials with the contractor.

10. Before taking up the work of excavation, the contractor shall provide proper barricading of the trenches with salballies and G.I.sheets painted with red and white stripes, from all sides, as per specifications so as to avoid the access of the traffic (pedestrians and Vehicular) to the place of work. Payment will be made as per Bill of Quantity.

11 The contractor will also provide luminous painted warning notice boards with flickering light arrangements at least 100 meters before the approach to the area of working place on either side, at his own cost.

12. Necessary levels as per L-Section shall be given by the contractor or his authorized site Engineer and the same will be checked by the site staff of the department before the

contractor is allowed to proceed for excavation. Contractor shall be fully responsible for correct levels even after the execution of work. If they are found wrong, the work will be rejected and no payment for the defective work shall be made by the department. The contractor shall make good the work and the payment will be made only for the work done as per specifications.

13. The contractor has to take the permission from the authorities for plying the vehiclesfor carriage of material / machinery / earth etc. No claim will be entertained if the authorities restrict the timings and days of movement of vehicles. However, DJB shall provide necessary assistance for obtaining requisite permission from the concerned authorities.

14. Contractor shall have to make his own arrangement for dewatering of spring tidal, rain water seepage from the existing drains/ sewer / broken water mains, open drains or rain water collecting and the lack water at his own cost and nothing will be paidextra for the same.

15. Nothing extra will be paid for providing and maintaining approach roads / slip roads for taking men and material to the site of work and for temporary diversion of traffic at all the road crossings to the full satisfaction of Engineer-in-Charge.

16. **Laying of Pipes**

16.1 Pipe shall be brushed thoroughly. Soket and spigat should be cleaned and then rolled into the trenches carefully. The rates shall be inclusive of lead upto 50 m, shifting,lowering and placing in position. The pipe shall be lowered into the trench with the help of lifting and lowering equipments like chainpulley blocks, tackles, cranesetc so that the ends of the pipes are not damaged.

16.2 R.C.C. pipes should be laid over bedding of concrete after the same has set.

16.3 Payment for supply of RCC pipes shall be made in proportion to the work of laying & jointing.

17. **Construction of Manholes**

The construction of manholes shall be done as per drawings of the department. The contractor shall provide necessary template, form work to achieve the proper shape and the size of manhole.

18. **Testing of sewer lines**

All pipe line shall be tested before being put into commission as under:

a) Hydraulic test shall be performed by filling the sewer line with water and raising the head to the required pressure. The required water level shall be maintained for sufficient time.

b) In case sewer line is laid below sub-soil water level, its testing shall be done when all the well point equipments/pumping units are removed from the trenches.

c) 20% of the cost of laying of sewer line shall be with held till such time the testing isdone to the full satisfaction of the Engineer-In charge.

19. **Precautions to be observed for Sewerage Works during Monsoon**

Works of construction of deep sewers shall be stopped during the Monsoon Season. However, the work of laying shallow sewer works inside lanes/streets of the colonies can be taken up, provided SE is satisfied that continuation of the work in a length not exceeding 100 mtrs., is not going to cause inconvenience to the public.

Immediately after showers, be it a working day or holiday, the Contractor and JE/AEmust inspect the works under progress or which have already been completed in the recent past and if there is any settlement in the back filled earth, the same shall be immediately got attended by getting required back filling. If barricading is required, the same shall be got done immediately.

20. **CCTV survey**

For sewer lines of size 250 mm dia and 300 mm dia CCTV survey shall be carried out for a length of 5%. And for the sewer line having size more than 300 mm dia but less than 600 mm dia the CCTV survey shall be carried out to an extent of 10% .Disc test for the balance length shall be carried out to ensure that there is no missing link/pardi/debries in the line before release of the final payment. In case any defect is noticed in the sample length the entire length of the sewer line shall be checked with CCTV.

CCTV survey shall be carried out for the entire length of the sewer lines having size 600mm dia and above. The quoted rates for the above shall be inclusive of the above operation and requirement. ------% of the cost of the item of Providing/laying/jointing of the sewer line shall be kept on hold till such time the testing is completed to the satisfaction of the Engineer-in-charge.

21. **Handing over**

Cleaning / desilting of pipe line and manholes after completion of work , shall be done by the contractor at his own cost before finally handing over to the concerned maintenance wing of the department, along with 3 sets of completion drawings showing alignment, GLs, ILs, details of manholes etc. of the sewer lines. 3 sets of the same shall also be submitted to the Engineer-in-Charge for record.

22. "The successful bidder shall ensure that the safety measure mentioned in the contract condition and PEMS Act and their Rehabilitation Rule, 2013 are followed strictly. In case of any accident/death, the contractor shall be liable to pay minimum compensation of Rs. 10 Lakh in accordance with the Hon'ble Supreme Court verdict dated 27.03.2014 in Writ Petition No. 2003 (Safai Karamchari Andolan and Others Vs UOI & ors.) and as provided in the PEMS Act 2013. In case of failure, DJB shall have the right to make the compensation and recover the amount from the contractor. Further DJB reserves the right to debar the firm tendering/black listing if the above condition is not adhered to be the firm/contractor."

The following measures must therefore be ensured to prevent any accident:-

1. Erection of signboard & caution board at the time of construction and on the above installations.
2. Erection of barbed wire fencing or suitable barriers around the above sites
3. Construction of CC Platform around the well casing, in case boring of tubewells
4. Capping of well assembly by welding steel plate/strong cap to the casing pipe with bolts and nuts.
5. The tube well should not be left uncovered in case of pump repair.
6. Filling of mud pits and channels after completion of works.
7. Filling up abonded bore wells by clay/sand/boulders/pebbles/drill cutting etc. from bottom to ground level.
8. On completion of the drilling operations at a particular location, the ground condition should be re stored as before the start of drilling.
9. In case a bore well/tube well is abandoned at any stage , a certificate must be issued by the concerned Executive Engineer that the abandoned bore well/tube well has been properly filled up to the ground level.
10. The display Board (in Hindi) with Dos and Don'ts must be erected on each crucial installation

CONTRACTOR EXECUTIVE ENGINEER (NW)-II

Bedding and side fill material should have the following general properties for HDPE Pipe

Flexible pipes like PE pipes are assisted in the carrying of vertically imposed loads by the support given by the bedding and side fill materials, which as the pipe deflects transfer the loads from the backfill and ground surface to the native soil adjacent to the pipe. Whilst achieving this, the bedding and side fill materials must also control the deformation of the pipe under load to acceptable levels, hence the bedding material gains at most importance; hence the site and material should be as stated below:

- It should be easy to scrape or shovel to form a bed on which to lay a pipe, and also be easy to distribute uniformly beneath the haunches of a pipe by tamping; Uniformity of support and proper alignment of the pipe require a trench bottom of stable soils and free of protruding rocks. Good practice often requires over-excavation and replacement of the foundation material with a suitably-graded soil mixture to inhibit migration of fines and subsequent loss of pipe support.
- Approximately 4 in. (100 mm) of bedding should be placed and compacted on the foundation to equalize load distributions along the invert of the pipe. The pipe can be placed on the bedding then backfilled under the haunches (As shown in Fig. 8). While not common, shaped bedding that conforms to the outside of the pipe also can be used typically, the bedding equal to one-third the pipe O.D. should be loosely placed, while the remainder shall be compacted to a minimum 90% of maximum density.
- The largest particle size should not be excessive in relation to the pipeline diameter otherwise impact damage and concentrated point loading can occur;
- It should not contain particles with sharp edges when used with those pipes or pipe coatings that are susceptible to damage;
- The grading should be such that water passing through will not encourage fine materials to be carried away and thus reduce the support for the pipeline compacted;
- It should not cause corrosion or degradation of the pipes, fittings, coatings and jointing materials with which it is in contact;
- It should be sufficiently stable, when laid and compacted, to support the pipeline in the correct position both during and after laying;
- It should be chemically durable and not react with, the soil, groundwater, pipe or coating
- Large clay masses should be kept as dry as possible after excavation and broken up not exceeding 10% of the pipe diameter.
- Hence, the preference for granular bedding material is based on this being more or less self compacting and producing adequate support with little attention to the compaction.

In general PE pipes should be bedding on a continuous layer

- Sand, free from rocks or other hard or sharp retained on a 13.2 mm sieve.
- Gravel or crushed rock rounded (no sharp material) of suitable grading up to a max. size of 15mm.
- The excavated material, free from rocks and broken up such that it contains no day lumps greater than 75mm which would prevent adequate compaction.
- Pipe bedding for PE pipe should be an angular material, with the material tamped under the haunches of the pipe.

Where the pipe is to be laid through rock or ground of variable consistency, the trench should be excavated approx. 75mm-100mm below its normal depth, and a bedding material as specified above placed before the pipe to provide a bed of suitable consistency or a CC layer of 75mm shall be laid at the bottom of the trench to support the pipe.
Where the pipe is to be laid through contaminated ground then the soil should be checked to determine if it would be chemically aggressive to PE pipes. If so, the aggressive material should be removed and imported bedding and backfill should be used as specified above.

Given the significance of sidewall support, consideration must be given to the locations where flexible pipes are installed. Flexible pipes should not be used in areas where future adjacent excavations are likely. These excavations could expose or weaken the bedding envelope supporting the pipe.

Pipes in highly compressible soils should where feasible be avoided. Where this is not possible, only granular beds (as shown) should be permitted and the use of a geo-textile filter on the floor of the trench should be considered to prevent contamination of the bedding materials. The granular bedding material

shall be laid on and enclosed within a geo-textile filter fabric. Filter fabric used for shall consist of long-chain synthetic polymer fibers composed of at least 85 percent by mass polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, includingselvedges. The fabric shall be stabilized against ultra-violet light, inert to commonly uncounted chemicals and chemical properties of the in-situ soil and water. Where filter fabric is used to enclose granular surrounds, the fabric will be placed on the prepared trench information and carefully supported during pipe laying operations. When the pipe has been laid complete with surround to the correct level the filter fabric shall be closed over the top of the surround by forming a 'lap' of minimum width 500mm. All membrane joints shall be overlapped a minimum of 500m.

If the above cannot be done due to site constraints, the pipeline should be run inside on a casing pipe that extends at least 10 ft (3m) past the contaminated area on both ends. The casing pipe may be fused HDPE or another piping material such as welded steel/RCC/PSC that does not have gasketed joint.

Where the information of the trench is of silt or soft clay and is below the natural water table a 75 mm blinding layer of sand shall be substituted for the specified bedding material directly above formation and carefully compacted on site.

2 Backfilling

Trenches shall be backfilled immediately after the pipes have been laid and the jointing material has hardened. The backfill soil shall be clean, free from boulders, large roots, excessive amounts of sods or other vegetable matter, and lumps. Backfilling upto 300 mm above the top of the pipe shall be carefully done and the soil thoroughly rammed, tamped or vibrated in layers not exceeding 150 mm, particular care being taken to thoroughly consolidate the materials under the haunches of the pipe. Approved pnenumatic or light mechanicltamping equipment can be used.

The haunching area of the backfill envelop provides the majority of the resistance against soil and traffic loadings. The backfill material should be installed uniformly in layers, or lifts, on each side of the pipe. Larger, more angular backfill materials can usually be placed in thicker layers than materials with smaller, rounder particles. The backfill should be shovelled under the pipe, taking care to fill voids. If compaction is required, it should be conducted in such a way that the pipe alignment is not disturbed. Backfill construction should continue up to the pipe centre/springline to complete the haunch area. The soil in the haunch area from the foundation to the pipe Centre/springline provides significant support to the pipe and reduces pipe stresses.

Compaction level of the soil directly above the haunch, from the pipe centreline / springline to the top of the pipe grade level, has negligible effect on pipe stresses. Compaction of the soil in this area is not necessary unless required for pavement structures.

Filling of th3e trench shall be carried out simultaneously on both sides of the pipe in such a manner that unequal pressures do not occur. Low plasticity materials may be used for backfilling. In practice, fine-grained, inorganic, low to medium plasticity materials (ML and CL) is discouraged since compaction must take place at or near optimum moisture content to achieve the required density and thereby provide proper pipe support. Since, these materials may not be suitable under high fills, surface wheel loads, or heavy construction equipment, High plasticity clays and silts are not recommended for initial backfill.

For all sewer pipelines a Sheet / tape in deep red colour (continuous over pipelines and at joints) shall be lapped at a minimum of one metre, placed over the centre line of the pipeline at 600mm below finished surface level during backfilling and compaction operations to identify pipe. Sheet /Tapes shall be durable and detectable by electro-magnetic means using low output generator equipment. They shall remain legible and colour fast in all soil conditions at pH values of 2.5 to 11.0 inclusive. The sheet / tapes shall be flexible with a minimum width of 150mm and thickness of 150 microns.

3 Compaction Strategies and Equipment

The performance of flexible pipe largely depends on the quality of the compacted fill in the embedment zone. The denser the till, the more likely gravity loads of surcharge and live wheel loads will be attracted away from the pipe by the soil adjacent to the pipe. Furthermore, the denser the fill the lesser the tendency towards pipe ovality. Density is measured in kg/m3, Mg/m3.

A flexible pipe will perform in a stable and predictable manner as a pipe/soil composite structure when properly bedded throughout the embedment zone. After first connecting the pipe and checking for grade and alignment, the haunching material at the underside of the pipe should be uniformly placed and tamped to the required compacted density before placing the remainder of the embedment materials. Properly compacted soils in these haunch locations can prevent pipe deformations.

However, heavy compaction equipment should not be used until the fill over the crown of the pipe is at least 150-300mm.

All embedment materials should be worked to insure uniform compaction. Handheld mechanical tampers are preferred between the pipe and trench wall. If necessary, vibratory equipment is preferred for the clean coarse-grained crushed stone, gravels and sands. Consolidation of cohesion less material by watering (jetting or puddling) should only be used under controlled conditions and when approved by the engineer.

During placement and compaction of the embedment side fill, care must be taken to avoid elongation of the vertical diameter of the pipe in excess of the manufacturer's recommendation.
In case of high embankment, after filling the trench upto the top of the pipe in the above said manner, a loose fill of a depth equal to external diameter of the pipe shall be placed over the pipe before further layers are added and compacted.
The granular material shall be carefully laid and compacted at the sides of pipes (as shown in Table-1) according to one of the following methods for alternative types of compaction plant as agreed with

Table-1- Methods for Compaction

Surround Material	Max. Layer Thickness in mm	Alternative Methods (Minimum Number Material Thickness of Passes of Compaction Plant)		
		Hand Rammer	Vibrating Plate	100 kg. Power Rammer
Gravel	200	2	2	2
Sand	150	3	4	4

CONTRACTOR **EXECUTIVE ENGINEER (NW)-II**

B.Q.NIT 13/1

Name of Work:- Improvement of sewerage system by making interconnection of sewer line at Pandito wali gali Pooth Kalan in AC-07 Bawana under EE(NW)II

S. No.	DESCRIPTION OF ITEM	QTY.	UNIT	RATE	AMOUNT
1	Providing and fixing 2 meter high MS sheet barricading with frame of angle iron 40x40x6 mm every post to be welded with MS channel ISLC 100X50X6.4 MM horizontal i/c making of hole in the channel for providing embedding of 16 mm dia round torque bars in the road as per drawing	60.00	metre	294.80	17688.00
2	Cutting of bitumious road and taking out soling matteling i/c sorting screening and staking with in a lead of 50m i/c cost of barricading and chowkidar.	5.00	cum	519.00	2595.00
3	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge. Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	6.00	cum	997.05	5982.30
4	Demolishing brick work including stacking of serviceable material and disposal of unserviceable material within 50 metres lead: In cement mortar	5.00	cum	842.75	4213.75
5	Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m inwidth or 10 sqm on plan), including dressing of sides and ramming ofbottoms, lift upto 1.5 m, including getting out the excavated soil anddisposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	68.20	cum	166.40	11348.48
6	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials. All kinds of soil	34.80	cum	51.75	1800.90
7	making arrengment for sharing supported to side of the trench by providing /driving/installing in position by driving of ISMB 300x100 mm at 1.20 m c/c with guide angle /iron of size 125x100 mm up to depth of 2.0 mtr. Lower than excavation level of trench up to design depth fixing/placing M.S plate in between I.S.M.B guide welded M.S plate having from of angle 40x40x5 mm and 1.5 mm thik 18 gauge M.S plate at the suitable length and width on each face of the suitable length and width on each face of the trench I.S.M.B shell be started by propped or 50nos. M.S plate of 1.5 mtr. c/c nuts,bolts,plates to be complete the system i/c removal of retired arrengement after laying of sewer line in part of a whole detail as per draewing.	48.00	sqm	809.50	38856.00
8	Providing leak proof Roka in 150 mm dia to 300 mm dia running sewer line with earth filledin empty cement (PVC) bags i/c removal of the same after complition of work.	2.00	Nos.	396.50	793.00
9	Hire charges of Pump set of capacity 4000 litres/hour i/c cost of servicing/operating staff and s/o lubricants oil.	50.00	shift	755.00	37750.00

10	Desilting and taking out of silt/dabris,rubbish etc. from manhole manually including all cost labour, material , T&P, watch and ward , caution board, etc, but excluding cost of dewatering (The silt/debris shell be carted to muncipal ground or as directed by engineer-in-charge) any damage to the manhole shell be rectified at its own cost. 0.90 m dia, depth up to 1.65 m.	2.80	cum	946.30	2649.64
11	Providing and supplying of class SN 8 structured wall polyethylene piping system(pipe with online/offline coupler and elastomeric sealing ring) with non- smooth External Annular Corrugated and Smooth internal Surface (double Wall) for non-pressure underground sewerage & drainage application as per EN: 13476-3/IS 16098 (Part-2):2013 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the departmental stores etc. complete: 250 mm inner diameter & 290 mm Outer diameter	10.00	metre	1258.10	12581.00
12	Lowering, laying and jointing of class SN 8 structure wall (External Annular Corrugated & smooth internal surface) Polyethelene piping and fitting with the help of coupler (online / offline) attached with one end of pipes, sliding over the elastomeric sealing rubber ring placed on the specified valley of the corrugation at the spigot end , lowering the same into the treanch, laying on the lower bedding (constructed at bottom of treanches) at prescribed gradient, depth & alignment, testing the water tightness of the joints, ensuring the continuity tests of specified pipe segments etc . complete as per drawing, specifications & detailed engineering, including carriage of pipe & fittings from site stacks to the place of laying etc. as per direction of Engineer-in-charge. 290 mm outer dia DWC HDPE Pipe	10.00	metre	52.20	522.00
13	Supplying and filling in plinth with sand under floors, including watering,ramming, consolidating and dressing complete.	1.80	cum	917.75	1651.95
14	Providing and Stacking at site precast concrete manhole cover with steel fiber of ISI mark conferming to IS 12592 part 1 of EHD-35 with matching frame of class EHD-35, IS 12592 part II with 875 mm external dia and clear 560 mm internal dia.	2.00	each	1422.85	2845.70

15	"Constructing brick masonry circular manhole 5"0" or 1.52m dia. At bottom and 1"10"or 0.56m dia. At top depth up to IL 7"6" or 2.28m built in brick work with extruded burnt sewer bricks conforming to IS-4885-1988 in curved in cement mortar 1:4 (1 cement:4 coarse sand) excluding excavation and soling but including 12" or 0.30m thick foundation cement concrete 1:2:4 (1 cement:2 coarse sand :4 graded stone aggregate 20mm nominal size) including centering and shuttering and fixing SFRC manhole cover and frame (Heavy Duty) 560mm internal dia. fixed in cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) and 12mm thick cement plaster both inside and outside with cement mortar 1:4 (1 cement: 4 coarse sand) and inside plaster to be finished with a floating coat of neat cement. Making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and all complete as per departmental drawing and as directed by Engineer-in-Charge. NOTE: 1. Cement required ? 13.71 Qtl/Each 2. Cost of manhole frame and cover shall be paid separately. 3. Cost of providing and fixing plastic encapsulated foot rest shall be paid separately. "	1.00	each	38209.00	38209.00
16	"Extra per meter depth of 5?0? or 1.52 meter circular manhole built in brick work with extruded burnt sewer bricks conforming to IS-4885-1988 curved in cement mortar 1:4 (1 cement : 4 coarse sand) 12mm thick cement plaster both inside and outside with cement mortar 1:4 (1 cement: 4 coarse sand) and inside plaster to be finished with a floating coat of neat cement and all complete as per departmental drawings and as directed by Engineer-in-Charge. (Cost of providing and fixing of plastic encapsulated footrest shall be paid separately) Beyond 7?6? or 2.28m and up to IL 13?8? or 4.16m. (Cement required?3.50 Qtl/meter depth) "	1.73	Per metre depth	17308.30	29943.36
17	Fixing of SFRC M/hole frame and cover, 560 mm dia HD-20/EHD-35	2.00	each	49.20	98.40
18	Hiring and running charges of Diesel Generator 100/125 KVA i/c cost of servicing/operating staff and s/o lubricants oil.	40.00	hour	348.45	13938.00
19	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone gregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement and making necessary channels for the drain etc. complete : For pipes 350 to 450 mm diameter	3.00	each	463.45	1390.35
20	Providing orange colour safety foot rest of min 6 mmthick plastic encapsulated as per IS 1786 having minimum cross section as 23x25 and cover over all min length 263 mm and width as 165 mm with min 112mm space between protruded legs having 12mm tread on top, surface by ribbing or chequering besides necessary and adequate anchoring projection on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical	10.00	each	327.90	3279.00
21	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	54.56	cum	125.75	6860.92

22	Carriage of material by mechanical transport i/c loading/unloading & stacking within 50 m lead Upto 5.km				
	Building rubbish	16.00	cum	119.33	1909.28
23	Providing and laying 75mm thick compacted bed of dry brick aggregate of 40mm thick nominal size including spreading, well ramming, consolidating and grouting with Jamuna sand including finishing smooth etc. complete as per direction of Engineer-in-charge.	35.00	sqm	141.35	4947.25
24	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specificationsand directions of Engineer-incharge. (The panel shuttering work shall be aid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately).	5.25	cum	6912.15	36288.79
25	Installation of product pipe by Auger Boring method including making of entry and exit pits , all related civil works like excavation, horing/strutting, etc, shielded excavation through auger boring process lowering of pipe sgment in the jacking pit, laying and jointing of product pipeline through jacking process from the jacking pit and restoration of site after project complete except the cost of the pipe. (upto 100 meter installation length)				
	above 450 mm dia upto 600 mm dia	20	mtr.	10798.33	215966.60
26	Providing Mild Steel Pipes / specials fabricated / manufactured out of MS plate of steel grade Fe410 as per IS 3589:2001; internally coated with polyurethane coating and external / outside epoxy coating ; minimum thickness of M.S. Plate as specified complete in all respect, with upto date amendments in relevent IS codes and as directed by Engineer-in-charge.(for manual pipe jacking and auger boring method. 500 mm nominal dia (clear internal dia) of special with 8 mm thick plate internnaly coated with polyurethane coating and external/outside epoxy coating	20	mtr.	9815.98	196319.60
27	Plugging of existing sewer line and manhole with 2nos M.S. sheets 6mm thick with angle iron frame and braces shutters to be shutted with wodden struts and filling the manhole with empty (PVC)bags filled up to with earth up to suitable depth to avoid leakage .The sewage on O/s side to be pumped with suitable nos and capacity of pumps till the work is completed so as to keep reduced the pressure to be required extent to the plugged manhole . Necessary arrangement to be made for pumping of any leakgae noticed in the manhole or to re-plug in the case heavy leakage . The steel shutters and the earth filled PVC cement bags shall be removed after the completion of work and then the manhole shall be desilted as per satisfaction of Engineer - in - Charge				
	400 mm dia to 550 mm dia	2	each	10159.40	20318.80

Total	**710747.07**
Say Rs.	**7,10,747/-**

B.Q.NIT 13/2

Name of work:-Making interconnection of 800 mm dia M.S. RWTW main with B.P.S. Holambi Kalan in AC-01 Narela under EE(NW)-II

S.No.	Discription of item	QTY	UNIT	RATE	Amount
1	P/F 2.00 mt high M.S sheet barricading with frame of angle iron 40x40x6 mm every post to be welded with M.S channel IS.L.C 100x50x6.4 mm horizantal I/c making holes in the channel and for providing embedding of 16 mm dia round torque bass in the road as per drawing	20.00	mtr	294.80	5896.00
2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer-in-charge.1:3:6 or richer mix	3.00	cum	997.05	2991.15
3	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sum on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed. All kinds of soil	57.00	cum	125.95	7179.15
4	Supply of M.S. pipe Made out of 8 mm thick MS plate i/c welding, cutting, painting both side with black anticorrosive bitumstick paint of approved brand and tested to a head of 15 kg/Sqm. Conforming to IS 3589/1981, IS 7322-1974, IS 784-1978 ans relevant codes i/c cost of plate and carriage at site complete as directed by Engineer-in-charge. (actual weight will be paid)	1408.33	kg	59.70	84077.30
5	S/o M.S spls. Made out of 8 mm thick MS plate painting both sides with black anticorrosive bitumstick paint of approved brand and tested to a head of 15 kg/Sqm, conforming to IS 3589/1981, IS 7322-1974, IS 784-1978 and relevant codes i/c cost of plate and carriage at site complete as directed by Engineer-in-charge.(actual weight will be paid)	177.17	kg	61.70	10931.39
6	Providing cast iron double flanged manually operated sluice valve generally conforming to IS: 14846 having body , door,dome , gland in graded cast iron to IS 210 Gr.FG -200 four faces and spindle nut of leaded tin bronze to IS 31S Gr. LTB 2 inside screw non- rising stainless steel to AISI 410 spindle Valve suitable for a maximum working pressure of 10 kg cm2 (seat test) & body tested to 15 kg cm2. Flanged drilled to IS: 1538 table 4 & 6 valves tested by closed and method only. complete as per satification of Engineer-in-charge. (make IVC/ Kirloshkar/VAG).				
	700 mm dia	1	each	491065.00	491065.00
7	Welding by gas or electric plant including transportation of plant at site etc. complete.	18063.13	cm	2.85	51479.92
8	Hire charges of Pump set of capacity 4000 litres/hour.or 32 KL per day, i/c cost of operating staff and s/o lubricant oil.	83.00	Shift	755.00	62665.00

9	Hydraulic Excavator (3D) with driver and fuel i/c cost of servicing/operating staff and s/o lubricants oil.	1.00	shift	7549.75	7549.75
10	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	45.60	cum	125.75	5734.20
11	Extra for every additional lift of 1.5 m or part thereof in. All kinds of soil.	24	cum	51.75	1242.00
12	Fixing in position CI sluice valve and providing flange joints (2 Nos.) with bolts, nuts,rubber insertion etc. all complete is engineer-in-charge 700 mm dia	2	each	6641.2	13282.4
13	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
	1:4:8 (1 cement : 4 coarse sand(zone-III) : 8 graded stone aggregate 40 mm nominal size)	1.80	Cum	4478.15	8060.67
14	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
	Cement mortar 1:4 (1 cement : 4 coarse sand)	10.21	Cum	4970.30	50746.76
15	12 mm cement plaster of mix :				
	1:4 (1 cement : 4 coarse sand)	30	sqm	180.85	5425.50
16	Centring and shuttering including strutting, propping etc. and removal of form for :				
	Suspended floors, roofs, landings, balconies and access platform	11.77	Sqm	422.30	4970.47
17	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				
	1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	2.39	Cum	6215.35	14854.69
18	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete up to plinth level.				
	Thermo-Mechanically Treated bars of grade Fe-500 D or more.	239	kg	56.60	13527.40
19	Supplying and stacking at site precast cement manhole cover of with steel fibre of ISI mark confirming IS 12592 Part I EHD-35 with matching frame of class EHD -35 IS 12592 Part II with 875 mm external dia & clear 560 mm internal dia.	2	each	1408.75	2817.50
20	Fixing of SFRC M/hole frame and cover, 560 mm dia HD-20/EHD-35	2	each	49.20	98.40
21	Carriage of material by mechanical transport i/c loading/unloading & stacking within 50 m lead Upto 5.km				
	Building rubbish	3	cum	119.33	357.99
22	Laying in position M.S. pipes /steel cylinder reinforced concrete pipe suitable for rubber ring jointing or welding or flanged jointing (excluding cost of pipe)	14.08	Qtl.	152.8	2151.42

23	Laying in position M.S. specials /steel cylinder reinforced concrete pipe suitable for rubber ring jointing or welding or flanged jointing (excluding cost of pipe)	1.77	Qtl.	284.2	503.03
24	Hiring of generator 100 KVA/125 KVA including ocst of operating staff and lubricant oilo and diesel also	24	Hour	348.45	8362.80
				Total	**855969.89**
				Say Rs.	**8,55,970/-**

B.Q.NIT 13/3

Name of work :-Engagement of S.G.Beldars on contract basis for maintenance of sewer line in AC- 13 Rohini under EE(NW)II.

Description of Items	Qty	Unit	Rate	Amount
Engagement of labour/SG.beldar for maintenance of sewerage system (working at of 8 Hrs. per day) including removal of blockage from sewer line, desilting of sewer manhole removal of silt from site to dumping ground etc. with the help of khapachies, bundth, cotton sutli, genti, kanta, safety belt and other safety equipments as per safety code all in working conditions (10 Nos. /day) for 6 months.	1800	each		

B.Q.NIT 13/4

Name of work:-P/F 600 mm dia S/V at Swatantra Nagar Narela in AC-01 Narela under EE(NW)-II

S.No.	Discription of item	QTY	UNIT	RATE	Amount
1	Providing & erecting 1.6m high corrugated G.I. Sheets barricading supported on safeda ballies 100mm dia. Two metre high placed at 2.5m c/c corrugated G.I. sheets fixed with nails of required length and dia to safeda ballies i/c excavating holes of size 0.3x0.3x0.4m getting out the excavated soil and then returning the soil i/c consolidating by ramming and watering etc. all complete i/c disposal of surplus excavated earth with in a lead of 50m, lift upto 1.5m and paining on full suface of C.G.I. Sheet (on one side) with bright paint of red & white coloure in vertical strips 0.3m wide alternately as directed by Engeneer-in-Charge. (The barricading dismantled on completion of the work shall remain the property of contractor)	22.40	sqm	31.35	702.24
2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge. ?Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	3.78	cum	997.05	3768.85
3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	22.68	cum	166.40	3773.95
4	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials. All kinds of soil	7.56	cum	51.75	391.23
5	Providing cast iron double flanged manually operated sluice valve generally conforming to IS: 14846 having body , door,dome , gland in graded cast iron to IS 210 Gr.FG - 200 four faces and spindle nut of leaded tin bronze to IS 31S Gr. LTB 2 inside screw non- rising stainless steel to AISI 410 spindle Valve suitable for a maximum working pressure of 10 kg cm2 (seat test) & body tested to 15 kg cm2. Flanged drilled to IS: 1538 table 4 & 6 valves tested by closed and method only. complete as per satification of Engineer-in-charge. (make IVC/ Kirloshkar/VAG)				
	600 mm dia	2	each	256236.35	512472.70
6	Fixing in position CI sluice valve and providing 2 Nos. flanged joints with bolts, nuts, rubber insertion etc. All complete including testing of joints 600 mm dia S/V	2	each	5235.50	10471.00
7	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS : 8329 :				
	600 mm diameter pipe	2	mtr.	8853.10	17706.20
8	Labour for cutting C.I. pipe with steel saw.				
	600 mm diametre C.I. pipe.	4	each cut	628.25	2513.00

9	Hire charges of Pump set of capacity 4000 litres/hour.or 32 KL per day, i/c cost of operating staff and s/o lubricant oil.	80.00	Shift	755.00	60400.00
10	Providing push-on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket :				
	600 mm dia pipes	4	each	693.70	2774.80
11	Providing and laying D.I. Specials of Class K - 12 suitable for mechanical jointing as per IS : 9523				
	Upto 600 mm dia	2.6	qtl	16207.45	42139.37
12	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	22.68	cum	125.75	2852.01
13	Constructing masonry Chamber in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm. top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :				
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.				
	120x120X100 cm inside,	2	each	16334.65	32669.30
14	Providing and laying D.I. specials of class K-12 suitable for push-on jointing as per IS : 9523:				
	Upto 600 mm dia	6.05	quintal	15394.40	93136.12
15	Carriage of material by mechanical transport i/c loading/unloading & stacking within 50 m lead Upto 5.km				
	Building rubbish	3.78	cum	119.33	451.07
16	Providing and laying 75mm thick compacted bed of dry brick aggregate of 40mm thick nominal size including spreading, well ramming, consolidating and grouting with Jamuna sand including finishing smooth etc. complete as per direction of Engineer-in-charge.	12.60	sqm	141.35	1781.01

17	Providing and laying in position ready mixed plain cement concrete, with cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, excluding the cost of centering, shuttering and finishing, including cost of curing, admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Note : 1) Excess/less cement used than specified in this item is payable/ recoverable separately.				
	All works up to plinth level.				
	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum).	2.52	cum	6190.70	15600.56
				Total	**803603.41**
				Say Rs.	**8,03,603/-**