NOTICE INVITING E-TENDER

For

SPECIAL REPAIR OF FIRE FIGHTING AND OBTAINING FIRE NOC OF HOSPITAL BUILDING FOR ESIC HOSPITAL, JAJMAU, KANPUR-UTTAR PRADESH (PACKAGE-1)

NIT No.: WAP/ENVT/ESIC/SR-KANPUR/2024/01

WAPCOS Limited
(A Government of India Undertaking)
Plot No-76-C, Sector-18, Gurugram-122015
Telephone- 0124-2341253, 2397396
E-mail:esic@wapcos.co.in

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VOLUME– I

TECHNICAL BID

SECTION I

NOTICE INVITING TENDER

NIT No.: WAP/ENVT/ESIC/SR-KANPUR/2024/01 ; Dt.20.12.2024

Employees State Insurance Corporation has awarded WAPCOS Limited, for providing the Services. WAPCOS Limited (A Govt. of India Undertaking), for and behalf of Medical Superintendent, Employees State Insurance Corporation (ESIC) Hospital, Jajmau – 208010 Kanpur, Online Submission of Technical document, Tender Fees, EMD etc. and Financial Bid as detail in Tender Percentage mode from experienced and competent bidders, meeting prescribed qualifying criteria as mentioned in tender document. This is an Open E-tender in two Cover systems. The contract will be for a period of (Construction work) 6 months , Defect liability Period (One year).

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1.	Name of Work:	:	**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1)**
2.	Location	:	Jajmau Kanpur, Uttar Pradesh.
3.	Website for viewing tender/ Corrigendum/ Addendum	:	www.eprocure.gov.in
4.	Website for e-Procurement / downloading and uploading Tender document/ Corrigendum/ Addendum	:	https://etenders.gov.in/eprocure/app
5.	Estimated Value of Work	:	**Rs. 1,54,62,907/- (excluding GST)** (Rupees One Crores Fifty-Four Lakhs Sixty-Two Thousand Nine Hundred and Seven Only)
6.	Tender submission fee	:	Rs.10,000/- (Non-refundable) in form of Demand Draft in favour of WAPCOS Limited payable at Gurgaon/New Delhi
7.	Amount of Earnest Money Deposit	:	**Rs. 3,09,258/- (Three Lakhs Nine Thousand Two Hundred and Fifty-Eight Only)** 2% of the Estimated cost (Refundable) in the form of RTGS/NEFT/D.D./Banker's cheque/FDR/Insurance Surety Bond in favors of 'WAPCOS Limited' payable at Gurugram, Haryana. For online through NEFT/RTGS. **WAPCOS LIMITED, Indian Overseas Bank** **A/C NO. 193502000000075** **IFSC: IOBA0001935** *The proof of online payment is to be attached with Technical Proposal.*
8.	Project Completion Period	:	180 days from the Date of Award or as per the requirement of /WAPCOS Limited. The same shall be extend or

			decreased.
9.	Validity of Bid/Tender	:	90 Days
10.	Pre-bid Meeting and deadline for seeking Clarifications	:	NA
11.	Last date & time for online submission of Technical & Financial Bid.	:	**31.12.2024 up to 15:00 hours**
12.	Offline Submission of Tender Fees, EMD etc. as detailed asked in Tender Documents	:	**31.12.2024 up to 13:00 hours** in the office of **CHIEF EXECUTIVE DIRECTOR (Envt& CM) WAPCOS Limited, Environment Division, 76-C, Sector -18, Gurgaon- 122 015**
13.	Online opening of Technical Bid	:	**01.01.2025 at 15:30 hours**
14.	Online opening of Financial Bid	:	Will be intimated to Eligible Bidders
15.	WAPCOS Contact information	:	**Chief Executive Director (Envt& CM) , WAPCOS Limited, Environment Division,76-C, Sector -18, Gurgaon- 122 015 Telephone: 0124-2397396;** E-mail: esic@wapcos.co.in
16	Deadline for Clarification by the Applicants	:	Queries to be sent through E-mail on esic@wapcos.co.intill **28.12.2024** upto 18:00 hours
17	Signing of Contract		The Successful tendered will have to execute an agreement in stamp paper worth 0.1% of contract agreed amount in prescribed form.
If the office of WAPCOS Limited happens to be closed on the last date and time mentioned for any of the event, the said event will take place on the next working day at the same time and venue.			

The tender document has to be downloaded from above specified websites. Bidders are advised to visit above specified websites regularly for updates, i.e., Addendum/Corrigendum, if any. All the Addendum/Corrigendum up to submission of tender shall be the part of tender. The full details about the work, specifications, Drawings if any, terms and conditions etc. shall be available in the Tender Document. The tender document has to be submitted online on website https://etenders.gov.in/eprocure/app

The purpose of this NIT is to provide interested parties with information to assist the preparation of their bid. While WAPCOS Limited has taken due care in the preparation of the information contained herein, and believe it to be complete and accurate, neither it nor any of its authorities or agencies nor any of its respective officers, employees, agents or advisors give any warranty or make any representations, expressed or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it.

Further, WAPCOS Limited does not claim that the information is exhaustive. Respondents to this NIT are required to make their own inquiries/ surveys and will be required to confirm, in writing, that they have done so and they did not rely solely on the information in NIT. WAPCOS Limited is not responsible if no due diligence is performed by the bidders.

IMPORTANT POINTS

1.1 The bidder should be an Indian Registered Company under Companies Act 1956/Proprietorship Company/ Partnership Company.

1.2 All Bidders are hereby cautioned that Bids containing any deviation as described in Clauses of "Instructions to Bidders" shall be considered as non-responsive and shall be summarily rejected.

1.3 WAPCOS Ltd. reserves the right to accept or reject any or all bids without assigning any reasons thereof .No Bidder shall have any cause of action or claim against the WAPCOS. For rejection of his Bid and WAPCOS will not be bound to accept the lowest or any other tender.

1.4 No reimbursement of cost of any type or on any account will be paid to persons or entities submitting their Bid.

1.5 All information submitted in response to this NIT shall be the property of WAPCOS Limited and it shall be free to use the concept of the same at its will.

1.6 It is hereby declared that WAPCOS is committed to follow the principle of transparency, equity and competitiveness in public procurement. The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tenderer/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected. This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the WAPCOS.

1.7 At the first instance the Technical Bids will be evaluated by the Tender Evaluation Committee (TEC) constituted for the purpose by WAPCOS. At the second stage, the financial bids of only those bidders, who qualify in the Technical Bid will be opened by the Committee members. The bid opening committee after evaluation of the Financial bids, will give its specific recommendations regarding the lowest responsive bid, which is to be selected along with a comparative statement duly signed by the members of the bid opening committee

For and on behalf of WAPCOS LIMITED

(Sd/-)
CED (Envt& CM)
WAPCOS Limited

SECTION–II

INSTRUCTIONS TO BIDDER

1.0 SPECIAL INSTRUCTIONS TO BIDDERS FOR E-TENDERING

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at :https://etenders.gov.in/eprocure/app

A. REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://etenders.gov.in/eprocure/app) by clicking on the link "**Online bidder Enrolment"** on the CPP Portal which is free of charge.
2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID /password and the password of the DSC /e-Token.

B. SEARCHING FOR TENDER DOCUMENTS

1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
2) Once the bidders have selected the tenders they are interested in; they may download the required documents / tender schedules. These tenders can be moved to the respective "My Tenders" folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

C. PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.

D. SUBMISSION OF BIDS

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3) Bidder has to select the payment option as "offline" to pay the tender fee as applicable and enter details of the instrument.
4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the

details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

6) The server time (which is displayed on the bidder's "dashboard") will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
8) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
9) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

E. ASSISTANCE TO BIDDERS

1) Any **queries relating to the tender document and** the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7CPP Portal Helpdesk.
3) **For any assistance regarding the Tender Document and/or term and conditions the bidders may contact Dr.Aman Sharma (CED- Envt& CM) or Mr. Deepender Lamba (Sr. Engineer), WAPCOS Limited**, Environment Division, Plot No-76-C, Sector-18, Gurugram: Phone Number: 0124-2397396, 0484-2413544; Email:esic@wapcos.co.induring office hours.

2.0 INSTRUCTIONS TO BIDDER

The purpose of these instructions to serve as a guide to Bidders for preparing offer for carrying out the project in all respect.

i. Submission of a tender by a tenderer implies that the tenderer has read this notice and all other Tender Documents and has made himself aware of the scope, the specifications, conditions of contract, local conditions and other factors having bearings on the execution of the work.

ii. WAPCOS Limited desires that the bidders, suppliers, and Sub-contractors under the Project, observe the highest standard of ethics during the performance, procurement and execution of

such contracts. In pursuance of this requirement, WAPCOS Limited:

Defines, for the purposes of this provision, the terms set forth below:

a. **"Corrupt Practice"** means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

b. **"Fraudulent Practice"** means any act of submission of forged documentation, or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation, or to succeed in a competitive bidding process;

c. **"Coercive Practice"** means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

d. **"Collusive Practice"** means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly actions of another party.

Will reject the award of Contract, even at a later stage, if it determines that the bidder recommended/ selected for award/awarded has, directly or through an agent, engaged in Corrupt, Fraudulent, Collusive, Or Coercive Practices incompetent for the Contract;

Will sanction a party or its successors, including declaring ineligible, either indefinitely or for a stated period of time, to participate in any further bidding/procurement proceedings under the Project, if it at any time determines that the party has, directly or through an agent, engaged in Corrupt, Fraudulent, Collusive, Or Coercive Practices in competing for, or in executing, the contract and

The party may be required to sign an Integrity Pact, if required; and WAPCOS Limited will have the right to require the bidders, or its suppliers, contractors and consultants to permit WAPCOS Limited to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by WAPCOS Limited at the cost of the bidders.

The Bidder must obtain for himself on his own responsibility and at his own expenses all the information which may be necessary for the purpose of making a bid and for entering into a contract, must examine the Drawings, must inspect the sites of the work, acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto. WAPCOS Limited will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

iii. The Contract shall be governed by each SECTION OF TENDER DOCUMENT i.e. instructions to bidders, selection & qualifying criteria, scope of works, General Conditions for Contract (GCC), Special Conditions for Contract (SCC), Annexure, Forms, Drawings if any, Technical Specification, Addendum / Clarification / Corrigendum etc. and all other Conditions mentioned in the tender documents.

iv. All Bidders are hereby explicitly informed that conditional offers or offers with deviations from the Conditions of Contract, the bids not meeting the minimum eligibility criteria, Technical Bids not accompanied with Bid Security Declaration and Tender Document Fees of requisite amount in acceptable format, Bids in altered/modified formats, or in deviation with any other requirements stipulated in the tender documents are liable to be rejected.

v. The bidders shall not tamper or modify any part of the tender documents in any manner. In case in part of the bid is found to be tampered or modified at any stage, the bids are liable to be rejected, the contract is liable to be terminated and the full earnest deposit/retention money/performance guarantee will be forfeited and the bidder will be liable to be banned from doing any business with WAPCOS Limited.

vi. Incomplete Price bid shall be liable to be rejected, at the discretion of WAPCOS Limited. The total bid price shall cover the entire scope of works covered in the tender.

1.0 EARNEST MONEY DEPOSIT (EMD)

The Earnest Money Deposit in favor of WAPCOS Ltd payable at Gurgaon, Haryana of the amount **as mentioned in NIT** will be submitted only in the following forms:

- Through RTGS/ NEFT in the name of WAPCOS Limited, Name of Bank: Indian Overseas Bank, Bank Account Number: 193502000000075 and IFSC Code: IOBA0001935
- Banker's cheque of a Scheduled Bank.
- Demand Draft of a Scheduled Bank.
- Fixed Deposit Receipt (FDR) of a Scheduled Bank in the name of WAPCOS Ltd.

The EMD of unsuccessful tenderer(s) will be refunded after finalization of tender process. The Earnest Money deposit submitted by the successful tenderer shall be retained by WAPCOS Limited until the Performance Bank Guarantee (PBG) is submitted.
The successful Tenderer shall accept the LOI within 15 (Fifteen) days from receipt of the same, failing which the EMD shall be forfeited and the award of work may be liable to be cancelled.

If any tenderer withdraws or make any changes in his offer already submitted before the expiry of the above validity period or any extension thereof without the written consent of the company, the EMD amount will be forfeited for such act of the tendered. WAPCOS Limited reserves the right of forfeiture of Earnest Money deposit (EMD) in case of the successful tenderer.

(i) After opening of Tender, revokes his tender within the validity period or increases his earlier quoted rates.
(ii) Does not commence the work within the period as per LOI/Contract. In case the LOI/Contract is silent in this regard then within 15 days after award of contract.
(iii) EMD shall not carry any interest.

Failing in submission in required format, bid will be rejected.

4.0 COST OF BIDDING

The Bidder shall bear all costs associated with the preparation and submission of the Bid as well as costs associated for facilitating the evaluation. WAPCOS Limited shall in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

5.0 LANGUAGE OF BID

The Bid and all related correspondence and documents relating to the Project shall be in English language only. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate English translation which shall be certified by a qualified translator. Any material that is submitted in a language other than English and which is not accompanied by an accurate English translation will not be considered.

6.0 CURRENCY OF BID

Bid prices shall be quoted in Indian Rupees (INR). Tender submitted by tenderer shall remain valid for acceptance as mentioned in NIT from the date set for submission of the tender. The tenderer shall not be entitled within the said period to revoke or cancel or vary the tender given or any item thereof, without the consent of WAPCOS Limited. In case tenderer revokes, cancels, or varies his tender in any manner without the consent of WAPCOS Limited, within this period, his earnest money will be forfeited.

7.0 ANNEXURES

The Bidder follow the guidelines as per "**Section of Annexures"** mentioned in tender document. WAPCOS Limited reserves the right to reject any or all the bids or to cancel the Tender, without assigning any reason(s) whatsoever.

- **The Bill of quantity of tender along with rate and amount is enclosed at Section Financial Proposal Volume-II**
- **The Performa for filling the percentage is given in Microsoft excel sheet. Bidder shall fill the percentage only upto two decimal place in soft format. The bidder will upload same filled percentage quote in soft Microsoft Excel copy during uploading of financial bid.**

For and on behalf of WAPCOS LIMITED

(Sd/-)
CED (Envt& CM)
WAPCOS Limited

SECTION-III
SELECTION AND QUALIFYING CRITERIA

1.0 SITE VISIT

Intending Bidder(s) have to visit site to inspect and examine the site and its surroundings at his own cost and satisfy themselves before submitting their bids as to, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder(s) shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder(s) shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder(s) implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

2.0 QUALIFYING CRITERIA: ONLINE TECHNICALBIDSUBMISSION

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

The Technical Bid shall be uploaded with coloured scanned copies of following documents. All the documents must be Serial wise as stated below along with check list and clearly marked page no. on each page (MANDATORY).

S.No.	Particular of Document	Yes	No	Page Nos.
a)	Authorization Letter to sign the Tender on bidder's original letter head or Power of attorney			
b)	Scanned copy of EMD as mentioned in NIT.			
c)	Scanned copy of Demand Draft for Tender Fee			
d)	Letter of Transmittal on bidder letter Head to submit Technical Bid **(Form-A)**			
e)	Yearly Turnover and Audited Balance Sheet for Last 5 (five) years ending on the financial year 2023-24. **(Form-B)**			

S.No.	Particular of Document	Yes	No	Page Nos.
	• The contractor should not have incurred any loss (profit after tax should be positive) in more than two years during last five years ending 2023-24 duly audited by the Chartered Accountant. • Turnover: Average annual financial turnover should be at least 50% of the estimated cost of work during the last 3 consecutive financial years ending 2023-24. **This should be duly audited by the Chartered Accountant doing Statutory Audit and mentioned UDIN Number on that certificate.** • Net worth of the Company/firm as on 31st march of previous Financial Year, should be positive • Audited Full Balance Sheet and Profit & loss Statement of Bidder for last 5 years should be verified by Chartered Accountant and mentioned UDIN			
f)	The bidder should have a Solvency of an Amount equal to 40% of the estimated cost after the date of publication of tender. ***The Solvency Certificate shall be issued by the Nationalized/Scheduled Commercial bank after the date of publishing of Tender document.*** The solvency certificate should be marked to tender Authority of WAPCOS Limited along with Name of the project (Form C)			
g)	The contractor should have satisfactorily completed the works as mentioned below during the last seven years ending previous day of last date of submission of tender. Details should be enclosed **(Form D)**			
	One similar assignment costing not less than 80% of the estimated cost of work put to tender Or Two similar assignments of order value each not less than 50% of the estimated cost of work put to tender. Or Three similar assignments of order value each not less than 40% of the estimated cost of work put to tender			

S.No.	Particular of Document	Yes	No	Page Nos.
***Similar work refers to "Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building at ESI hospital/Dispensary" (Please submit copy of Purchase Order / Work order and completion certificate issued by the client).** **Note:** 1. Completion certificates and work orders with bill of quantities should be enclosed which clearly indicates the name and nature of work, value of work and time period. 2. TDS (26 AS) downloaded from the web matching with the experience certificate should be attached. 3. All the eligible similar works executed and submitted by the bidders may be inspected by a committee which may consist of client or any other authority as decided by NIT approving authority. 4. Experience certificate issued by the same management/ sister concern/ joint venture etc. are not acceptable.				
h)	Name, Address, details of the Organization, Name(s) of the Owner/Partners/Promoters and Directors of the firm / company. **(Form-E)**			
i)	The Blacklisting policy of the company is available on the official website of WAPCOS Limited. The bidder have to mandatorily furnish an undertaking addressing the same to Engineer-in-charge in the form of certificate to abide the contents of Blacklisting Policy. The format of undertaking is provided. Any action in violation of the blacklisting policy or to the certificate furnished shall result in cancellation of tender at the stage before or after the award of work. **Bidder should submit the declaration (Form-F)**			
j)	Letter of understanding the project site on bidder letter Head **(Form-G).**			
k)	'No Deviation Certificate' in prescribed format in Bidder's Letter Head **(Form-H).**			
l)	Consent Letter to execute the Integrity Pact along with Rs. 100 stamp paper (Integrity agreement) **(Form-I).**			

S.No.	Particular of Document	Yes	No	Page Nos.
m)	Goods and Service Tax (GST): Bidders are advised to get themselves registered for GST in at different place, which are mandatory, as per Govt. of India notification regarding GST. Accordingly, bidder shall submit relevant documents if already registered. If not registered till date of submission of bid, bidder will give undertaking on bidder letter head stating that they will get registered in GST as per Govt. norms before submission of bills.			
n)	The bidder should be an Indian Registered Company under Companies Act 1956/ Proprietorship Company/Partnership Company/Limited company private or public or corporation. **Joint Ventures/Consortia of firms are not accepted**. Copy of Certificate of Incorporation/ Registration/ Partnership Deed or any other relevant document, as applicable, should be submitted along with a copy of address proof.			
p)	Copy of PAN Number, GST registration, EPF & ESIC registration (copy of registration)			
q)	Each page of the all Volume of Tender document & Addendum/ Corrigendum shall be signed (use scanned signature) by the bidders submitting the Tender in token of his/their having acquainted himself/ themselves and accepted the entire tender documents including various conditions of contract. Any bid with any of the documents not so signed is liable to be rejected at the discretion of WAPCOS Limited. **(Do Not Submit with the document of Offline Submission)**			
r)	The experience in similar nature of work should be supported by certificates issued by the client's organization.			
s)	Escalation: All rates as per Estimated cost fixed for entire contract period as well as extended period for completion of the works. No escalation shall be applicable on this contract. As manpower or other works which are not part of this boq shall be carried out as per the requirement of ESIC/WAPCOS Limited			

S.No.	Particular of Document	Yes	No	Page Nos.
t)	The Bidder should have valid class contractor license in composite category or Civil/Electrical from PWD or registration certificate (CPWD or any government department).			
u)	Undertaking regarding the Validity of the bid should be 120 days and after the award of work, if he (firm) is not taking over the work than his firm can be blacklisted for 2 years in participating of WAPCOS future tender.			
x)	Bidder shall submit the undertaking for understanding regarding that Defect Liability Period shall be one year.			
xi)	Bar Chart to explain the execution of work			
	*The agency/contractor shall comply to the requirements, stipulations in the codes, standards and regulation Central Electricity authority/ Delhi Norms. (Measurements relating to Safety and Electric Supply) Regulations 2010 with all its amendments up to date. • If the bidder fail to submit any of the above document than it is liable to be rejected at the discretion of WAPCOS Limited. • All uploaded tender document should be readable. In case the uploaded tender documents are found not readable even after zoom, the bidder will stand ineligible. • If a tendered quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub-head in percentage rate tender, the tender shall be treated as invalid.			

Financial Bid or traces of information regarding financial bid should not be included in the Technical Bid. If found so, the bid shall be summarily rejected.

Technical Bids are to be submitted to determine that the bidder has a full comprehension of the tendered work. Where a bidder's technical submittal is found non - compliant with the requirement or work, it may be rejected. The Financial Bid will be opened only for the agencies whose technical bids are accepted by the competent authority.

3.0 OFFLINE SUBMISSIONS OF DOCUMENTS

The Bidder shall submit following Document offline also:

Proposal should be submitted in sealed envelope (Technical bid in envelope) by 3:00 PM on 31.12.2024 at the following address:

Dr. Aman Sharma
Chief Executive Director (Envt& CM)

76-C, Institutional Area,
Sector-18, Gurgaon,
Haryana-122015
Tel: 0124-2397396
Email id: esic@wapcos.co.in

NOTE-1: **The offline submissions as mentioned above shall be submitted on WAPCOS address mentioned in NIT on or before date & time mentioned in NIT otherwise bids will be rejected.** ***Also, SFMS system will be used for receiving confirmation of Inward bank Guarantee.***

Indian Overseas Bank
NHB Gurgaon, Branch Code- 1935, IFSC Code- IOBA0001935, beneficiary- WAPCOS Limited

Note-2:

1. Financial Bid should not be included in the Technical Bid. if found so, the bid shall be summarily rejected.
2. The offline submissions as mentioned above shall be submitted on WAPCOS address mentioned in NIT as per date & time mentioned in NIT otherwise bids will be rejected. Also, SFMS system will be used for receiving confirmation of Inward bank Guarantee. Indian Overseas Bank NHB Gurgaon, Branch Code- 1935, IFSC Code- IOBA0001935, beneficiary- WAPCOS Limited
3. The proposal shall be in indelible ink and shall be signed by the Bidder or duly authorized person(s).
4. Proposals received by facsimile shall be treated as defective, invalid and rejected.
5. Only detailed proposals complete in all respect and in the forms indicated shall be treated as valid.
6. No Bidder is allowed to modify, substitute or withdraw the Proposal after its submission
7. Proposal shall be submitted in two parts (Technical & Financial). Each page of all parts should be page numbered and in conformance to the eligibility qualifications should be clearly indicated using an index page. The proposals should not contain any irrelevant or superfluous documents
8. The bidder who has qualified the minimum qualifying criteria as outlined in NIT, shall be liable for financial opening.
9. The bidder with lowest financial bid among those who passed the technical evaluation shall be liable for award of work.
10. Evaluation Committee may, at its discretion, call for additional information from the Bidder(s). Such information has to be supplied within the given time frame, otherwise the Evaluation Committee shall make its own reasonable assumptions at the total risk and cost of Bidders and the proposal is likely to be rejected. Seeking clarifications cannot be treated as acceptance of the Proposal.
11. After the public opening of Bids, information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the Award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.

4.0 CONTENTS OF FINANCIAL BID

The Financial Bid should be uploaded separately before last date & time of submission mentioned in the tender document.

The estimated cost mentioned in NIT is based on the rates of item of works in DSR plus Cost Index of Noida and Non-DSR items on market rate. The quoted rate filled in Schedule of Quantities should include all associated costs with the project including any out of pocket / mobilization expenses, necessary lead or lift associated with and not specified **excluding GST and other taxes., TDS, if any applicable as per Govt. terms, shall be paid by the Contractor.** ***Rates quoted in the price bid shall be exclusive of GST. GST shall be reimbursed on submission of GST submission proof.***

Deduction of TDS and other deductions on payment made to the contractor shall be applicable as per extant rules.

The payment will be made for actual measurements certified by Engineer in Charge at the accepted rates in the price schedule/Bill of Quantities (BoQ).

5.0 OPENING OF FINANCIAL BID

After opening of technical bid, a list of short - listed agencies will be prepared. Thereafter, the financial bids of only the qualified and technically acceptable bidders shall be opened at the notified date & time.

The company reserves the right to waive minor deviations if they do not materially affect the capability of the Tenderer to perform the contract.

6.0 AWARD CRITERIA

After closing of Technical & Financial Bid process, WAPCOS Ltd. will award, the contract to the bidder, whose tender has been determined to be substantially responsive, complete and in accordance with the tender document, and whose total evaluation price for the undertaking the project as detailed in the scope of work is the lowest. If the financial bids of lowest two bidders are equal, then the tender will be treated as cancelled and shall be re-tendered as per the WAPCOS rules.

For & on behalf of Tenderer

(Sd/-)
CED (Envt& CM)
WAPCOS Limited

Signature of the authorized representative:

Name of the agency :

Name and designation :

Contact Details
a) Communication address:

b) E-mail id :

c) Contact Nos. :

SECTION– IV
GENERAL CONDITIONS TO CONTRACT

1.0 GENERAL RULES AND DIRECTIONS

General Rules & Directions	1.	The work proposed for execution by contract will be notified in a form of invitation to tender by publication in Newspapers / or posted on website as the case may be. This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit and Performance guarantee to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills.
	2.	In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a Power of Attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.
	3.	Receipts for payment made on account of work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm, in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.
	4.	Any person who submits a tender shall fill up the usual printed form, stating at what rate he is willing to undertake each item of the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, including conditional rebates, will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelopes. The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees by ignoring fifty paisa and considering more than fifty paisa as rupee one. In case the lowest tendered amount (worked out on the basis of quoted rate of Individual items) of two or more contractors is same, then such lowest contractors may be asked to submit sealed revised offer quoting rate of each item of the schedule of quantity for all sub sections/sub heads as the case may be, but the revised quoted rate of each item of schedule of quantity for all sub sections/sub heads should not be higher than their respective original rate quoted already at the time of submission of tender. The lowest tender shall be decided on the basis of revised offer. If the revised tendered amount (worked out on the basis of quoted rate of individual items) of two or more contractors received in revised offer is

		again found to be equal, then the lowest tender, among such contractors, shall be decided by draw of lots and the lowest contractors those have quoted equal amount of their tenders. In case of any such lowest contractor in his revised offer quotes rate of any item more than their respective original rate quoted already at the time of submission of tender, then such revised offer shall be treated invalid. Such case of revised offer of the lowest contractor or case of refusal to submit revised offer by the lowest contractor shall be treated as withdrawal of his tender before acceptance and 50% of his earnest money shall be forfeited. In case all the lowest contractors those have same tendered amount (as a result of their quoted rate of individual items), refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of Bid Security Declaration of each lowest contractors. Contractor, whose earnest money is forfeited because of no submission of revised offer, or quoting higher revised rate(s) of any item(s) than their respective original rate quoted already at the time of submission of his bid shall not be allowed to participate in the retendering process of the work.
	5.	The designated committee will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money shall thereupon be given to the contractor who shall thereupon for the purpose of identification sign copies of the specifications and other documents. In the event of a tender being rejected, the earnest money shall thereupon be returned to the contractor remitting the same, without any interest.
	6.	WAPCOS shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.
	7.	The receipt of an accountant or clerk for any money paid by the contractor will not be considered as any acknowledgment or payment to the officer inviting tender and the contractor shall be responsible for seeing that he procures a receipt signed by the officer inviting tender or a duly authorized Cashier.
	8.	The memorandum of work tendered for and the schedule of materials to be supplied by the WAPCOS and their issue-rates, shall be filled and completed in the office of the officer inviting tender before the tender form is issued. If a form is issued to an intending tenderer without having been so filled in and incomplete, he shall request the officer to have this done before he completes and delivers his tender.
	9.	The tenderers shall sign a declaration under the officials Secret Act 1923, for maintaining secrecy of the tender documents drawings or other records connected with the work given to them.
	10.	In the case of Percentage Rate Tendersbelow/above, only percentage quoted shall be considered. Any tender containing item rate below/above the rates quoted is liable to be rejected. However, if a discrepancy is found, the rates which correspond with the amount worked out by the contractor shall unless

		otherwise proved be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct.Where the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount. In event no rate has been quoted for any item(s), leaving space both in figure(s), word(s), and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.
	11.	In the case of any tender where unit rate of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer is unable to provide satisfactory explanation, such a tender is liable to be disqualified and rejected.
	12.	All rates shall be quoted on the tender form. The amount for each item should be worked out and requisite totals given. Special care should be taken to write the rates in figures as well as in words and the amount in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word 'Rs.' should be written before the figure of rupees and word 'P' after the decimal figures, e.g. 'Rs. 2.15 P' and in case of words, the word, 'Rupees' should precede and the word 'Paise' should be written at the end. Unless the rate is in whole rupees and followed by the word 'only' it should invariably be upto two decimal places. While quoting the rate in schedule of quantities, the word 'only' should be written closely following the amount and it should not be written in the next line.
	13.	i. **The contractor shall submit an irrevocablePerformance Guarantee of 3% (Three percent)of the tendered amount** (This guarantee shall be in banker's cheque of any scheduled bank/DD/PBG of any scheduled bank/pay order of any scheduled bank (in case bank guarantee is less than Rs.10000/-) or government securities or fixed deposit receipts or bank guarantee of any scheduled bank or in accordance with the prescribed form) in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within 7 days period from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period of 7 days on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in Charge. However, in case last day of submission of PG happens to be a bank holiday the last day of submission shall be the next working day. i. **The Performance Guarantee shall be valid up to the stipulated date of completion including 60 days beyond that and claim period should be one year after the date of validity.** In case the time for completion of work gets enlarged, the contractor shall get the

		validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest. However, in case of contracts involving maintenance of building and services/any other work, then 50% of Performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately. ii. The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which WAPCOS is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of: a. Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee. b. Failure by the contractor to pay WAPCOS any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge. iii. In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full. iv. The Performance Guarantee shall be returned to the Contractor soon after the completion of works and issuance of the completion certificate. **Security Deposit**-The contractor whose tender is accepted will also be required to furnish by way of Security Deposit for the fulfilment of his contract, an amount equal to 2.5% of the tendered value of the work. The Security deposit will be collected by deductions from the running bills as well as final bill of the contractor at the rates mentioned above. WAPCOS Ltd. shall deduct Security Deposit of 2.5%. The Security Deposit will be refunded after satisfactory completion of defect liability period. i. **Defect liability period shall be one year.**
	14.	On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.

	15.	All the taxes applicable in respect of this contract shall be payable by the Contractor and WAPCOS will not entertain any claim whatsoever in respect of the same. All billing by the Contractor should be in the name of "**WAPCOS Limited, ESIC Hospital Project Office, Kanpur, Uttar Pradesh" -**208010 **"** bearing the GSTIN:09AAACW0764A1ZN. In this type of billing, GST will be applicable as per the GST slabs. The GST charged shall be reimbursed by WAPCOS Limited on submission of following documents (proof of GST paid and filing): 1) GSTR-1 2) GSTR-3 3) GST Challan. **If WAPCOS does not get GST input credit, WAPCOS is not liable to pay GST to the awarded bidder.** The bidder/contractor acknowledges that under the present Contract/Agreement/Work Order/Arrangement, WAPCOS is only working as intermediary between ESICbeing Principal Employer/ Client and bidder/ contractor. Thus the bidder/contractor unconditionally acknowledges that the payments under the present contract/Agreement/Work Order/Arrangement shall be made proportionately by WAPCOS only on back to back basis i.e. after 21 days subject to receipt of payment from ESICbeing Principal Employer/Client. The bidder/contractor also unconditionally agree that in the event the payment or part thereof, under the present Contract/Agreement/Work Order/Arrangement is not received from ESIC, then WAPCOS &/or any of its Employee/Officer shall not be responsible to pay any amount to bidder/contractor. The said condition shall supersede any and all other conditions of Contract/Agreement/Work Order/Arrangement between the parties. **The Contractor / Agency shall submit the bills at the end of every month and payment will be made within 30 (thirty) days of receipt of the bill subject to verification of attendance. All the applicable taxes and duties will be deducted from each bill. Along with Bill, Contractor will submit the consumable item sheet duly verified by engineer In charge WAPCOS/ESIC/Satisfactory person. Payment terms will be same as per Work Order received by WAPCOS from ESIC. The copy of the same is attached in NIT.**
	16.	The contractor shall give a list of WAPCOS employees related to him.
	17.	The tender for the work shall not be witnessed by a contractor or contractors who himself/themselves has/have tendered or who may and has/have tendered for the same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.
	18.	The tender for composite work includes, in addition to building work, all other works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads and paths etc. The tenderer apart from being a registered contractor (B&R) of appropriate class, must associate himself with agencies of appropriate class which are eligible to tender for sanitary and water supply drainage, electrical and horticulture works in the composite tender.

	19.	The Agency has to submit the following details of the work in hand				
		Name of Work	Name and particulars where work is being executed	Value of work	Position of works in progress	Remarks
		(1)	(2)	(3)	(4)	(5)
	20.	The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and WAPCOS may in his discretion, without prejudice to any other right or remedy available in law, 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.				

2.0 CONDITIONS OF CONTRACT

Definitions	1.	The Contract means the documents forming the tender and acceptance thereof and the formal agreement executed between the WAPCOS and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-In Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
	2.	In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:- i. **"Client / Employer"** shall mean "WAPCOS Limited", A Government of India undertaking- Ministry of Jal Shakti, on behalf of Medical Superintendent, ESIC Jajmau Kanpur, Employees State Insurance Corporation (ESIC)& include their successors & permitted assigns as well as their authorized officer/ representatives ii. The **"COMPANY / WAPCOS**" shall mean WAPCOS Limited. iii. The expression **works** or **work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional. iv. The **Site** shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract. v. **The Contractor** shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company. vi. **The Engineer-in-charge** means the Engineer Officer appointed by WAPCOS or his duly authorized representative who shall direct,

		supervise and be in charge of the work for the purpose of this Contract vii. **Accepting Authority** shall mean the authority mentioned in Special Conditions of Contract. viii. **Tenderer / Bidder** shall mean the firm/party who intends to participate in this Notice Inviting Tender ix. **Excepted Risk** are risks due to riots (other than those on account of contractor's employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Government's faulty design of works. x. **Market Rate** shall be the rate as decided by the Engineer-in Charge on the basis of the cost of materials and labour at the site where the work is to be executed plus 15% all overheads and profits. The agency has to submit GST bills of materials along with analysis of rates. xi. **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Rates of the government (DSR 2021, PWD SSR 2021-2022 for Civil and DSR 2021/2022 for E&M) hereunder, with the amendments thereto issued up to the date of receipt of the tender. xii. **District Specifications** means the specifications followed by the State Government in the area where the work is to be executed. xiii. The **Contractor/Successful Bidder** shall mean the firm or agency whose bid has been accepted by WAPCOS. xiv. Consultant shall mean any consultant nominated by WAPCOS xv. **Contract value** means the value of the entire work as stipulated in the work order and agreement. xvi. **Date of commencement of work:** The date of commencement of work shall be the date of start within 7 days after award of work or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.
Scope and Performance	3.	Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.
	4.	Headings and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.
	5.	The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, (Not Applicable) and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

Works to be carried out	6.	The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities/ Building Components shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.
Sufficiency of Tender	7.	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 (Not Applicable) Cost quoted in the Schedule of Quantities/ Building Components, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.
Discrepancies and Adjustment of Errors	8.	The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.
	8.1	In the case of discrepancy between the schedule of Quantities/Building Components, the Specifications and/ or the Drawings, the following order of preference shall be observed: - i. WAPCOS and ESIC Agreement and terms and conditions lay over by ESIC time to time. It is attached as Annexure. ii. Letter of Award, along with statement of agreed variation and its enclosures, if any. iii. Special Condition of Contract iv. Scope of Work v. Description of Schedule of Quantities/ Components. vi. Particular Specification and Special Condition, if any. vii. General Condition of Contract viii. Drawings if any. ix. CPWD / MoRTHSpecifications if any. x. Indian Standard Specifications of B.I.S.
	8.2	If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.
	8.3	Any error in description, quantity or rate in Schedule of Quantities or any omission therefrom shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

Signing of Contract	9.	The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall, within 7 days from the stipulated date of start of the work, sign the contract consisting of:- i. The notice inviting tender, all the documents including drawings, if any, forms the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto. ii. Additional Conditions of Contract consisting of: a) Various standard clauses with corrections up to the date stipulated in Additional Conditions of Contract along with annexures thereto. b) Safety Code. c) Model Rules for the protection of health, sanitary arrangements for workers employed WAPCOS or its contractors. d) Contractor's Labour Regulations. e) List of Acts and omissions for which fines can be imposed. iii. No payment for the work done will be made unless contract/ agreement is signed by the contractor. iv. The contract (and the rights and obligations arising out of it) between WAPCOS and the bidder/contractor shall be independent of the contract/Agreement (and the rights and obligations arising out of it) between WAPCOS and ESIC and no contractual relation of any kind exist between and the Contractor by virtue of this NIT/bidding. This condition should supersede any and all other conditions of Contract/Agreement/Work Order/Arrangement between the parties.

3.0 CLAUSES OF CONTRACT

CLAUSE 1: PERFORMANCE GUARANTEE

ii. **The contractor shall submit an irrevocablePerformance Guarantee of 3% (Three percent)of the tendered amount** (This guarantee shall be in banker's cheque of any scheduled bank/DD/PBG of any scheduled bank/pay order of any scheduled bank (in case bank guarantee is less than Rs.10000/-) or government securities or fixed deposit receipts or bank guarantee of any scheduled bank or in accordance with the prescribed form) in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within 7 days period from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period of 7 days on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in Charge. However, in case last day of submission of PG happens to be a bank holiday the last day of submission shall be the next working day.

v. **The Performance Guarantee shall be valid up to the stipulated date of completion plus 60 days beyond that and claim period should be one year after the date of validity.** In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest. However, in case of contracts involving maintenance of building and services/any other

work, then 50% of Performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately.

vi. The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which WAPCOS is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

a. Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.

b. Failure by the contractor to pay WAPCOS any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.

vii. In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full.

viii. The Performance Guarantee shall be returned to the Contractor soon after the completion of works and issuance of the completion certificate.

CLAUSE 1A: RECOVERY OF SECURITY DEPOSIT

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit WAPCOS at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running and final bill till the sum deducted will amount to security deposit of 2.5% of the contract value of the work. This deduction shall be in addition to the 3% performance security submitted. Such deductions will be made and held by WAPCOS by way of Security Deposit unless he/they has/have deposited the amount of Security at the rate mentioned above, in addition to the performance guarantee in the form of Government Securities or fixed deposit receipts. In case a fixed deposit receipt of any Bank is furnished by the contractor to the WAPCOS as part of the security deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the WAPCOS to make good the deficit.

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 the interest arising therefrom, or from any sums which may be due to or may become due to the contractor by WAPCOS 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 fixed deposit receipt tendered by the State Bank of India or by Scheduled Banks endorsed in favour of WAPCOS LIMITED, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills and the final bill of the contractor at the rates mentioned above.

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 lac subject to the condition that amount of such bank guarantee, except last one, shall not be less than Rs. 5 lac. Provided further that the validity of bank guarantee including the one given against the earnest money shall be in conformity with provisions contained in clause which shall be extended from time to time depending upon extension of contract granted under provisions of clause 2 and clause 5.

The Security Deposit shall be released after successful completion of defect liability periodin ESIC for the above said works and period.

The defect liability period shall be one year.

CLAUSE 2: COMPENSATION FOR DELAY

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract completion date or extended date of completion, he shall, without prejudice to any other right or remedy available under the purview of the Contract on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority (whose decision in writing shall be final and binding) may decide on the amount of contract value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 5 or that the work remains incomplete.

If the contractor fails to maintain the required progress to complete the work and clear the site on or before the project completionperiod or extended date of completion, he shall pay or allow WAPCOS to deduct penalty @ 0.5% of the total contract value per week of delay to be computed on per day basis. The total amount of such compensation for delay shall not exceed 10% of the contract value of work. This will also apply to items or group of items for which a separate period of completion has been specified.

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the contract Value of work or of the contract Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the WAPCOS. In case, the contractor does not achieve a particular milestone mentioned in Additional Conditions of Contract, or the re-scheduled milestone(s) in terms of Clause 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of Extension of Time. Withholding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

CLAUSE 3: WHEN CONTRACT CAN BE DETERMINED

Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, inferior

workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

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

ii. If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

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

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

v. If the contractor shall offer or give or agree to give to any person in WAPCOS 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 WAPCOS.

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

vii. If the contractor had secured the contract with WAPCOS as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of Integrity Agreement. viii. If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.

viii. If the contractor 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.

ix. If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.

x. If the contractor assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts

with the entire works or any portion thereof without the prior written approval of the Engineer -in-Charge.

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

a) To determine the contract as aforesaid (of which termination notice in writing to the contractor under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination, the 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 WAPCOS.
b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above courses being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE 3A

In case, the work cannot be started within 15 days due to reasons not within the control of the contractor within 1/8th of the stipulated time for completion of work or one month whichever is higher, either party may close the contract. In case contractor wants to close the contract, he shall give notice to the WAPCOS stating the failure on the part of WAPCOS. In such eventuality, the Performance Guarantee of the contractor shall be refunded within following time limits:

a)	Contract value of work is up to Rs. 45 lac	-	15 days
b)	If the Contract value of work is more than Rs. 45 lac and up to Rs. 2.5 Crore	-	21 days
c)	If the Contract value of work exceeds Rs. 2.5 Crore	-	30 days

CLAUSE 4: CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOT TAKEN UNDER CLAUSE 3

In any case in which any of the powers conferred upon the Engineer-in-Charge by Clause-3 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 work/or any part thereof, paying or allowing for the same in account at the contract rates, or, in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE 5: TIME AND EXTENSION FOR DELAY

The time allowed for execution of the Works as mentioned in NIT or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence within 1 days or from the date of handing over of the site whichever is earlier. If the Contractor commits default in commencing the execution of the work as aforesaid, WAPCOS shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the performance guarantee absolutely.

5.1 As soon as possible after the Contract is concluded, the Contractor shall submit a Time and Progress Chart for each mile stone and get it approved by the WAPCOS. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the Contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per mile stones given in Additional Conditions of Contract.

(a) Project Management shall be done by using project management software for works costing more than Rs. 5 Crore.
(b) The project management shall be done using M.S. Project software for works costing more than Rs. 5 Crore and up to Rs. 20 Crore.
(c) For works costing more than Rs. 20 Crore, project management shall be done using Primavera Software.

PROGRAMME CHART

i) The Contractor shall prepare an integrated programme chart in MS Project/Primavera software for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfilment of the programme within the stipulated period or earlier and submit the same for approval to the Engineer-in- Charge within ten days of award of the contract. A recovery of Rs. 2500/- (for works costing up to Rs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the above programme.

(i) The programme chart should include the following:

(a) Descriptive note explaining sequence of the various activities.
(b) Network (PERT / CPM / BAR CHART).
(c) Programme for procurement of materials by the contractor.

Programme of procurement of machinery / equipment's having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor. In addition to above, to achieve the progress of Work as per programme, the contractor must bring at site adequate shuttering material required for cement concrete and R.C.C. works etc. for three floors within one month from the date of start of work till the completion of RCC work as per requirement of work. The contractor shall submit shuttering schedule adequate to complete structure work within laid down physical milestone.

(ii) If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved programme referred above or after rescheduling of milestones, the contractor shall produce a revised programme within 7 (seven) days, showing the modifications to the approved programme to ensure timely completion of the work. The modified schedule of programme shall be approved by the Engineer in Charge. A recovery of Rs. 2500/- (for works costing uptoRs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the modified programme.

(ii) The submission for approval by the Engineer-in-Charge of such programme or such particulars shall not relieve the contractor of any of the duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

(iii) The contractor shall submit the progress report using MS Project/Primavera software with base line programme referred above for the work done during previous month to the Engineer-in-charge on or before 5th day of each month failing which a recovery Rs. 2500/ -(for works costing uptoRs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the monthly progress report.

5.2 If the work(s) be delayed by: -

(i) force majeure, or
(ii) abnormally bad weather, or
(iii) serious loss or damage by fire, or
(iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or
(v) delay on the part of other contractors or tradesmen engaged by Engineer-in- Charge in executing work not forming part of the Contract, or
(vi) non-availability of stores, which are the responsibility of WAPCOS to supply or
(vii) non-availability or break down of tools and Plant to be supplied or supplied by WAPCOS or
(viii) any other cause which, in the absolute discretion of the Engineer-in-Charge is beyond the Contractor's control.

Then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the authority as indicated in Additional Conditions of Contract but shall nevertheless use constantly his best endeavours to prevent or make good the delay and

shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

5.3 Request for rescheduling of Mile stones and 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 on the prescribed form to the authority as indicated in Additional Conditions of Contract. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.

5.4 In any such case the authority as indicated in Additional Conditions of Contract may give a fair and reasonable extension of time and reschedule the mile stones for completion of work. Such extension or rescheduling of the milestones shall be communicated to the Contractor by the authority as indicated in Additional Conditions of Contract in writing, within 3 months or 4 weeks of the date of receipt of such request respectively. Non application by the contractor for extension of time/ rescheduling of the milestones shall not be a bar for giving a fair and reasonable extension/ rescheduling of the milestones by the authority as indicated in Additional Conditions of Contract and this shall be binding on the contractor.

CLAUSE 6: MEASUREMENTS OF WORK DONE

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

All measurement of all items having financial value shall be entered in Measurement Book/Measurement Sheet 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 authorized representative from time to time during the progress of the work and such measurements shall be signed and dated by the Engineer- in-Charge and the contractor or their representatives in token of their acceptance. If the contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties. If for any reason the contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in Charge or his representative, the Engineer-in-Charge and the WAPCOS shall not entertain any claim from contractor for any loss or damages on this account. If the contractor or his authorized representative does not remain present at the time of such measurements after the contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor.

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

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the 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.

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

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the WAPCOS 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.

It is also a term of this contract that recording of measurements of any item of work 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 over measurement or defects noticed till completion of the defects liability period.

CLAUSE 6A: COMPUTERIZED ELECTRONIC MEASUREMENT BOOK (e-MBs)

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

All measurements of all items having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measurement Book/Measurement Sheet having pages of A-4 size as per the format of the WAPCOS so that a complete record is obtained of all the items of works performed under the contract.

All such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative. After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in- Charge for the dated signatures by the Engineer-in- Charge and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/test checked from the Engineer-in-Charge and/or his authorized representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft

computerized measurements, and submit to the WAPCOS a computerized measurement book, duly bound, and with its pages machine numbered. The Engineer-in- Charge and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks.

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

The contractor shall also submit to the WAPCOS separately his computerized Abstract of Cost and the bill based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the bill. Thereafter, this bill will be processed by the Engineer-In-Charge.

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

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the 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.

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

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

It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and/or its payment in the interim, on account of final bill shall

not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

CLAUSE 7: PAYMENT ON INTERMEDIATE CERTIFICATE TO BE REGARD AS ADVANCE

It is clearly agreed and understood by the contractor that, notwithstanding anything to the contrary that may be stated in the agreement between WAPCOS and the contractor; the contractor shall become entitled to payment for the work subject to the condition that the Contractor completes the work strictly as per specifications and to the subjective satisfaction of ESIC/WAPCOS. The contractor shall not be entitled to claim any compensation/interest from WAPCOS in instances where payment cannot be made to him by WAPCOS due to the above reason and it is reiterated here as in Section IV, 1.0 (15) that no contractual relation of any kind exist between ESIC and the Contractor by virtue of this NIT/bidding.

No payment shall be made for work, estimated to cost Rs. Twenty thousand or less till after the whole of the work shall have been completed and certificate of completion given. For works estimated to cost over Rs. Twenty thousand, the interim or running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the WAPCOS in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Additional Conditions of Contract, in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills, Engineer-in-Charge shall prepare or cause to be prepared such bills in which event no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer-in- Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. The amount admissible shall be paid by 10th working day after the day of presentation of the bill by the Contractor to the Engineer-in-Charge together with the account of the material issued by the WAPCOS, or dismantled materials, if any. In the case of works outside the headquarters of the Engineer- in-Charge, the period of ten working days will be extended to fifteen working days.

All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

Pending consideration of extension of date of completion, interim payments shall continue to be made as herein provided without prejudice to the right of the WAPCOS to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

The Engineer-in-Charge in his sole discretion on the basis of a certificate from the Engineer-In-Charge to the effect that the work has been completed up to the level in question make interim advance payments without detailed measurements for work done (other than foundations, items to be covered under finishing items) up to lintel level (including sunshade etc.) and slab level, for each floor working out at 75% of the assessed value. The advance payments so allowed shall be adjusted in the subsequent interim bill by taking detailed measurements thereof.

In case of composite tenders, running payment for the major component shall be made by Engineer-In-Charge of major discipline to the main contractor. Running payment for minor component shall be made by the Engineer-in-Charge of the discipline of minor component directly to the main contractor.

In case main contractor fails to make the payment to the contractor associated by him within 15 days of receipt of each running account payment, then on the written complaint of contractor associated for such minor component, Engineer in charge of minor component shall serve the show cause to the main contractor and if reply of main contractor either not received or found unsatisfactory, he may make the payment directly to the contractor associated for minor component as per the terms and conditions of the agreement drawn between main contractor and associate contractor fixed by him. Such payment made to the associate contractor shall be recovered by Engineer-in-charge of major or minor component from the next R/A/ final bill due to main contractor as the case may be.

CLAUSE 8: COMPLETION CERTIFICATE AND COMPLETION PLANS

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

CLAUSE 8A: CONTRACTOR TO KEEP SITE CLEAN

When the annual repairs and maintenance of works are carried out, the splashes and droppings from white washing, colour washing, painting etc., on walls, floor, windows, etc shall be removed and the surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc. where the work is done: without waiting for the actual completion of all the other items of work in the contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get this work done at the cost of the contractor either WAPCOS or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days' notice in writing to the contractor.

CLAUSE 8B: COMPLETION PLANS TO BE SUBMITTED BY THE CONTRACTOR

The contractor shall submit completion plan as required vide General Specifications for Electrical works (Part-I internal) 2005 and (Part-II External) 1994 as applicable within thirty days of the completion of the work.

In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs. 15,000 (Rs. Fifteen thousand only) as may be fixed shall be final and binding on the contractor. The contractor shall submit completion plan for water, sewerage and drainage line plan within thirty days of the completion of the work.

In case, the contractor fails to submit the completion plan as aforesaid, the WAPCOS will get it done through other agency at his cost and actual expenses incurred plus Rs. 15,000/- for the same shall be recovered from the contractor.

CLAUSE 9: PAYMENT OF FINAL BILL

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge 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 here-in-under, the period being reckoned from the date of receipt of the bill by the Engineer-in-Charge or his authorized Engineer, complete with account of materials issued by the WAPCOS and dismantled materials.

a)	Contract value of work is up to Rs. 45 lac	2 months
b)	If the Contract value of work is more than Rs. 45 lac and up to Rs. 2.5 Crore	3 months
c)	If the Contract value of work exceeds Rs. 2.5 Crore:	6 months

CLAUSE 9A: PAYMENT OF CONTRACTOR'S BILLS TO BANKS

Payments due to the contractor may, if so desired by him, be made to his bank, registered financial, co-operative or thrift societies or recognized financial institutions instead of direct to him provided that the contractor furnishes to the Engineer-in-Charge (1) an authorization in the form of a legally valid document such as a power of attorney conferring authority on the bank; registered financial, co-operative or thrift societies or recognized financial institutions to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by WAPCOS or his signature on the bill or other claim preferred against WAPCOS before

settlement by the Engineer-in-Charge of the account or claim by payment to the bank, registered financial, co-operative or thrift societies or recognized financial institutions. While the receipt given by such banks; registered financial, co-operative 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, co-operative or thrift societies or recognized financial institutions.

Nothing herein contained shall operate to create in favour of the bank; registered financial, cooperative or thrift societies or recognized financial institutions any rights or equities vis-à-vis WAPCOS.

CLAUSE 10: MATERIALS SUPPLIED BY WAPCOS: Not Applicable

CLAUSE 10A: MATERIALS TO BE PROVIDED BY CONTRACTOR

The contractor shall, at his own expense, provide all materials, required for the works other than those which are stipulated to be supplied by WAPCOS.

The contractor shall, at his own expense and without delay, supply to the Engineer-in- Charge samples of materials to be used on the work and shall get 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 thirty days of supply of samples or within such further period as he may require intimate to 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.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analysed and shall not make use of or incorporate in the work 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 work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

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.

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. The contractor shall at his own expense, provide a material testing lab at site for conducting routine field tests. The lab shall be equipped at least with the testing equipment as specified in Additional Conditions of Contract.

CLAUSE 10B:

(i) SECURED ADVANCE ON NON-PERISHABLE MATERIALS: Not applicable

(ii)MOBILISATION ADVANCE:Not applicable

(iii)PLANT MACHINERY & SHUTTERING MATERIAL ADVANCE:Not applicable

(iv) INTEREST &RECOVERY:Not Applicable

CLAUSE 10C:PAYMENT ON ACCOUNT OF INCREASE IN PRICE / WAGES DUE TO STATUTORY ORDER:Not Applicable

CLAUSE 10CA:PAYMENT DUE TO VARIATION IN PRICES OF MATERIALS AFTER RECEIPT OF TENDER: Not Applicable

CLAUSE 10CC: PAYMENT DUE TO INCREASE/DECREASE IN PRICES/WAGES (EXCLUDING MATERALS COVERED UNDER CLAUSE 10 CA) AFTER RECEIPT OF TENDER FOR WORKS: Not Applicable

CLAUSE 10D: DISMANTLED MATERIAL WAPCOS PROPERTY

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as WAPCOS's property and such materials shall be disposed off to the best advantage of WAPCOS according to the instructions in writing issued by the Engineer-in Charge.

CLAUSE 11: WORKS TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS ETC.

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications, BSI standards and codes, Indian electricity rule 1956, Indian electricity act 2003 and fire safety regulation pertaining to electric applications. The specification with up to date correction on the last date of submission of tender for work. In case specification of any item is not clear, MoRTH Specification, CPWD specification, Indian standard (IS) IRC (Indian Road Congress) specification, NBPDCL specifications with up to date correction slips issued on last date of submission of tender of work is applicable.

The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and 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 specified in Additional Conditions of Contract or in any Bureau of Indian Standard or any other, published

standard or code or, Schedule of Rates or any other printed publication referred to elsewhere in the contract.

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

At least to 10% of prescribed Tests as per Central Public Works Department Manual/IS Codes of construction materials shall be carried out from the outside approved/NABL recognized Laboratory as may be approved by WAPCOS without any extra expenditure to WAPCOS.

The Contractor shall establish a field test laboratory on the site with latest equipment's for carrying out field tests of construction materials and will maintain proper records of all the test results.

CLAUSE 12: DEVIATIONS / VARIATIONS EXTENT AND PRICING

The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for 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 and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work 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 main work except as hereafter provided.

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the Contract value sum being ordered, 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 value plus
ii. 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

12.2(a) Deviations, Extra Items and Pricing

In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper rate analysis, for the work and the engineer-in-charge shall within prescribed time limit of the receipt of the claims supported by rate analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined. Agency has to submit the GST bill of the material as evident of market rate.

12.2(b) DeviationsSubstituted Items and Pricing.

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

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

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

Agency has to submit the GST bill of the material as evident of market rate.

12.2(c) Deviations, Deviated Quantities, Pricing

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in Additional Conditions of Contract, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within prescribed time limit of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined. Agency has to submit the GST bill of the material as evident of market rate.

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

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

12.5 For the purpose of operation of 'Additional Condition of Contract', the following works shall be treated as works relating to foundation unless & otherwise defined in the contract:

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

ii. For abutments, piers and well steining: All works up to 1.2 m above the bed level.

iii. For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/tanks and other elevated structures: All works up to 1.2 metres above the ground level.

iv. For reservoirs/tanks (other than overhead reservoirs/tanks): All works up to 1.2 metres above the ground level.

v. For basement: All works up to 1.2 m above ground level or up to floor 1 level whichever is lower.

vi. For Roads, all items of excavation and filling including treatment of sub base.

12.6 Any operation incidental to or necessarily has to be in contemplation of tenderer while filing tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

12.7 This tender is based upon the estimations on the basis of site conditions (tentative) enclosed with technical specifications and BOQ. WAPCOS Limited reserves the right to vary any individual item to any extent either positive or negative within the scope of work as defined as per the requirement of ESIC/WAPCOS Limited. The decision as to items are within the scope of work shall be of WAPCOS Limited which is final & binding. Therefore in case of variation in quantity as given in BOQ either positive or negative no rate revision is applicable. In case of New Rate or Price of the Substituted/Extra/deduction items shall be derived from any relevant rates or prices in the Contract. New rate or price of the substituted/Extra/deduction items shall be derived from the Delhi Schedule of Rates -2021. In case the rates are not available in DSR, the same shall be derived from the competitive market quotes, obtained by WAPCOS Limited/WAPCOS Limited representative. The contractor's profit and overheads together shall be taken as 15% only. ESI, Bonus, CPoH and EPF etc. as applicable also taken in case of changes in the manpower.

12.8 Contractor shall carry out the extra quantity of work under deviation from the estimated quantity at the rate quoted in the BoQlimited to 25% deviation on each item and for the quantity deviated beyond 25% market rates will be applicable. Execution of such deviation in quantity shall require prior written permission from WAPCOS/ESIC.

12.9 Contractor shall submit the detailed work schedule so as to complete the works considering all the field conditions in accordance with the requirement of the engineer-in-charge. Contractor should also strictly adhere to such schedule mutually accepted to complete the total work within the time period mentioned in the contract.

12.10 The completion cost of any maintenance work/special work shall not exceed 2.00 times the tendered amount and 10% of the sanctioned cost for budgeted works. The Engineer-in-charge shall record reasons for such deviation beyond the contract amount and take necessary approval from competent authority.

CLAUSE 13: FORECLOSURE OF CONTRACT DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK

If at any time after acceptance of the tender, Engineer-in-charge shall decide 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 foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates, full amount for works executed at site.

CLAUSE 14: CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR

If contractor:

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

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

Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge. The Engineer- in-Charge without invoking action under clause 3 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to WAPCOS, by a notice in writing to take the part work / part incomplete work of any item(s) out of his hands and shall have powers to:

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

(b) Carry out the part work / part incomplete work of any item(s) by any means at the risk and cost of the contractor.

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

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

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

If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors' unused materials, constructional

plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.

In the event of above course being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

CLAUSE 15: SUSPENSION OF WORK

(i) The contractor shall, on 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 works 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 or injury to the work already done or endanger the safety 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; or
   (c) For safety of the works or part thereof.
   The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in- Charge.

(ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above:
   (a) The contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;
   (b) If the total period of all such suspensions in respect of an item or group of items or work for which a separate period of completion is specified in the contract exceeds thirty days, the contractor shall, in addition, be entitled to such compensation as the Engineer-in- Charge may consider reasonable in respect of salaries and/or wages paid by the contractor to his employees and labour at site, remaining idle during the period of suspension, adding thereto 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in Charge within fifteen days of the expiry of the period of 30 days.

(iii) If the works or part thereof is suspended on the orders of the Engineer-in-Charge for more than three months at a time, except when suspension is ordered for reason (a) in sub-para (i) above, the contractor may after receipt of such order serve a written notice on the Engineer-in-Charge requiring permission within fifteen days from receipt by the Engineer-in-Charge of the said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the contractor, if he intends to treat the suspension, where it affects only a part of the works as an omission of such part by WAPCOS or where it affects whole of the works, as an abandonment of the works by WAPCOS, shall within ten days of expiry of such period of 15 days give notice in writing of his intention to the Engineer-in-Charge. In the event of the contractor treating the suspension as an abandonment of the contract by WAPCOS, he 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 work in full but which he could not derive in consequence of the abandonment. He 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.

CLAUSE 15A: COMPENSATION IN CASE DELAY OF SUPPLY OF MATERIAL

The contractor shall not be entitled to claim any compensation from WAPCOS for the loss suffered by him on account of delay by WAPCOS in the supply of materials in Additional Conditions of Contract where such delay is covered by the difficulties relating to the supply of wagons, force majeure or any reasonable cause beyond the control of the WAPCOS. This clause 15 A will not be applicable for works where no material is stipulated.

CLAUSE 16: ACTION IN CASE WORK NOT DONE AS PER SPECIFICATIONS

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

If it shall appear to the Engineer-in-charge or his authorized subordinates in charge of the work or to the Chief Engineer in charge of Quality Assurance or his subordinate officers or the officers of the organization engaged by the WAPCOS for Quality Assurance or to the Chief Technical Examiner or his subordinate officers, that any work has been executed with unsound, imperfect, or unskilful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract, the contractor shall, on demand in writing which shall be made within twelve months (six months in the case of work costing Rs. 10 Lacs and below except road work) of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in- Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 2 of the contract (for non-completion of the work in time) for this default.

In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the authority specified in Additional Conditions of Contract may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the

contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

CLAUSE 17: CONTRACTOR LIABLE FOR DAMAGES, DEFECTS DURING DEFECT LIABILITY PERIOD

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within twelve months (six months in the case of work costing Rs. Ten lakhs and below except road work) after a certificate final or otherwise of its completion shall have been given by the Engineer-in- Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall not be refunded before the expiry of twelve months (six months in the case of work costing Rs. Ten lacs and below except road work) after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

The defects liability period will be one years from the date of completion of development and construction works. During this period the Contractor will get the defects rectified without any cost to WAPCOS/ESIC. The Contractor is expected to rectify any defects found in the Works due to defective construction practice or poor quality of work and/or material, for a period of up to 1 years after the completion of work or a period mentioned elsewhere in this contract whichever is higher.

CLAUSE 18: CONTRACTOR 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 Engineer-in-Charge's stores), machinery, tools & plants as specified in Additional Conditions of Contract. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer-in-Charge at the expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

CLAUSE 18A: RECOVERY OF COMPENSATION PAID TO WORKMEN

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

CLAUSE 18B: ENSURING PAYMENT AND AMENITIES TO WORKERS, IF CONTRACTOR FAILS

ln 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, WAPCOS 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 19H or under the C.P.W.D. Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by C.P.W.D. Contractors, WAPCOS 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 WAPCOS under sub-section(2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, WAPCOS 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 WAPCOS to the contractor whether under this contract or otherwise WAPCOS 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 WAPCOS full security for all costs for which WAPCOS might become liable in contesting such claim.

CLAUSE 19: LABOUR LAWS TO BE COMPLIED BY CONTRACTOR

The contractor shall obtain a valid license under the Contract Labour (R&A) 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.

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

Any failure to fulfil these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.

CLAUSE 19A:

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

CLAUSE 19B: PAYMENT OF WAGES

a. The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as defined in the C.P.W.D. 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.

b. 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.

c. 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 Contractor's Labour Regulations made by WAPCOS 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.

d. (i) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfilment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.

(ii) Under the provision of Minimum Wages (Central) Rules, 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one-day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned.

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.12(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.

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

f. The contractor shall indemnify and keep indemnified WAPCOS against payments to be made under and for the observance of the laws aforesaid and the C.P.W.D. Contractor's Labour Regulations without prejudice to his right to claim indemnity from his subcontractors.

g. 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.

h. 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.

i. 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.

CLAUSE 19C:

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per C.P.W.D. 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 a penalty of Rs.200/- for each default 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.

CLAUSE 19D:

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

(1) the number of labourers employed by him on the work,
(2) their working yours,
(3) the wages paid to them,
(4) 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
(5) The number of female workers who have been allowed maternity benefit according to Clause 19F and the amount paid to them.

Failing which the contractor shall be liable to pay to WAPCOS, a sum not exceeding Rs.200/- for each default or materially incorrect statement. The decision of the Engineer-In-Charge shall be final in deducting from any bill due to the contractor; the amount levied as fine and be binding on the contractor.

CLAUSE 19E:

In respect of all labour directly or indirectly employed in the works for the performance of 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 WAPCOS and its contractors.

CLAUSE 19F:

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 or at the rate of Rupee one only a day whichever is greater.

(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) in the Prescribed Form and the same shall be kept at the place of work.

CLAUSE 19G:

In the event of the contractor(s) committing a default or breach of any of the provisions of the WAPCOS, 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 Government a sum not exceeding Rs.200/- for every default, breach or furnishing, making, submitting, filing such materially incorrect statements and in the event of the contractor(s) defaulting continuously in this respect, the penalty may be enhanced to Rs.200/- per day for each day of default subject to a maximum of 5 per cent of the estimated cost of the work put to tender. The decision of the Engineer-in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the contractor(s) is/are not properly observing and complying with the provisions of the C.P.W.D. Contractor's Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R& A) Central Rules 1971, for the protection of health and sanitary arrangements for work-people employed by the contractor(s) (hereinafter referred as "the said Rules") the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that the said Rules be complied with and the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the contractor(s) 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(s). The contractor(s) shall erect, make and maintain at his/their own expense and to approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection 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(s) requiring that the said huts and sanitary arrangements be remodelled and/or reconstructed according to approved standards, and if the contractor(s) 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(s).

CLAUSE 19H:

The contractor(s) shall at his/their 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.

(i) 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.

a. The contractor(s) 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.
b. The contractor(s) shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per each one hundred of the total strength, separate latrines and urinals being provided for women.
c. The contractor(s) 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 sundried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall be at least 15 cm (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.

a. The contractor(s) shall provide each hut with proper ventilation.
b. All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.
c. 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 availability of site with the approval of the Engineer-in-Charge. Back to back construction will be allowed

(iii) Water Supply- The contractor(s) shall provide adequate supply of water for the use of labourers. The provisions shall not be less than two gallons of pure and wholesome water per head per day for drinking purposes and three gallons of clean water per head per day for bathing and washing purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, tanks which may be of metal or masonry, shall be provided. The contractor(s) shall also at his/ their own cost make arrangements for laying pipe lines for water supply to his/ their labour camp from the existing mains wherever available, and shall pay all fees and charges therefore.

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

(v) Disposal of Excreta - The contractor(s) shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the contractor(s) shall make arrangements for the removal of the excreta through the Municipal Committee/authority 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/authority. The contractor shall provide one sweeper for every eight seats in case of dry system.

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

(vii) The contractor(s) shall make necessary arrangements for keeping the camp area 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.

CLAUSE 19I:

The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors' employ upon the work who may be incompetent or misconduct himself and the contractor shall forthwith comply with such requirements. In respect of maintenance/repair or renovation works etc. where the labour have an easy access to the individual houses, the contractor shall issue identity cards to the labourers, whether temporary or permanent and he shall be responsible for any untoward action on the part of such labour. AE/JE will display a list of contractors working in the colony/Blocks on the notice board in the colony and also at the service Centre, to apprise the residents about the same.

CLAUSE 19J:

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

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

CLAUSE 19K: Employment of Skilled / Semi Skilled Workers

The contractor shall, at all stages of work, deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from Industrial Training Institute/NationalInstitute of construction Management and Research (NICMAR)/ National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer in charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will

attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer in Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.

Provided always, that the provisions of this clause, shall not be applicable for works with estimated cost put to tender being less than Rs. 5 crores.

CLAUSE 20: MINIMUM WAGES ACT TO BE COMPLIED WITH

The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time to time and rules framed thereunder and other labour laws affecting contract labour that may be brought into force from time to time.

CLAUSE 21: WORK NOT TO BE SUBLET. ACTION IN CASE OF INSOLVENCY

The contract shall not be assigned or sublet without the written approval of the Engineer-in Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employ of WAPCOS in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the WAPCOS shall have power to adopt the course specified in Clause 3 hereof in the interest of WAPCOS and in the event of such course being adopted, the consequences specified in the said Clause 3 shall ensue.

CLAUSE 22:

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of WAPCOS without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

CLAUSE 23: CHANGES IN FIRM'S CONSTITUTION TO BE INTIMATED

Where the contractor is a partnership firm, the previous approval in writing of the Engineer-inCharge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern, such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of Clause 21 hereof and the same action may be taken, and the same consequences shall ensue as provided in the said Clause 21.

CLAUSE 24:

All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

CLAUSE 25: SETTLEMENT OF DISPUTES & ARBITRATION

Any dispute, controversy or claims arising out of or relating to this Agreement or the breach, termination or invalidity thereof, shall be settled through following mechanism:

a) Firstly, the aggrieved party shall write a letter to the other party detailing its grievances and calling upon the other party to amicably resolve the dispute by convening a joint meeting. Accordingly, the parties as per their convenience shall jointly convene the said meeting (s), wherein minutes of the said meeting(s) shall be prepared and countersigned by all the parties. It is mandatory to prepare minutes of meeting(s) and to be countersigned by all the parties, irrespective of the outcome of the said meeting(s).

b) In the event the parties are unable to reach on any settlement in the said meeting (s), then the aggrieved party shall mandatory resort to Pre-litigation mediation mechanism with Delhi High Court Mediation Cell, New Delhi.

c) It is only upon failure of the Pre-litigation mediation mechanism with Delhi High Court Mediation Cell, then the aggrieved party shall resort to resolution of disputes through arbitration of a Sole Arbitrator. The appointing authority of sole Arbitrator is CMD, WAPCOS Limited, to which neither of the parties have any objection nor they shall ever object.

d) Subject to the parties agreeing otherwise, the arbitration proceedings shall be conducted in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996 (amended as on date).

e) It is also acknowledged and accepted that WAPCOS is only working as Intermediary between the Agency and the Principal Employer/Client, thus in the event, any dispute arises under the present agreement and referred to Arbitration for adjudication, then subject to corresponding clause in the Contract/Agreement/Work Order/ Arrangement between Principal Employer/Client & WAPCOS, Principal Employer/Client shall also be made party to the said Arbitration proceedings. Also, the award including costs if any passed against WAPCOS and costs incurred in the proceedings shall be the sole responsibility of Principal Employer/Client. The said clause if found inapplicable, even then the other terms of the Arbitration Clause shall survive and shall be acted upon.

f) The place/seat of arbitration shall be Delhi and any award whether interim or final, shall be made, and shall be deemed for all purposes between the parties to be made, in Delhi. The arbitral procedure shall be conducted in English Language and any awards shall be rendered in English. The Procedural Law of the arbitration shall be Indian Law. The award of the arbitrator shall be final and conclusive and binding upon the Parties.

g) The Contract and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims) shall be governed by and construed in accordance with the laws of India and the Parties submit to Sole & exclusive jurisdiction of Courts at Delhi.

CLAUSE 26: CONTRACTOR INDEMNIFY WAPCOS AGAINST PATENT RIGHTS

The contractor shall fully indemnify and keep indemnified the WAPCOS against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under or action brought against WAPCOS in respect of any such matters as aforesaid, the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise therefrom, provided that the contractor shall not be liable to indemnify the WAPCOS if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

CLAUSE 27: LUMPSUM PROVISIONS IN TENDER: Not applicable

CLAUSE 28: ACTION WHERE NO SPECIFICATIONS ARE SPECIFIED

In the case of any class of work for which there is no such specifications as referred to in Clause 11, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturers' specifications, if not available then as per District Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

CLAUSE 29: WITHOLDING AND LIEN IN RESPECT OF SUM DUE FROM CONTRACTOR

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

   It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or WAPCOS will be kept withheld or retained as such by the Engineer-in-Charge or WAPCOS till the claim arising out of or under the contract is determined by the arbitrator(if the contract is governed by the arbitration clause) 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 WAPCOS 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.

b) WAPCOS shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over-payment and it shall be lawful for WAPCOS 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 of any work executed by him under it, the amount of such under payment shall be duly paid by WAPCOS to the contractor, without any interest thereon whatsoever.

Provided that the Government 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 WAPCOS on the one hand and the contractor on the other under any term of the contract permitting payment for work after assessment by WAPCOS.

CLAUSE 29A: LIEN IN RESPECT OF CLAIMS IN OTHER CONTRACTS

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or the WAPCOS or any other contracting person or persons through Engineer-in-Charge against any claim of the Engineer-in-Charge or WAPCOS or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer- in-Charge or the WAPCOS or with such other person or persons.

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

CLAUSE 30: EMPLOYMENT OF COAL MINING OR CONTROLLED AREA LABOUR NOT PERMISSIBLE: Not applicable

CLAUSE 31: UNFILTERED WATER SUPPLY

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions.

(i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.

(ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor(s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in- Charge, unsatisfactory.

CLAUSE 31A: WATER SUPPLY, IF AVAILABLE: Not applicable

CLAUSE 32: ALTERNATE WATER ARRANGEMENTS: Not applicable

CLAUSE 33: RETURN OF SURPLUS MATERIALS: Not applicable

CLAUSE 34: HIRE OF PLANT & MACHINERY: Not applicable

CLAUSE 35: CONDITION RELATING TO USE OF ASPHALTIC MATERIALS

(i) The contractor undertakes to make arrangement for the supervision of the work by the firm supplying the tar or bitumen used.

(ii) The contractor shall collect the total quantity of tar or bitumen required for the work as per standard formula, before the process of painting is started and shall hypothecate it to the Engineer-in-Charge. If any bitumen or tar remains unused on completion of the work on account of lesser use of materials in actual execution for reasons other than authorized changes of specifications and abandonment of portion of work, a corresponding deduction equivalent to the cost of unused materials as determined by the Engineer-in-Charge shall be made and the material return to the contractors. Although the materials are hypothecated to WAPCOS, the contractor undertakes the responsibility for their proper watch, safe custody and protection against all risks. The materials shall not be removed from site of work without the consent of the Engineer-in- Charge in writing.

(iii) The contractor shall be responsible for rectifying defects noticed within a year from the date of completion of the work and the portion of the security deposit relating to asphaltic work shall be refunded after the expiry of this period.

CLAUSE 36: EMPLOYMENT OF TECHNICAL STAFF AND EMPLOYEES

Contractors Superintendence, Supervision, Technical Staff & Employees

(i) The contractor shall provide all necessary superintendence during execution of the work and all along 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(s), qualifications, experience, age, address(s) and other particulars along with certificates, of the principal technical representative to be in charge of the work and other technical representative(s) who will be supervising the work. Minimum requirement of such technical representative(s) and their qualifications and experience shall not be lower than specified in Additional Conditions of Contract. The Engineer-in-Charge shall within 3 days of receipt of such communication intimate in writing his approval or otherwise of such a representative(s) 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(s) according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative and other technical

representative(s) shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at site before start of work.

All the provisions applicable to the principal technical representative under the Clause will also be applicable to other technical representative(s) The principal technical representative and other technical representative(s) shall be present at the site of work for supervision at all times when any construction activity is in progress and also present himself/themselves, as required, to the Engineer-in-Charge and/or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be actually available at site fully during all stages of execution of work, during recording/checking/test checking of measurements of works and whenever so required by the Engineer-in-Charge and shall also note down instructions conveyed by the Engineer-in- Charge or his designated representative(s) in the site order book and shall affix his/their signature in token of noting down the instructions and in token of acceptance of measurements/ checked measurements/ test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-Charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative(s) is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (non-refundable) shall be effected from the contractor as specified in Additional Conditions of Contract and the decision of the Engineer-In-Charge as recorded in the site order book and measurement recorded checked/test checked in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable technical Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as suitable other technical representative(s) is/are 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(s) (in the form of copy of Form-16 or CPF deduction issued to the Engineers employed by him) along with every on account bill final bill and shall produce evidence if at any time so required by the Engineer-in-Charge.

(ii) 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.

The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer-in Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

CLAUSE 37: LEVY / TAXES PAYABLE BY CONTRACTOR

(i) Building and other Construction Workers Welfare Cess or any other tax or Cess in respect of this contract shall be payable by the contractor and WAPCOS shall not entertain any claim whatsoever in this respect.

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

If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the WAPCOS and does not any time become payable by the contractor to the State Government, 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 WAPCOS and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor

CLAUSE 38: CONDITIONS FOR REIMBURSEMENT OF LEVY/TAXES IF LEVIED AFTER RECIEPT OF TENDERS

(i) All tendered rates shall be exclusive of all taxes and levies including Goods& Service Tax payable under respective statutes. However, if any further tax or levy or cess is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies/cess, the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of the WAPCOS attributable to delay in execution of work within the control of the contractor.

(ii) 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 a duly authorized representative of the WAPCOS and/or the Engineer-in-Charge and shall also furnish such other information/document as the Engineer-in-Charge may require from time to time.

(iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy or cess, give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 39: TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the Engineer-In-Charge on behalf of the WAPCOS shall have the option of terminating the contract without compensation to the contractor.

CLAUSE 40: IF RELATIVE WORKING IN WAPCOS THEN THE CONTRACTOR NOT ALLOWED TO TENDER

The contractor shall not be permitted to tender for works in the WAPCOS responsible for award and execution of contracts in which his near relative is posted in WAPCOS. 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 Officer in the WAPCOS. Any breach of this condition by the contractor would render him liable to be debarred from tendering in WAPCOS any breach of this condition.

NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in-laws.

CLAUSE 41: NO GAZETTED ENGINEER TO WORK AS CONTRACTOR WITHIN ONE YEAR OF RETIREMENT

No engineer of gazetted rank or other gazetted officer employed in engineering or administrative duties in an engineering department of the Government of India shall work as a contractor or employee of a contractor for a period of one year after his retirement from government service without the previous permission of Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of Government of India as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

CLAUSE 42: RETURN OF MATERIALS & RECOVERY FOR MATERIAL ISSUED

Not applicable

CLAUSE 43: COMPENSATION DURING WARLIKE SITUATION

The work (whether fully constructed or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and other things connected therewith shall be at the risk of the contractor until the work has been delivered to the Engineer-in-Charge and a certificate from him to that effect obtained. In the event of the work or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or warlike operation, the contractor shall when ordered (in writing) by the Engineer-in-Charge to remove any debris from the site, collect and properly stack or remove in store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site of debris, stacking or removal of serviceable material and for the works ordered by the Engineer-in-Charge, such payments being in addition to compensation up to the value of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for, the compensation shall be assessed by the Engineer-In-Charge up to Rs. 5,000/- and by the WAPCOS for a higher amount. The contractor shall be paid for the damages/destruction suffered and for restoring the material at the rate based on analysis of rates tendered for in accordance with the provision of the contract. The certificate of the Engineer-in-Charge regarding the quality and quantity of materials and the purpose for which they were collected shall be final and binding on all parties to this contract.

Provided always that no compensation shall be payable for any loss in consequence of hostilities or warlike operations (a) unless the contractor had taken all such precautions against air raid as are deemed necessary by the A.R.P. Officers or the Engineer-in-Charge (b) for any material etc. not on the site of the work or for any tools, plant, machinery, scaffolding, temporary building and other things not intended for the work.

In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Engineer-In-Charge.

CLAUSE 44: APPRENTICES ACT PROVISIONS TO BE COMPLIED WITH

The contractor shall comply with the provisions of the Apprentices Act, 1961 and the rules and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the WAPCOS 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.

CLAUSE 45: RELEASE OF SECURITY DEPOSIT AFTER LABOUR CLEARANCE

Release of Security Deposit of the work shall not be refunded till the contractor produces a clearance deposit after labour certificate from the Labour Officer. As soon as the work is virtually complete, the contractor shall apply for the clearance certificate to the Labour Officer under intimation to the Engineer-in-Charge. The Engineer-in-Charge, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending, on record till after 3 months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the Security Deposit will be released if otherwise due.

CLAUSE46: INSURANCE

1.Requirements

Before commencing execution of works, unless stated otherwise in the Additional Conditionsof Contract, it shall be obligatory for the contractor to obtain at his own cost stipulated insurance cover under the following requirements:

a) Contractor's all risk and Third Party Cover.

b) Liability under the workmen's compensation Act, 1923, Minimum Wages Act, 1948 and Contract Labour (Regulation and Abolition) Act, 1970.

c) Accidents to staff, Engineers, Supervisors and others who are not governed by workmen's compensation Act.

d) Damage to material, machinery and works due to fire theft etc.

e) Any other risk to be covered by insurance as may be specified by the employer in the Additional Conditions of Contract.

2.Policy in Joint Names of Contractor and Employer

The policy referred to under sub-clause 46(1) above 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, their maintenance and performance of the contract.

a) Loss of life or injury involving public, employee of the contractor, or that of employer and Engineer, labour etc.

b) Injury, loss or damage to the works or property belonging to public, government bodies, local authorities, utility organizations, contractors, employer or others.

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, whenever called upon, produce to the engineer or his representative the various insurance policies obtained by him as also the rates of

premia and the premia paid by him to ensure that the polices indeed continue to be in force. If the contractor fails to effect or keep in force or provide adequate cover in the insurance policies mentioned in the sub clause 46(1) or any other insurance he 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 him in this regard shall be deductible from payments due to the contractor or from the contractor's performance security.

CLAUSE 47: CONDITIONS SPECIFIC TO GREEN BUILDINGS PRACTICES CLAUSE

The contractor shall strictly adhere to the following conditions as part of his contractualobligations:

1. SITE

1.1The contractor shall ensure that adequate measures are taken for the prevention of erosion of the top soil during the construction phase. The contractor shall implement the Erosion and Sedimentation Control Plan (ESCP) provided to him by the Engineer-in-charge as part of the larger Construction Management Plan (CMP). The contractor shall obtain the Erosion and Sedimentation Control Plan (ESCP) Guidelines from the Engineer-in-charge and then prepare "working plan" for the following month's activities as a CAD drawing showing the construction management, staging & ESCP. At no time soil should be allowed to erode away from the site and sediments should be trapped where necessary.

1.2The contractor shall ensure that all the top soil excavated during construction works is neatly stacked and is not mixed with other excavated earth. The contractors shall take the clearance of the architects / Engineer-in-charge before any excavation. Top soil should be stripped to a depth of 20 cm (centimetres) from the areas to be disturbed, for example proposed area for buildings, roads, paved areas, external services and area required for construction activities etc. It shall be stockpiled to a maximum height of 40 cm in designated areas, covered or stabilised with temporary seeding for erosion prevention and shall be reapplied to site during plantation of the proposed vegetation. Top soil shall be separated from subsoil, debris and stones larger than 50 mm (millimetre) diameter. The stored top soil may be used as finished grade for planting areas.

1.3The contractor shall carry out the recommendations of the soil test report for improving the soil under the guidance of the Engineer-in-charge who would also advise on the timing of application of fertilizers and warn about excessive nutrient levels.

1.4The contactor shall carry out post-construction placement of topsoil or other suitable plant material over disturbed lands to provide suitable soil medium for vegetative growth. Prior to spreading the topsoil, the sub-grade shall be loosened to a depth of 50mm to permit bonding. Topsoil shall be spread uniformly at a minimum compacted depth of 50mm on grade 1:3 or steeper slopes, a minimum depth of 100mm on shallower slopes. A depth of 300mm is preferred on relatively flatter land.

1.5The Contractor should follow the construction plan as proposed by the Engineer-in-charge to minimize the site disturbance such as soil pollution due to spilling. Use staging and spill prevention and control plan to restrict the spilling of the contaminating material on site. Protect top soil from erosion by collection storage and reapplication of top soil, constructing sediment basin, contour trenching, mulching etc.

1.6 No excavated earth shall be removed from the campus unless suggested otherwise by Engineer-in-charge. All subsoil shall be reused in backfilling/landscape, etc as per the instructions of the Engineer-in-charge

1.7 The contractor shall not change the natural gradient of the ground unless specifically instructed by the architect's / landscape consultant. This shall cover all natural features like water bodies, drainage gullies, slopes, mounds, depressions, rocky outcrops, etc. Existing drainage patterns through or into any preservation area shall not be modified unless specifically directed by the Engineer-in-charge.

1.8 The contractor shall not carry out any work which results in the blockage of natural drainage.

1.9 The contractor shall ensure that existing grades of soil shall be maintained around existing vegetation and lowering or raising the levels around the vegetation is not allowed unless specifically directed by the Engineer-in-charge

1.10 Contractor shall reduce pollution and land development impacts from automobiles use during construction.

1.11 Overloading of trucks is unlawful and creates and erosion and sedimentation problems, especially when loose materials like stone dust, excavated earth, sand etc. are moved. Proper covering must take place. No overloading shall be permitted.

2.CONSTRUCTION PHASE AND WORKER FACILITIES

2.1 The contractor shall specify and limit construction activity in pre-planned/ designated areas and shall start construction work after securing the approval for the same from the Engineer-in-charge. This shall include areas of construction, storage of materials, and material and personnel movement.

2.2 Preserve and Protect Landscape during Construction:

a) The contractor shall ensure that no trees, existing or otherwise, shall be harmed and damage to roots should be prevented during trenching, placing backfill, driving or parking heavy equipment, dumping of trash, oil, paint, and other materials detrimental to plant health. These activities should be restricted to the areas outside of the canopy of the tree, or, from a safe distance from the tree/plant by means of barricading. Trees will not be used for support; their trunks shall not be damaged by cutting and carving or by nailing posters, advertisements or other material. Lighting of fires or carrying out heat or gas emitting construction activity within the ground, covered by canopy of the tree is not to be permitted.

b) The contractor shall take steps to protect trees or saplings identified for preservation within the construction site using tree guards of approved specification.

c) The contractor shall conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity. Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) proposed by the Engineer-in-charge. All the existing trees should be preserved, if not possible than compensate the loss by re-planting trees in the proportion of 1:3.

d) The contractor shall avoid cut and fill in the root zones, through delineating and fencing the drip line (the spread limit of a canopy projected on the ground) of all the trees or

group of trees. Separate the zones of movement of heavy equipment, parking, or excessive foot traffic from the fenced plant protection zones.

e) The contractor shall ensure that maintenance activities shall be performed as needed to ensure that the vegetation remains healthy. The preserved vegetated area shall be inspected by the Engineer-in-charge at regular intervals so that they remain undisturbed. The date of inspection, type of maintenance or restorative action followed shall be recorded in the logbook.

2.3 Contractor shall be required to develop and implement a waste management plan, quantifying material diversion goals. He shall establish goals for diversion from disposal in landfills and incinerators and adopt a construction waste management plan to achieve these goals. A project-vide policy of "Nothing leaves the Site" should be followed. In such a case when strictly followed, care would automatically be taken in ordering and timing of materials such that excess doesn't become "waste". The Contractor's ingenuity is especially called towards meeting this prerequisite/ credit (GRIHA). Consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Designate a specific area(s) on the construction site for segregated or commingled collection of recyclable material, and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. Note that diversion may include donation of materials to charitable organizations and salvage of materials on-site.

2.4 Contractor shall collect all construction waste generated on site. Segregate these wastes based on their utility and examine means of sending such waste to manufacturing units which use them as raw material or other site which require it for specific purpose. Typical construction debris could be broken bricks, steel bars, broken tiles, spilled concrete and mortar etc.

2.5 The contractor shall provide clean drinking water for all workers.

2.6 The contractor shall provide the minimum level of sanitation and safety facilities for the workers at site. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and effluent; provide clean drinking water and latrines and urinals as per applicable standard. Adequate toilet facilities shall be provided for the workman within easy access of their place of work. The total no. to be provided shall not be less than 1 per 30 employs in any one shift. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided. Natural or artificial illumination shall be provided.

2.7 The contractor shall ensure that air pollution due to dust/generators is kept to a minimum, preventing any adverse effects on the workers and other people in and around the site. The contractor shall ensure proper screening, covering stockpiles, covering brick and loads of dusty materials, wheel-washing facility, gravel pit, and water spraying. Contractor shall ensure the following activities to prevent air pollution during construction:

a) Clear vegetation only from areas where work will start right away
b) Vegetate / mulch areas where vehicles do not ply.
c) Apply gravel / landscaping rock to the areas where mulching / paving is impractical
d) Identify roads on-site that would be used for vehicular traffic. Upgrade vehicular roads (if these are unpaved) by increasing the surface strength by improving particle

size, shape and mineral types that make up the surface & base. Add surface gravel to reduce source of dust emission. Limit amount of fine particles (smaller than 0.075mm) to 10 – 20%

e) Water spray, through a simple hose for small projects, to keep dust under control. Fine mists should be used to control fine particulate. However, this should be done with care so as not to waste water. Heavy watering can also create mud, which when tracked onto paved public roadways, must be promptly removed. Also, there must be an adequate supply of clean water nearby to ensure that spray nozzles don't get plugged. Water spraying can be done on:
   i)Any dusty materials before transferring, loading and unloading
   ii)Area where demolition work is being carried out
   iii)Any un-paved main haul road
   iv)Areas where excavation or earth moving activities are to be carried out
   The contractor shall ensure that the speed of vehicles within the site is limited to 10 km/hr.
f) All material storages should be adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust / particulate emissions.
g) Spills of dirt or dusty materials will be cleaned up promptly so the spilled material does not become a source of fugitive dust and also to prevent of seepage of pollutant laden water into the ground aquifers. When cleaning up the spill, ensure that the clean-up process does not generate additional dust. Similarly, spilled concrete slurries or liquid wastes should be contained / cleaned up immediately before they can infiltrate into the soil / ground or runoff in nearby areas
h) Provide hoardings of not less than 3m high along the site boundary, next to a road or other public area
i) Provide dust screens, sheeting or netting to scaffold along the perimeter of the building Cover stockpiles of dusty material with impervious sheeting
j) Cover dusty load on vehicles by impervious sheeting before they leave the site

2.8 Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals. He shall coordinate the size and functionality of the recycling areas with the anticipated collections services for glass, plastic, office paper, newspaper, cardboard, and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminium can crushers, recycling chutes, and collection bins at individual workstations to further enhance the recycling program.

2.9 The contractor shall ensure that no construction leach ate (Ex: cement slurry), is allowed to percolate into the ground. Adequate precautions are to be taken to safeguard against this including, reduction of wasteful curing processes, collection, basic filtering and reuse. The contractor shall follow requisite measures for collecting drainage water run-off from construction areas and material storage sites and diverting water flow away from such polluted areas. Temporary drainage channels, perimeter dike/swale, etc. shall be constructed to carry the pollutant-laden water directly to the treatment device or facility (municipal sewer line).

2.10 Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.

2.11 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 _Constructional practices and safety, 2016, National Building code of India, Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to causalities. A telephone may be provided to first-aid assistant with telephone numbers of the hospitals displayed. Complete reports of all accidents and action taken thereon shall be forwarded to the competent authorities.

2.12 The contractor shall ensure the following activities for construction workers safety, among other measures:

a) Guarding all parts of dangerous machinery.
b) Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
c) Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
d) Provide protective equipment; helmets etc.
e) Provide sufficient and suitable light for working during night time.

2.13 Adopt additional best practices, prescribed norms in construction industry.

2.14 The storage of material shall be as per standard good practices as specified in Part 7, Section 2 – Storage, Stacking and Handling practices, NBC 2016 and shall be to the satisfaction of the Engineer-in-charge to ensure minimum wastage and to prevent any misuse, damage, inconvenience or accident. Watch and ward of the Contractor's materials shall be his own responsibility. There should be a proper planning of the layout for stacking and storage of different materials, components and equipment with proper access and proper manoeuvrability of the vehicles carrying the materials. While planning the layout, the requirements of various materials, components and equipment at different stages of construction shall be considered. The Owner shall not take any responsibility on any account.

2.15 The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilisation of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English.

2.16 The contractor shall prepare and submit 'Spill prevention and control plans' before the start of construction, clearly stating measures to stop the source of the spill, to contain the spill, to dispose the contaminated material and hazardous wastes, and stating designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.

2.17 Contractor shall collect the relevant material certificates for materials with high recycled (both post-industrial and post-consumer) content, including materials for structural use like TMT steel rolled with high percentage of recycled steel, and RMC mix with fly-ash etc.

2.18 Contractor shall collect the relevant material certificates for rapidly renewable materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheat board, strawboard and cork.

2.19 Contractor shall adopt an IAQ (Indoor Air Quality) management plan to protect the system during construction, control pollutant sources, and interrupt pathways for contamination. He

shall sequence installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard. He shall also protect stored on-site or installed absorptive materials from moisture damage.

2.20 The contractor shall ensure that a flush out of all internal spaces is conducted prior to handover. This shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.

2.21 Contractor shall make efforts to reduce the quantity of indoor air contaminants that are odorous or potentially irritating harmful to the comfort and well-being of installer and building occupants. Contractor shall ensure that the VOC (Volatile Organic Compounds) content of paints, coatings and primers used must not exceed the VOC content limits mentioned below:

Paints
Non-flat - 150 g/L
Flat (Mat) - 50 g/L
Anti-corrosive/ anti rust - 250 g/L
Coatings
Clear wood finishes
Varnish - 350 g/L
Lacquer - 550 g/L
Floor coatings - 100 g/L
Stains - 250 g/L
Sealers
Waterproofing sealer - 250 g/L
Sanding sealer - 275 g/L
Other sealers - 200 g/L

The VOC (Volatile Organic Compounds) content of adhesives and sealants used must be less than VOC content limits mentioned:

Architectural Applications VOC Limit (g/l less water)
Indoor Carpet adhesives - 50
Carpet Pad Adhesives - 50
Wood Flooring Adhesive - 100
Rubber Floor Adhesives - 60
Sub Floor Adhesives - 50
Ceramic Tile Adhesives - 65
VCT and Asphalt Tile adhesives - 50
Dry Wall and Panel Adhesives - 50
Structural Glazing Adhesives - 100
Multipurpose Construction Adhesives - 70
Substrate Specific Application VOC Limit (g/l less water)
Metal to Metal - 30
Plastic Foams - 50
Porous material (except wood) - 50
Wood - 30
Fiber Glass – 80

2.22 Wherever required, Contractor shall meet and carry out documentation of all activities on site, supplementation of information, and submittals in accordance with GRIHA program standards and guidelines. Towards meeting the aforementioned building environmental rating standard(s) expert assistance shall be provided to him up on request.

2.23 Water Use during Construction:Contractor should spray curing water on concrete structure and shall not allow free flow of water. After liberal curing on the first day, all the verticals surfaces of concrete structures should be painted with curing chemical to save water nothing extra shall be paid. Concrete structures should be kept covered with thick cloth/gunny bags and water should be sprayed on them. Contractor shall do water ponding on all sunken slabs using cement and sand mortar**.**

2.24 The Contractor shall remove from site all rubbish and debris generated by the Works and keep Works clean and tidy throughout the Contract Period. All the serviceable and nonservice able (malba) material shall be segregated and stored separately. The malba obtained during construction shall be collected in well-formed heaps at properly selected places, keeping in a view safe condition for workmen in the area. Materials which are likely to cause dust nuisance or undue environmental pollution in any other way, shall be removed from the site at the earliest and till then they shall be suitable covered. Glass & steel should be dumped or buried separately to prevent injury. The work of removal of debris should be carried out during day. In case of poor visibility artificial light may be provided.

2.25**DOCUMENTATION**

a) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer-in-charge on a monthly basis:

   i) Water consumption in litres
   ii) Electricity consumption in ‘kwh’ units
   iii) Diesel consumption in litres
   iv) Quantum of waste generated at site and the segregated waste types divided into inert, chemical and hazardous wastes.
   v) Digital photo documentation to demonstrate compliance of safety guidelines as specified here.

b) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer-in-charge on a weekly basis:

   i) Quantities of material brought into the site, including the material issued to the contractor by the client.
   ii) Quantities of construction debris (if at all) taken out of the site
   iii) Digital photographs of the works at site, the worker’s facilities, the waste and other material storage yards, pre-fabrication and block making works, etchas guided by the Engineer-in-charge.

c) The contractor shall submit one document after construction of the buildings, a brief description along with photographic records to show that other areas have not been disrupted during construction. The document should also include brief explanation and photographic records to show erosion and sedimentation control measures adopted. (Document CAD drawing showing site plan details of existing vegetation, existing buildings, existing slopes and site drainage pattern, staging and spill prevention measures, erosion and sedimentation control measures and measures adopted for top soil preservation during construction.

d) The contractor shall submit to the Engineer-in-charge after construction of the buildings, a detailed as built quantification of the following: (i) Total materials used, ii) Total top soil stacked and total reused iii) Total earth excavated, iv) Total waste generated, v) Total waste reused, vi) Total water used, vii) Total electricity, and viii) Total diesel consumed.

e) The contractor shall submit to the Engineer-in-charge, before the start of construction, a site plan along with a narrative to demarcate areas on site from which top soil has to be gathered, designate area where it will be stored, measures adopted for top soil preservation and indicate areas where it will be reapplied after construction is complete.

f) The contractor shall submit to the Engineer-in-charge, a detailed narrative (not more than 250 words) on provision for safe drinking water and sanitation facility for construction workers and site personnel.

g) The contractor shall, at the end of construction of the buildings, submit to the Engineer-in-charge, submit following information, for all material brought to site for construction purposes, including manufacturer's certifications, verifying information, and test data, where Specifications sections require data relating to environmental issues including but not limited to:

   i) Source of products: Supplier details and location of the supplier and brand name.

   ii) Project Recyclability: Submit information to assist Owner and Contractor in recycling materials involved in shipping, handling, and delivery, and for temporary materials necessary for installation of products.

   iii) Recycled Content: Submit information regarding product post-industrial recycled and post-consumer recycled content. Use the "Recycled Content Certification Form", to be provided by the Commissioning Authority appointed for the Project.

   iv) Product Recyclability: Submit information regarding product and product's component's recyclability including potential sources accepting recyclable materials.

   v) Clean tech: Provide pollution clearance certificates from all manufacturers of materials

   vi) Indoor Air quality and Environmental Issues: Submit following certificates:

      a. Certifications from manufacturers of Low VOC paints, adhesives, sealant and polishes used at this particular project site.

      b. Certification from manufacturers of composite wood products/agro fibre products on the absence of added urea formaldehyde resin in the products supplied to them to this particular site.

      c. Submit environmental and pollution clearance certificates for all diesel generators installed as part of this project.

h) Provide total support to the Engineer-in-charge appointed by the owner in completing all Green Building Rating related formalities, including signing of forms, providing signed letters in the contractor's letterhead.

2.26 EQUIPMENT

a) To ensure energy efficiency during and post construction all pumps, motors and engines used during construction or installed, shall be subject to approval and as per the specifications of the architects.

b) All lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL/LED bulbs of the appropriate illumination levels. This condition is a must, unless specifically prescribed.

The contractor is expected to go through all other conditions of the GRIHA rating stipulations, which can be provided to him by the architects. Failure to adhere to any of the above mentioned items, without necessary clearances from the architects and the Engineer-in-charge, shall be deemed as a violation of contract and the contractor shall be held liable for penalty as determined by the architects.

CLAUSE 48: PAYMENT

1. Contractor's Application for Payment

From the date of issue of the Notice to Proceed, on the 5th (fifth) Business Day of any month, the Contractor may submit a Request for Payment, to WAPCOS Limited Representative in respect of the preceding month.

Within each Request for Payment the Contractor shall show separately:

(i) The amounts which the Contractor claims to be payable as the cost of the Works completed during that month; and

(ii) The cumulative amount of all prior payments made by WAPCOS Limited; and

(iii) Any amounts to which the Contractor considers are due and payable to it in accordance with the provisions of the Contract.

The Contractor's Request for Payment shall:

(i) Be prepared on forms in the form and in a number advised by WAPCOS Limited Representative; and

(ii) Be accompanied by:

(a) Copy of relevant records of measurement of works, jointly taken and signed by both the parties;

(b) A status report describing in such detail as may reasonably request, the percentage of any uncompleted Milestone Event for the month in question and the work to be undertaken by the Contractor prior to the next Request for Payment;

(c) Certification by WAPCOS Limited Representative confirming that the Milestone Events referred to in the Request for Payment have been achieved.

(d) Confirmation by the Contractor of any amounts due and owing from the Contractor to WAPCOS Limited pursuant to the Contract;

(e) The Contractor's certification that the quality of all completed Works accords with the requirements of the Contract;

(f) The Contractor's certification that each obligation, item of cost or expense mentioned in that Request for Payment has not been the basis of any previous payment.

(g) The Contractor's certification that it has reviewed all financial and budget data contained in the Request for Payment;

(h) The Contractor's certification that the quality of all completed Works accords with the requirements of the Contract;

(i) The Contractor's certification that each obligation, item of cost or expense mentioned in that Request for Payment has not been the basis of any previous payment; and

(j) The Contractor's certification that each Subcontractor who performed part of the Works which was included in the immediately preceding Certificates of Payment was paid all amounts then due to it for such Works

(k) The Contractor providing evidence of the validity of the Contractor's Insurances.

3. Certificates of Payment

Within [14 (fourteen)] Business Days of receipt of the Contractor's Request for Payment under Clause 48(2) [Contractor's Application for Payment], WAPCOS Limited and WAPCOS Limited Representative shall review such request and, shall issue to the Contractor, a Certificate of Payment certifying what amounts WAPCOS Limited shall pay. Each Certificate of Payment shall be for an amount which in the opinion of WAPCOS Limited, is the basis of the Request for Payment and pursuant to the Contract, is properly due to the Contractor (the "Gross Certifiable Amount") less (i) the cumulative amounts of payments previously certified as due to the Contractor, (ii) any deduction on account of recovery of Advance Payment, and (iii) Retention Amount.

No sum shall be included in the Certificate of Payment in respect of Materials yet to be incorporated into the Permanent Works unless the WAPCOS Limited Representative is satisfied that:

(i) such Materials have been properly acquired and properly and not prematurely delivered to the Project Site;

(ii) such Materials have been properly stored on the Project Site and fully protected against loss, damage or deterioration;

(iii) the Contractor's records of the requisitions, orders, receipts and use of any Materials are kept in a form approved by the WAPCOS Limited Representative, and such records are available for inspection by the WAPCOS Limited Representative; and

(iv) The Contractor has submitted a proper statement of the cost of acquiring the Materials together with such documents as may be required for evidencing such cost.

Without prejudice to any other rights of WAPCOS Limited to withhold payment to the Contractor, WAPCOS Limited may withhold from any payment due to the Contractor such amount as WAPCOS Limited deems reasonably necessary or appropriate:

(i) if in the opinion of the WAPCOS Limited Representative the progress of the Works at the time of the Request for Payment is behind the progress of the Works as set out in the Programme; and/or

(ii) to protect it from any losses, expenses, costs or liability because of any one or more of the following reasons:

(a) defects and deficiencies in any Works, whether or not payment has been made;

(b) unsatisfactory performance of the Contract;

(c) the filing of third party claims relating to the Works or any of its commitment parts for which the Contractor is liable;

(d) the Contractor's failure to make payments to Subcontractors;

(e) failure by the Contractor to provide or procure replacement Performance Security in accordance with the Contract;

(f) failure by the Contract to provide evidence of insurance coverage in accordance with the Contract;

(g) reasonable evidence that Completion will not occur by the Time for Completion;

(h) any overpayments made by WAPCOS Limited with respect to a previous payment;

(i) failure by the Contractor to submit a properly updated monthly Programme and

(j) failure by the Contractor to provide satisfactory evidence that the costs of all labour and Materials and other obligations arising out of the Contract have been fully satisfied and discharged by the Contractor and/or to otherwise fail to submit adequate supporting documentation for any Request for Payment.

Any Provisional Sum Works shall only be executed in whole or part upon the WAPCOS Limited Representative's instruction. If the WAPCOS Limited Representative issues no such instruction, the Provisional Sum Works shall not form part of the Works and the Contractor shall not be entitled to payment for it. The Contractor shall be deemed to have allowed the necessary time and resources to enable design and Execution of the Provisional Sum Works in so far as the scope and nature of the Provisional Sum Works was reasonably foreseeable.

The Contractor shall be entitled only to such amount in respect of the Provisional SumWorks as the WAPCOS Limited Representative determines in accordance with this Clause 48(3). The WAPCOS Limited Representative shall notify the Contractor of any such determination. The WAPCOS Limited Representative shall have the authority to issue instructions to the Contractor for every Provisional Sum Works for which the Contractor shall be entitled to a part of the Provisional Sum as determined by the WAPCOS Limited Representative.

The Contractor shall produce to the WAPCOS Limited Representative all quotations, vouchers, invoices, accounts or receipts in connection with the expenditure in respect of the Provisional Sum Works, except where the Provisional Sum Works is valued in accordance with the item wise rates quoted by the Contractor in its bid submitted to the Employer.

In respect of every Provisional Sum the WAPCOS Limited Representative shall have authority to issue instructions for the execution of work or for the supply of goods, materials, Plant Sums or services by the Contractor, in which case the Contractor shall be entitled to an amount equal to the value thereof determined in accordance with Clause 48(3).

4. Billing and Payment

The Associate/Sub – Consultant/Sub-Contractor acknowledges that under the present Contract/Agreement/Work Order/Arrangement, WAPCOS is only working as intermediary between ESIC being Principal Employer/Client and Associate/Sub-consultant/Sub-Contractor. Thus the Associate/Sub-consultant/Sub-Contractor unconditionally acknowledges that the payments under the present contract/Agreement/Work Order/Arrangement shall be made proportionately by WAPCOS only on back to back basis i.e. after 21 days subject to receipt of payment from ESIC being Principal Employer/Client. The Associate/Sub-consultant/Sub-Contractor also unconditionally agree that in the event the payment or part thereof, under the present Contract/Agreement/Work Order/Arrangement is not received from ESIC(Principal Employer/Client), then WAPCOS

&/or any of its Employee/Officer shall not be responsible to pay any amount to Associate/Sub-consultant/Sub-Contractor. The said condition shall supersede any and all other conditions of Contract/Agreement/Work Order/Arrangement between the parties.

All the tax applicable in respect of this contract shall be payable by the Contractor and WAPCOS will not entertain any claim whatsoever in respect of the same. All billing by the Contractor should be in the name of "WAPCOS Limited, ESIC Hospital, Jajmau **Kanpur, Uttar Pradesh**" -208010." bearing the GSTIN:07AAACW0764A1ZR.

In this type of billing, GST will be applicable as per the GST slabs. The GST charged shall be reimbursed by WAPCOS Limited on submission of following documents (proof of GST paid and filing): 1) GSTR-1 2) GSTR-3 3) GST Payment Challan.

Running Account (RA) bills will be paid when the approximate value of work done is 1/3rd of the total contract amount. Each RA bill should be enclosed with certified measurement sheets, certified by Engineer in Charge after verification of the requisite quality test reports, if any, as per the relevant standards. The minimum interval between two such RA bills shall be 15 days. WAPCOS shall make the payment of bills after receipt of the payment from ESIC.

This clause shall prevail on all the other clauses mentioned in this respect in the contract.

CLAUSE 49: SITE OFFICES AND FACILITIES

The cost of providing the work/facilities stated in the sub-clauses of this clause are to be borne by the Contractor and shall be deemed to be included in the rates quoted by the Contractor.

49.1 The Contractor shall supply, erect and satisfactorily maintain Site Office for the Employer in good condition until final completion of works, a well-lighted, well ventilated and air-conditioned and adequately weather proofed temporary, burglar proof readily available Site Office (Portable Cabins) of adequate capacity having the covered area not less than 500 Sq. Ft. with all facilities such as telephone, fax, internet, photocopier, computer/ laptop & printer along with operator, regular electric & purified drinking water supply etc. and 4-wheeled transportation/inspection vehicle, in running condition & duly maintained as per the requirement of the project, without any extra cost to employer. The Contractor shall provide adequate access to the office. The Contractor shall be responsible during the continuance of the Contract for the security of the office and for all plans, documents and papers and other clauses contained therein. The sitting of the office shall be in accordance with the instructions of the Engineer-in-Charge. Service personnel shall also be made available at the Office at all times and shall clean site office daily. The Contractor shall provide uninterrupted power and water to the Office as directed for 24 hours free of cost. An amount equal to 1% of gross bill from all running account & final bill shall be recovered, if the above facilities are not provided by the Contractor.

The Contractor shall dismantle and remove from site all such temporary structures on completion of Contract or whenever required by the Employer.

The contractor shall also make sufficient arrangement for Photography/ Videography preferably by maintaining a camera/video camera at site so that video and photographs can be taken of a specific activity at any point of time. The contractor shall also provide software like MS Project/Primavera etc. for the purpose of preparing progress report etc.

49.2 The Contractor shall provide at his own cost, One Site sign Board, at directed location of overall size 2.40 metres wide and 1.50 metres height and of approved design. The names of the Project, Employer, Consultants, Engineer and Contractor etc. shall be exhibited as directed.

49.3 The Contractor shall maintain daily weather record. Daily maximum and minimum temperature and corresponding, humidity shall be recorded and charted. Rainy days shall be recorded when the rain lasting more than one hour hampers the work. Any other inclemency in weather shall be recorded. The records shall be regularly shown to the Engineer-in-Charge and his signature obtained.

49.4 The Contractor shall arrange at his own cost to maintain a progress record of the works by taking (5"x 7")/8'X10" size colour photographs minimum 6 Nos. or more per month as directed by the Engineer-in-Charge during the construction stages and after completion and shall supply one set to the Engineer-in-Charge at no extra cost. These photographs shall also be submitted as part of the Contractors R.A. Bills.

49.5 The Contractor shall provide arrangements for firefighting at his own cost. For this purpose, he shall provide requisite number of fire extinguishers and adequate number of buckets, some of which are to be always kept filled with sand and some with water. This equipment shall be provided at suitable prominent and easily accessible places and shall be properly maintained. The Contractor may be subject to periodic fire prevention inspections and any deficiency or unsafe condition shall be corrected by the Contractor at his own cost and to approval of the Engineer-in-Charge and the relevant authorities.

These fire prevention inspections shall include but not limited to the following:

- Proper handling, storage and disposal of combustible materials, liquids and wastes.
- Work operations which can create fire hazards.
- Access for firefighting equipment.
- Type, size, number and location of fire extinguishers or other firefighting equipment.
- Inspection and maintenance records for extinguishers
- Type, number and location of containers for the removal of surplus materials and rubbish.
- General housekeeping

49.6 For the purpose of quick communication between the Engineer-in-Charge and the Contractor or his Representative, Site Order Books shall be maintained at site in the manner as described below:

Any communication, relating to the works may be conveyed through records in the site order book. Such a communication from one party to the other shall be deemed to have been adequately served in terms of the Contract. Each site order book shall have machine- numbered pages in triplicate and shall be carefully maintained and preserved by the Contractor and shall be made available to the Engineer-in-Charge as and when demanded. Any instruction which the Engineer-in-Charge may like to issue to the Contractor may be recorded by him in the site order book and two copies thereof taken by the Engineer-in-Charge for his record. The Contractor or his Contractor or Representative may similarly record in the site order book any communication he may like to send to the

Engineer-in-Charge. Two copies thereof when sent to the Engineer-in-Charge and receipt obtained thereof, will constitute adequate services of the communication to the Engineer-in-Charge.

Clause 50: Data, Services and Facilities to be provided by the Employer

Attention is drawn to the following which are not provided by the Employer and are to be arranged by the Contractor at his own cost.

- The Employer will not provide office accommodation. The Contractor shall make his own office accommodation arrangements for their office staff for each of the field supervision teams including furniture, equipment, operation and maintenance.
- The Employer will not provide project vehicles to the Contractor. The Contractor shall make his own arrangements in respect of vehicles. The Contractor shall ensure that vehicles for the team are of good makes and are of excellent working condition.
- The Contractor shall be responsible for making his own arrangements for survey equipment.
- The Contractor shall be responsible for making his own arrangements for communications.

Clause-51: a)Jurisdiction

Any dispute connected with this contract shall fall within the jurisdiction of Courts at Delhi.

b) Order of Precedence of Documents

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

- WAPCOS and ESIC Agreement and terms and conditions lay over by ESIC time to time. It is attached as Annexure.
- Letter of Award, along with statement of agreed variation and its enclosures, if any.
- Special Condition of Contract
- Scope of Work
- Description of Bill of Quantity/Schedule of Quantities
- Technical Specification (General, Additional and Technical Specification) as given in Tender Documents
- General Condition of Contract
- Drawings, if any
- CPWD/MORTH specification (as specified in Technical Specification in Tender) update with correction slips issued up to last date of receipt of tenders.
- Relevant B.I.S codes

Clause-52: PREFERENCE TO MAKE IN INDIA

The provision of revised "Public Procurement (Preference to Make in India) Order 2017-Revision' Issued by Department of Industrial Policy and Promotion under Ministry of Commerce and Industry vide letter no.-P45021/2/2017-PP (BE-II) as amended on 16.09.2020 shall be applicable to the bidding process and award of the contract shall be done accordingly. In this connection, the minimum local content shall be 50% and the margin of purchase preference shall be 20%.

Verification of local Content

- The bidder at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self –certification that the item offered meets the local content requirement of the tender. They shall also give details of the location at with the local value addition is made.

In cases of procurement for a value in excess of Rs. 10 crores, the bidder shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

For & on behalf of Tenderer

Signature of the authorized representative :

Name of the agency :

Name and designation :

Contact Details

a) **Communication address :**

b) **E-mail id :**

c) **Contact Nos. :**

SECTION– V

ADDITIONAL CONDITIONS

1. The Contractor shall be responsible for consequential effects arising out during the inspection done by the Chief Technical Examiner Cell, Central Vigilance Commission or by the Building Works Committee or third party authorized by WAPCOS or any statutory committee or by any duly authorized representative of WAPCOS, during the progress or any time after the construction and development of project up to the defect liability period, and will take appropriate action for rectification of defective work. Rectification of defective works or replacement of sub-standard materials or articles, as pointed out by the Chief Technical Cell, Central Vigilance Commission, Building Works Committee or authorized representative of WAPCOS or third party authorized by WAPCOS or any statuary committee, will be carried out or replaced by the Contractor at his own risk and cost. WAPCOS will not pay any extra amount for such rectification or replacement.

2. Handing Over of the Project: Contractor will hand over the project to Client after successful completion of each component of the project in all respect and complete satisfaction of Engineer-In-charge. The partial handing over of building components shall not be considered. Contractor shall also provide necessary Completion Certificate/ NOC from all local Government/ Statuary Authorities if required before handing over the project to the client. **The defect liability period will be one (01) years or the period mentioned elsewhere in the contract whichever is higher after such handing over.** The agency has to submit warranty certificate issued by the manufacturer for each item as specified.

3. The Contractor shall be solely responsible to follow the general clauses of the contract including labour regulations, registration of contractor, obtaining labour license from labour department, safety precautions, etc. and all other statutory provisions related to labour/works as per the prevailing General Clauses of Contract amended from time to time. The Contractor shall stick to the schedule of all activities and carry out it with mutually agreed time frame.

4. Rates and amount or Percentage Quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation shall be applicable on this contract. Rate/percentage quoted by the contractor should be exclusive of GST.

5. Other agencies doing works related to this project will also simultaneously execute the work and the contractor shall provide necessary facilities for the same. Nothing extra over the agreement rates shall be paid for the same.

6. Some restrictions may be imposed by the security staff etc. on the working and for movement for labour materials etc. The contractor shall be bound to follow all such restrictions / instructions and nothing extra shall be payable on this account.

7. The project work will be carried out in the manner complying in all respects with the requirements of relevant bye laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer in charge and nothing extra will be paid on this account. The contractor shall comply with proper and legal orders and

directions of the local or public authority or municipality and abide by their rule and regulations and pay all fees and charges which he may be liable.

8. The contractor shall give a performance test of the entire installation (s) as per standing specification before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.

9. Samples of various materials required for testing shall be provided free of charges by the contractor. Testing charges, if any, unless otherwise provided shall be borne by the Contractor. All other expenditure required to be incurred for taking the samples, conveyance, packing etc. shall be borne by the contractor himself.

10. The work shall be carried out in accordance with drawings, to be issued from time to time, by the Engineer-in-Charge**.** Before commencement of any item of work the contractor shall correlate all the relevant drawings, nomenclature of items and specifications etc. issued for the work and satisfy himself that the information available there from is complete and unambiguous. The figure and written dimension of the drawings shall be superseding the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-charge before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and/ or incomplete information and no claim whatsoever shall be entertained on this account.

11. The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by WAPCOS.

12. In the case of items of which abbreviated nomenclature is not available in the above cited publication and also in case of extra and substituted items of works for which abbreviated nomenclature is not provided in the agreement, the full nomenclature of items shall be reproduced in the measurements books and bill forms for running account bill. The full nomenclature of the items shall be adopted in preparing abstract of final bill in the measurement book and also in the bill form for final bill.

13. The contractor shall have to make approaches to the site, if so required and keep them in good condition for transportation of labour and materials as well as inspection of works by the Engineer in charge. Nothing extra shall be paid on this account.

14. No payment will be made to the contractor for damage caused by rains, or other natural calamities during the execution of the works and no such claim on this account will be entertained.

15. Various factory made materials shall be procured from reputed and approved manufacturers or their authorized dealers. List of such approved manufacturers is available as Annexure. For the items / materials not appearing in the list the decision of Engineer in charge shall be final and binding.

16. Wherever work is specified to be done or material procured through specialized agencies, their names shall be got approved well in advance from Engineer in charge. Failure to do so shall not justify delay in execution of work. It is suggested that immediately after award of work, contractor should negotiate with concerned specialist agencies and send their

names for approval to Engineer in charge. Any material procured without prior approval of Engineer in charge in writing is liable to be rejected. Engineer in charge reserves right to get the materials tested in laboratories of his choice before final acceptance. Nonstandard materials shall not be accepted.

17. The contractor shall invariably prepare the samples of items as per direction of Engineer-in-charge. The contractor shall proceed with further finishing items only after getting the samples of these items approved in writing from Engineer-in-charge. No extra claim whatsoever beyond the payments due at agreement rates will be entertained from the contractor on this account.

18. The contractor shall take instruction from the Engineer in charge for stacking of materials at any place. No material shall be stacked on areas where other buildings, roads, services or compound walls are to be constructed.

19. If as per municipal rules, the huts for labour are not be created at the site of work by the contractors, the contractor are required to provide such accommodation as is acceptable to local bodies and nothing extra shall be paid on this account.

20. The contractor or his authorized representative shall associate in collection, preparation, forwarding and testing of such samples. In case, he or his authorized representative is not present or does not associate himself, the results or such tests and consequences thereon shall be binding on the contractor.

21. The material shall conform to the quality and make as per attached list in Technical Specifications.However, for the items not appearing in the list preference shall be given to those articles which bear ISI certification marks. In case articles bearing ISI certification marks are not available the quality of sample brought by the Contractor shall be judged by the standard laid down in the relevant ISI specification/CPWD specification. All materials and articles brought by the contractor to the site for use shall conform to the samples approved, which shall be preserved till the completion of the work. However, such articles which bear ISI mark but stand banned by CPWD will not be used. Notwithstanding the case of materials of "Preferred Make" as given in Annexure, provisions of Clause 10A of the General Conditions of Contract for Central PWD works shall be applicable on the materials of "**Preferred Make**" also.

22. It must be ensured that all materials to be used in work bear BIS certification mark. In cases where BIS certification system is available for a particular material/product but not even a single producer has so far approached BIS for certification the material can be used subject to the condition that it should confirm to CPWD specification and relevant BIS codes. In such case written approval of the Engineer-In-Charge may be obtained before use of such material in the work.

23. The final approval of the brand to be used shall be as per the direction of Engineer-in-Charge. The brand used shall be one of the brands in case specified in the list of preferred make / materials. The decision of the engineer in charge about the make is final and binding on the contractor.

24. In case of non-availability of material of the brands specified in the list of approved materials an equivalent brand may be used after getting written approval of WAPCOS

giving details to indicate that the brand proposed to be used is equivalent to the brands mentioned in the agreement.

25. The following procedure shall be followed for the removal of rejected/sub-standard materials from the site of work:
    (i) Whenever any material brought by the contractor to the site of work is rejected, entry thereof should invariably be made in the Site Order Book under the signature of the Engineer-In-Charge, giving the approximate quantity of such materials.
    (ii) As soon as the material is removed, a certificate to that effect shall be recorded by the Engineer-In-Charge against the original entry, giving, the date of removal and mode of removal, i.e., whether by truck, carts, or by manual labour. If the removal is by truck, the registration number of the truck should be recorded.
    (iii) When it is not possible for the Engineer-In-Charge to be present at the site of work at the time of actual removal of the rejected/sub-standard materials from the site, the required certificate should be recorded by the Authorized Representative of WAPCOS, and the Engineer-In-Charge should countersign the certificate recorded by the Authorized Representative.

26. If the work is carried out in more than one shift or during night, no claim on this account shall be entertained.The contractor has to take permission from the police & local authorities etc. if required for work during night hours. No claim / hindrance on this account shall be considered if work is not allowed during night time. The requisite supervision shall be made available by the WAPCOS along with necessary issue of material under joint custody.

27. Once the Project is completed and the contractor shall be responsible to attend defect pointed out by WAPCOS / ESICand then hand over the Project to the ESIC.

28. Contractor should hand over the warranty of the specialized items in the name of ESIC.

29. The contractor is required to deploy resources as per availability of site. However, no claim will be entertained for idle labour, idle machinery, idle technical/no-technical staff, idle T&P etc.

30. No claim whatsoever for idle labour, additional establishments, costs of hire and labour charges for tools and plants, scaffolding etc, would be entertained under any circumstances

31. All running account bills preferred by the contractor for advance payments shall be processed only if Engineer-in-charge is satisfied that upto date investments (excluding security deposit & performance guarantee, which are not considered as investments) made by the contractor against contracted work are more than the payments received. Accordingly, all running account bills shall be supported with an account of up-to-date payments received vis-a-vis upto date investments made on the work to enable engineer-in-charge to check to his satisfaction that the payments made by engineer-in-charge are properly utilised only on the work and nowhere else.

32. Requirement of Technical Staff as per Clause 36:

Min. Qualification/ Experience	**Nos.**	**Designation**	**Penal recovery if notemployed**
1. Graduate Engineer (Civil/Electrical)/ Diploma holder (Civil) with minimum fiveyears' experience in the relevant field	2	Site-in-charge	40,000/-per month

33. **Milestones**for Carrying out the work

Contractor shall submit the detailed work schedule so as to complete the works considering all the field conditions in accordance with the requirement of the Engineer-in-charge. Contractor should also strictly adhere to such schedule mutually accepted to complete the total work within the time period mentioned in the contract.

34. **Deviation or Extra Item Limit as per Clause 12:**

The following clauses shall prevail if not mentioned elsewhere in the contract:

- This tender is based upon the estimations on the basis of site conditions (tentative) enclosed with technical specifications and BOQ. WAPCOS Limited reserves the right to vary any individual item to any extent either positive or negative within the scope of work as defined as per the requirement of ESIC/WAPCOS Limited. The decision as to items are within the scope of work shall be of WAPCOS Limited which is final & binding. Therefore in case of variation in quantity as given in BOQ either positive or negative no rate revision is applicable. In case of New Rate or Price of the Substituted/Extra/deduction items shall be derived from any relevant rates or prices in the Contract.New rate or price of the substituted/Extra/deduction items shall be derived from the Delhi Schedule of Rates -2021. In case the rates are not available in DSR, the same shall be derived from the competitive market quotes, obtained by WAPCOS Limited/WAPCOS Limited representative. The contractor's profit and overheads together shall be taken as 15% only. ESI, Bonus, CPOH and EPF etc. as applicable also taken in case of changes in the manpower.

- Contractor shall carry out the extra quality of work under deviation from the estimated quantity at the rate quoted in the BOQ limited to 25% deviation on each item and for the quantity deviated beyond 25% market rates will be applicable. Execution of such deviation in quantity shall require prior written permission from WAPCOS/ESIC.

- Contractor shall submit the detailed work schedule so as to complete the works considering all the field conditions in accordance with the requirement of the engineer-in-charge. Contractor should also strictly adhere to such schedule mutually accepted to complete the total work within the time period mentioned in the contract.

35. The firm/contractor shall furnish a list of the workers deployed along with their full names, father's/husband's name, date of birth, full residential addresses (present & permanent), contact tel. No. etc. The firm/contractor shall be responsible to get the character and antecedents of the persons verified by the Police before deploying them in ESIC. The authenticated copies of Police verification certificate/documents of the persons, who are to be deployed in ESIC, shall be submitted by the firm to WAPCOS. WAPCOS/ESIC reserve the right to conduct the test, as may be deemed fit to adjudge the suitability of the persons provided by the firm/contractor. WAPCOS/ESIC also reserves the right to get the person's character and antecedents verified by the Police, if deemed necessary.
36. The firm will also ensure that the persons deployed in ESIC are medically fit and will keep record of their medical fitness. The firm shall withdraw such persons, who are not found suitable by ESIC/WAPCOS for any reasons, immediately on receipt of such request from WAPCOS/ESIC. The copies of medical fitness certificate of the persons who are to be deployed in ESIC, shall be submitted by the successful bidder to WAPCOS/ESIC.
37. There shall be no representation of any kind, implied or otherwise, of any automatic absorption, regularization, continued engagement or concession or preference in employment security for the persons engaged by the service provider for any engagement. service or employment in any capacity, in any office or establishment of the Govt. A copy of each of the agreement entered into by the firm with the persons, deployed in ESIC are required to be submitted to WAPCOS/ESIC within a fortnight of deployment.
38. The contract does not amount to employment with the Government or confer any right on the contractor/firm or the workers engaged by the firm/contractor, nor any representation by the Government as to the possibility or preference in. employment at any time in future in respect of security and other personnel of the contractor/firm in any office/ establishment of the Government.
39. The firm/contractor shall appoint a coordinator, who would be responsible for immediate interaction with WAPCOS/ESIC and so that optimal services are available without disruption.
40. The worker engaged will observe discipline and decorum and shall not-misbehave with any WAPCOS/ESIC officer.
41. If at any point of time, any person absent himself/herself, a substitute shall be provided immediately.
42. In case, any person is absent on a particular day and substitute is not provided, a daily rate/ pro rate shall be deducted from the bill for the month. In case the firm is asked to provide a substitute and fails in doing so within 3 (three) days, then a penalty equal to 10% of the daily wages of the worker will be imposed on the firm, besides deduction of daily wages.
43. The firm/contractor shall be directly responsible for settlement of any dispute or grievance of the 'Worker' relating to his/her deployment in ESIC and any other matters that may arise in this regard and WAPCOS/ESIC, in no way, be responsible for settlement of such issues/dispute.
44. Any liability regarding payments of wages to the 'workers' arising due to non-compliance with any provisions of the Labour Laws or due to any human loss/injury during the course of work will be the sole and personal responsibility of the firm/contractor. The successful firm/contractor shall submit, a notarized affidavit on a stamp paper of appropriate value to the effect that the firm undertake to pay Minimum Rates of wages to the persons engaged as per applicable orders of CLC, GOVERNMENT OF INDIA and to

enhance the rates, as and when it is revised as well as all the statutory dues w.r.t ESI, EPF etc. to ESIC. The contractor will submit the copies of the EPF statement/pass Book, ESI Card and Service Tax Challans long with monthly bill, without which the payment to the contracting firm will not be released.

45. The successful bidder will submit an undertaking in form of duly executed affidavit to deposit EPF contribution of the Employer and Employee in the EPF Account of the workers every month.
46. The successful bidder will also submit an undertaking in form of duly executed affidavit to the effect that if the contractor does not provide copies of depositing Employer and Employees share in the EPF Account of the employee, he will not be entitled for these payments.
47. The successful bidders will also submit an undertaking in the form of duly executed affidavit to comply with the instructions relating to payment of EPF in respect of those employees who are not in excluded category as per instruction issued by the Government on the subject.
48. The employer's share of EPF will not be paid to the contractor for those persons, who are in the excluded category of EPF contribution as per latest guidelines issued by Ministry of Labour& Employment in this regard. The employer's share of EPF will be paid to the Contractor on production of documentary evidence of depositing the share in the individual employee's EPF account opened for the employee in his/her name.
49. The firm/contractor shall unde1iake to provide the services for the entire duration regularly failing which the Performance Security Deposits and such other amount that may be due from WAPCOS/ESIC to the firm shall stand forfeited.
50. If at any point of time, the services being provided by the firm/contractor are found to be unsatisfactory in any manner, the WAPCOS/ESIC will have full authority to discontinue the services of the firm/contractor by giving notice of 15 days. The decision of WAPCOS in this regard shall be final and binding on the firm/contractor.
51. The working hours of the workers on the basis of 6 days working in a week. The workers shall have to sign the attendance both at the time of arrival and departure.
52. In emergent situations the services of the persons may be required on Sundays/Holidays also.
53. If, any workers arrives late or leaves early, a deduction of the daily rate shall be made on half day basis.
54. If, at any point of time, the services of any person provided by the firm/contractor are found to be unsatisfactory or not of the expected level in any manner, the firm/contractor shall change the worker immediately.
55. The workers shall not be entitled for any financial benefit that are admissible to regular employees of WAPCOS/ESIC. However, the firm/contractor is required to pay wages to the workers engaged strictly as per the Minimum Wages Act modified from time to time including EPF, ESI and other social security schemes of the Government of CLC, Government of India and Ministry of Labour& Employment. The wages to the workers would be dynamic. The weekly rest etc. should also be allowed to workers as per statutory provisions. This is required to be quoted by all bidders at the time of submitting bids, which would be increased as and when increased by the Government authorities. All the statutory requirements such as obtaining valid LabourLicence on the basis of contract letter and compliance of all the provisions of social security legislations in general and provisions of the Contract Labour (Regulation & Abolition) Act, 1970 and the Contract Labour (R&A) Rules 1971 in particular are required to be complied with by the contactor. The firm/contractor should quote their Service Charge for providing services of workers for WAPCOS/ESIC over and above the statutory payments to be made to each

worker. so deployed. Except the Administrative Service Charges, quoted by the service provider, no other amount is to be retained by the service provider out of the minimum wages, EPF, ESI etc. as mandated by the statutory provisions on the subject. The proof of depositing the service tax with the appropriate authorities have to be submitted to WAPCOS periodically.

56. The administrative Service Charges per worker Quoted bv the firm in the financial bid shall be commensurate with the administrative and supervisory efforts required for executing the contract.
57. The rates of wages and the consequential revision in the statutory contribution on worker's wages will be revised by CLC from the date of statutory revision in minimum wages of the workers and in case of revision in the rate of contribution on worker's wages (i.eEPF,ESI etc.) by the CLC Government/Central Government whatsoever may be the case. However, there will be no increase in the Administrative Service Charges quoted by the firm/contractor.
58. The firm should be registered with ESI, PF, Service Tax, Work Contract Tax, Labour Licence & PAN (GST) with the concerned authorities.
59. The contractor shall comply with all relevant Laws and the Rules made there under viz. Income Tax, ESI Act, PF Act, Factories Act, ID Act and Contract Labour (Regulation & Abolition) Act, Private Security Agencies (Regulation) Act, 2005 and Private Security Agencies Central Model Rules, 2006. Payment shall be conditional on fulfillment of the provisions of these Acts and the rules framed there under.
60. The payment of wages to the workers have to be made by the contractor in accordance with the provision of Section 21 of the Contract Labour (Regulation & Abolition) Act, 1970.
61. The firm/contractor will make payment of wages to the workers provided by 7th of every month.
62. In case of failure to make payment of wages to the workers within the prescribed period or making short payment by the firm/contractor, the Performance Security Deposit amount deposited by the firm/contractor with WAPCOS Limited will be forfeited. The firm will also be blacklisted.
63. Vehicle for site visit and office set up at site for WAPCOS officials shall be provided by the contractor at his own cost.
64. The Firm/ contractor shall be responsible for all commission and omissions on the part of manpower engaged for the purpose. WAPCOS Limited shall not be held responsible in any manner whatsoever, in matter of injury/death/health etc. of the contractor's employee performing duties under this contract.
65. If it is found that the information/certificates furnished by the participating firm is incorrect/wrong or bogus, the firm shall be blacklisted, its bids will be ignored and EMD will be forfeited.
66. WAPCOS Limited has reserve the right to execute more items or quantities or manpower as per the ESIC or site requirement.

For & on behalf of Tenderer

Signature of the authorized representative :
Name of the agency :
Name and designation :
Contact Details
a) Communication address :

b) E-mail id :
c) Contact Nos. :

SECTION– VI - ANNEXURES

ANNEXURE –I

GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WORKS

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the WAPCOS LIMITED (hereinafter called the WAPCOS of the other part).

WHEREAS THIS agreement is supplementary to a contract. (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the WAPCOS of the other part, whereby the contractor interalia, under look to render the work in the said contract recited structurally stable workmanship and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable and guarantee against faulty workmanship, finishing, manufacturing defects of materials and leakages etc.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable, after the expiry of maintenance period prescribed in the contract for the minimum life as per contract, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-in-charge with regard to nature and cause of defects shall be final. During the period of guarantee the guarantor shall make good all defects to the satisfaction of the Engineer in charge calling upon him to rectify the defects, failing which the work shall be got done by the WAPCOS by some other contractor at the guarantor's cost and risk. The decision of the Engineer in charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all the defects, commits breach thereunder then the guarantor will indemnify the Principal and his successor against all loss, damage cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and / or damage and / or cost incurred by the WAPCOS the decision of the Engineer-in-charge will be final and binding on the parties.

IN WITHNES WHEREOF those presents have been executed by the obligator _____ and _____ by for and on behalf of the WAPCOS LIMITED on the day, month and year first above written.

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____
2. _____

SIGNED FOR AND ON BEHALF OF THE WAPCOS LIMITED BY_____ _____ in the presence of:

1. _____
2. _____

ANNEXURE –II
FORM OF PERFORMANCE SECURITY(GUARANTEE)

WAPCOS LIMITED
76-C, Sector-18,
Gurgaon, Haryana – 122 015

In consideration of _____ (Employer's name) (hereinafter referred to as "the Employer") which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to _____ (Contractor's name & address) (hereinafter referred to as "the Contractor " which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) a contract, by issue of Employer's Notification of Award No. _____ dt. _____ and the same having been unequivocally accepted by the Contractor, resulting into a contract valued at Rs. _____ (Rupees _____only) for _____(name of work) (hereinafter called " the contract") and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire contract equivalent to Rs. _____ (Rupees _____only) (3 % of the said value of the Contract to the Employer).

We, _____(name & address of bank) (hereinafter referred to as "the Bank" which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any or, all monies payable by the Contractor to the extent of Rs. _____(Rupees _____only) as aforesaid at any time upto _____without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall continue to be enforceable till the Employer discharges this guarantee.

We the said Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said contract have been fully paid and its claims satisfied or discharged or till the Employer certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said Contractor and accordingly discharges the guarantee.

The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from, time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under

law would but for this provision, have the effect of relieving the Bank. The guarantee shall not be affected by a change in the constitution of the bank or of the employer.

The bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

We The Said Bank do hereby declare that we have absolute and unconditional power to issue this guarantee in your favour under the Memorandum and Articles of Association or such other constitutional documents of the Bank and the undersigned have full power to execute this guarantee under the Power of Attorney/ Post Approval Authorization dated_____ of the bank granted to him / us by the Bank. We the said bank do hereby declare and undertake that your claim under the guarantee shall not be affected by any deficiency or other defect in the powers of the bank or its officials and the guarantee shall be deemed to have been issued as if the bank and its officials have all the powers and authorization to give this guarantee on behalf of the bank.

We the said bank do hereby certify the genuineness and appropriateness of the Stamp paper and stamp value used for issuing the guarantee. We the said bank do hereby declare and undertake that your claim under the guarantee shall not be affected by any deficiency or other defect in the stamp paper or its stamp value.

We the said bank do hereby declare that our payments hereunder shall be made to you, free and clear of and without and deduction, reduction on account of any reasons including any and all present and future taxes, levies, charges of withholding whatsoever imposed or collected with respect thereto.

Notwithstanding anything contained hereinabove our liability under this guarantee is restricted to Rs._____ (Rupees _____ only) and it shall remain in force up to and including _____ and shall be extended from time to time for such period as may be desired by M/S WAPCOS Limited on whose behalf this bank guarantee has been given.

Notwithstanding anything contained herein

i) our liability under this guarantee shall not exceed Rs. _____ (Rupees _____ only) ;

ii) This bank guarantee shall be valid upto _____ **(indicate a date two months after the probable date of completion)**

iii) Our liability to make payment shall arise and we are liable to pay the guaranteed amount or any part thereof under this guarantee, only and only if you serve upon us a written claim or demand in terms of the guarantee on or before _____(**indicate a date three months after validity of guarantee**).

iv)

Dated this _____day of _____ at _____

For & on behalf of Tenderer

ANNEXURE – III
FORMAT FOR AFFIDAVIT

I / We have submitted a bank guarantee for the work (Name of work) Agreement No. _____Dated _____from _____ (Name of the Bank with full address) to the WAPCOS Limited, Gurgaon Haryana with a view to seek exemption from payment of performance guarantee in cash. This Bank guarantee expires on_____ I / We undertake to keep the validity of the bank guarantee intact by getting it extended from time to time at my / our own initiative up to a period of _____ months after the recorded date of completion of the work or as directed by the WAPCOS.

I / We also indemnify the WAPCOS against any losses arising out of non-encasement of the bank guarantee if any.

(Deponent)
Signature of Contractor

Note:
The affidavit is to be given by the Executants before a first class Magistrate.

ANNEXURE –IV
AGREEMENT PROFORMA
(To be furnished on non-judicial Rs.200/- stamp paper)

To be executed on non-judicial stamp worth Rs.200/- and continuation sheets on ledger papers and two copies on ordinary paper to be submitted neatly type-written sheets on one side of the paper in single line spacing.

AGREEMENT

THIS AGREEMENT IS MADE on this …… day of ……. 2020 BETWEEN WAPCOS Limited, A Government of India Undertaking, having its office at 76-C, Sector-18, Gurgaon, Haryana – 122 015 represented by its CED (CM &Envt), ……S/o……., aged …… years residing at ……..(hereinafter referred to as the 'WAPCOS' or 'Client' which expression shall, unless repugnant to the context or meaning thereof, includes its successors and assigns) of one part and M/s…….., a company incorporated under the Indian Companies Act, 1956, having Its registered office at …… represented by …… …… ……,…….. (Designation), aged ……years, S/o…….. residing at …….. (Hereinafter referred to as 'Agency' which expression shall, unless repugnant to the context or meaning thereof, includes its successors, administrators, liquidators and assigns or legal representatives) of the other part.

WHEREAS the Client invited NIT for "Name**"** vide Tender IDand the Agency submitted a bid for the same giving rates/amounts accepting the terms and conditions of the NIT document.

AND WHEREAS the said bid submitted by the Contractor has been accepted and the Client has awarded the work of **"**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"** vide Work orderNo……Dated…….and the Contractor submitted a signed copy of the work order as a token of acceptance of the same, giving rates/amounts accepting the terms and conditions as stipulated in the work order.

NOW THIS AGREEMENT WITNESSETH and the parties hereby agree as follows:

1. The bid submitted by the Agency for the scope of services/work specified in the NIT at the rates/amounts specified in consideration of all the terms and conditions in the NIT is accepted.
2. It shall be valid for a period of three years from the date of signing unless revoked earlier. Further extensions will be considered as per the provisions of NIT.
3. The Agency agreed to abide by and fulfil all the terms and provisions of the said conditions of contract in default thereof forfeit and pay to WAPCOS the sum of money mentioned in the said conditions.
4. It is mutually agreed that the offer in its entirety shall form part of this agreement.

The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

1. Notice Inviting Tender (NIT)
2. Contract Data

3. Bidder's Bid
4. Work Order
5. Bill of Quantities
6. Any other document listed in the Contract Data as forming part of the contract.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written at Noida/Gurgaon

Signature of the Employer
(with the seal of company and address)

Signature of the Bidder
(with the seal of company and address)

In the presence of:

Witness
1. Name and Address

2. Name and Address

ANNEXURE – V

To,

Chief Executive Director (Envt& CM)
WAPCOS Limited
Environment Division
76-C, Sector -18,
Gurgaon -122015

Sub: Integrity Pact

Dear Sir,

I/We acknowledge that WAPCOS is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by WAPCOS. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, WAPCOS shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully,

Date:

Signature, name and designation of the Authorized signatory)

Place:

Name and seal of Bidder

FORMAT FOR INTEGRITY PACT AGREEMENT
(On Rs.100 stamp paper)

This Integrity Agreement is made at ..... on this..... day of ..... 20.....

WAPCOS Ltd.Here in afterreferred to as "The Principal" (which expression,unlessrepugnanttothecontextthereof,shallmeanandincludeitslegalrepresentatives,heirs andassigns)

AND

.....hereinafter referred to as"TheBidder/Contractor" (whichexpression,unless repugnant to thecontextthereof,shallmeanandincludeitslegalrepresentatives,heirsand assigns)

Preamble

Theprincipalintendstoaward,underlaiddownorganizationalprocedures,contract(s)for(Name of the contract) (hereinafterreferredto as the 'Project'). ThePrincipalnecessarilyrequiresfullcompliancewithallrelevantlawsoftheland,rules,regulations,economic use ofresourcesandoffairness/transparencyinitsrelationswithitsBidder(s)and/orContractor(s).

Inordertoachievethesegoals,thePrincipalwillappointanIndependentExternalMonitor(IEM),whowill monitorthetenderprocessandtheexecutionof thecontract for compliance withtheIntegrityPact by all partiesconcerned,forallworkscoveredintheProject.

To meet the purpose aforesaid both the parties have agreed to comply this Integrity Agreement (hereinafter referred to as “Integrity Pact” or “Pact”), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Section 1 - Commitments of the Principal

Obligationson Principal

The Employer iscommitted to follow the principle ofTransparency,EquityandCompetitivenessinPublicProcurement.

(1) ThePrincipalcommits itselftotakeallmeasures necessary topreventcorruptionandtoobservethefollowing principles: -

a) NoemployeeofthePrincipal,personally orthrough family membersorthroughanyotherchannel,willinconnectionwith the tender for ortheexecutionofacontract, demand, take a promise fororaccept,forselforthirdperson,anymaterialorimmaterialbenefit, which thepersonisnotlegallyentitledto.

b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

c) The Principal will exclude from the process all known prejudicedpersons. ThePrincipalshall obtain bidsfrom only those parties whohavebeen short-listedorpre-qualifiedorthroughaprocessofopenadvertisement/webpublishingoranycombinationthereof.

(2) IfthePrincipalobtainsinformationon the conduct of any of itsemployees, Contractor(s)and/orBidder(s),whichis a criminaloffenceundertheIPC/PC Act, orif there be asubstantivesuspicion in thisregard, thePrincipalwillinformthe Chief Vigilance Officer or the principal will take remedialactionsasper department/conduct rulesandsubjecttoitsdiscretion,canadditionallyinitiatedisciplinaryactions.

(3) The Principalwillenterintoagreementswithidenticalconditionswithall Contractor(s)/Bidder(s) for the different WorkPackagesintheaforesaidProject.

(4) ThePrincipalwilldisqualifyfromthetender process allContractor(s)/Bidder(s) withestimatedcostofworkputtotenderof Rs 5.0croresandabove,whodonot sign thisactorviolateitsprovisions.

Section 2 - Commitments of the

Bidder(s)/Contractor(s)Obligations on Bidder/ Contractor

To acceptandcomplywiththeIntegrityAgreementinletterandspiritandfurtheragreethatexecution ofthe said IntegrityAgreement shallbeseparate and distinct fromthemaincontract, whichwillcomeintoexistence whentender/bidisfinallyaccepted byEmployer. DurationoftheIntegrityAgreementshallbeintheline with section8ofthe IntegrityAgreement.

Bidder/ContractoracknowledgethatintheeventofbreachoftheIntegrityAgreementEmployershallhaveunqualified,absoluteandunfetteredrighttotakeaction under section3.

(1) Itisrequiredthat each Bidder/Contractor(including their respectiveofficers, employeesand sub-contractors) adhere tothehighestethicalstandards,andreporttotheGovernment/Departmentallsuspectedactsoffraudorcorruptionor CoercionorCollusionofwhichithasknowledgeorbecomesaware,during the tenderingprocessandthroughoutthenegotiationorawardofacontract.

(2) The Bidder(s)/Contractor(s)commit(s)itself/themselvestotakeallmeasuresnecessarytopreventcorruption.Hecommitshimselftoobservethefollowingprinciplesduringhisparticipationin the tenderprocessandduringthecontractexecution.

(a) TheBidder(s)I Contractor(s) will not,directlyor throughany otherpersonorfirmoffer,promiseorgivetoanyofthePrincipal'semployeesinvolvedin the tenderprocessorthe execution of the contract anymaterialorother benefit which he/she isnot legally entitled to, inordertoobtaininexchange any advantage,ofanykindwhatsoever,duringthetenderprocessorduringtheexecutionofthecontract.

(b) The Bidder(s)/Contractor(s) will not enter with other Bidders intoany undisclosed agreement or understanding, whether formalor informal.Thisappliesinparticular to prices, specifications, certifications,subsidiary contracts,submission or non-submission of bids or anyotheractionstorestrictcompetitiveness or to introducecartelization in thebiddingprocess.

(c) The Bidder(s)/Contractor(s)will not commitanyoffenceundertherelevantIPC/PC Act. Further theBidder(s)/Contractor(s)will notuseimproperly,forpurposeofcompetitionorpersonalgain,or pass on toothers,anyinformationordocumentprovidedby the Principal as part of thebusinessrelationship,regardingplans, technical proposalsandbusinessdetails, includinginformationcontainedortransmittedelectronically.

(d) The Bidder(s)/Contractor(s)of foreignoriginshalldisclosethenameandaddressoftheAgents/representativesinIndia,ifany.SimilarlytheBidder(s)/Contractor(s)of IndianNationalityshall furnish the name andaddress of the foreign principals, if any. EithertheIndianagentonbehalfoftheforeignprincipalortheforeignprincipaldirectlycouldbidinatenderbutnotboth.ItshallbeincumbentontheIndianagentandtheforeignprincipaltoAdheretotherelevantguidelinesofGovernmentofIndia,issuedfromTimetotime regarding availing servicesofIndianAgentsforforeignSuppliers.

Further details asmentioned inthe“GuidelinesonIndianAgentsofForeignSuppliers”shallbedisclosed bythe Bidder(s) IContractor(s). Further, asmentioned in the Guidelinesall the paymentsmade to the IndianAgent/representativehavetobeinIndianRupeesonly.

(e) TheBidder(s)/Contractor(s)will,whensubmittinghisbid,discloseanyandallpaymentshehasmade,iscommittedtoorintendstomaketo

agents,brokersorany other intermediaries inconnection with theaward ofthecontract.

(f) TheBidder(s)/Contractor(s) todisclose anytransgression with anyothercompanythatmayimpingeontheanti-corruptionprinciple.

(3) The Bidder(s)/Contractor(s)will not instigatethirdpersons to commitoffencesoutlinedaboveorbeanaccessorytosuch offences.

(4) TheBidder(s)/Contractor(s)willnot,directlyorthroughanyotherpersonorfirmindulgein fraudulent practice means a wilfulmisrepresentationoromission of factsorsubmissionoffake/forged documentsinordertoinducepublicofficialto actinreliancethereof,withthepurposeofobtainingunjustadvantagebyor causingdamage to justified interest of others and/or toinfluencetheprocurementprocesstothedetrimentoftheGovernmentinterests.

(5) TheBidder(s)/Contractor(s)willnot,directlyorthroughanyotherpersonorfirm use Coercive Practices (means the act of obtaining something,compellingan action orinfluencing a decision through intimidation,threat ortheuseofforce directly orindirectly,where potential oractual injury maybefalluponaperson, his/herreputationorpropertytoinfluencetheirparticipationinthetenderingprocess).

(6) The Bidder(s)/Contractor(s)signing IP shall not approach the CourtswhilerepresentingthematterstoIEMandhe/shewillawaittheirdecisioninthematter.

(7) TheBidder(s)/Contractor(s),incaseofsub-contracting,thePrincipalcontractorshalltaketheresponsibilityoftheadoptionof IP bythe sub-contractor.

Section3: Disqualificationfromtenderprocessand/or exclusionfromfuture contracts.

Withoutprejudicetoanyrights that maybe available totheEmployerunderlawortheContractoritsestablishedpoliciesandlaiddownprocedures,theEmploy er shall have the following rights in case of breach of thisIntegrityPactbythe

Bidder(s)/Contractor(s)and the Bidder/Contractoraccepts and undertakes torespectandupholdtheEmployerabsoluteright:

(1) IftheBidder(s)/Contractor(s),beforeawardingtheProjectorduringexecution has committedatransgressionbyviolatingSection2 aboveorinanyotherformsoastoputhisreliabilityorcredibilityinquestion, the Principal,atitssolediscretion,aftergivingproperopportunitytothebidderisentitledtodisqualify the Bidder(s) /Contractor(s) from thetender processorterminatethe contract, if already awarded orexclude the Bidder/Contractor fromfuture contract award processes, forthatreason,without prejudice to anyotherlegalrightsorremediesavailable to the Principal under therelevantclauses of GCC/SCC of the tender/contract. Theimposition anddurationoftheexclusionwillbedeterminedbytheseverityoftransgressionand

determined by the Principal.Such exclusion may be forever or for a limitedperiodasdecidedbythePrincipal.

(2) IftheContractor(s)/Bidder(s)has committedatransgressionthroughaviolation of anyoftheterms underSection2 aboveor in anyotherformsuchastoputhisreliabilityorcredibilityintoquestion,thePrincipalwillalsobeentitledtoe xclude suchContractor(s)/Bidder(s)fromfuturetenders/contractawardprocesses. The impositionanddurationof the exclusion will be determined bythePrincipal, keeping in view the severity of the transgression.Theseveritywillbedetermined bythecircumstancesofthecase,inparticular,thenumberoftransgressionsand/ortheamountof thedamage.

(3) Ifitisobservedafter payment offinalbillbut before the expiry ofvalidityof Integrity Pactthatthecontractorhascommitted atransgression,throughaviolationofanyoftheterms underSection2 aboveoranyotherterm(s)of this Pact, during theexecution ofcontract, thePrincipal will beentitledtoexcludethecontractorfromfurthertender/contractawardprocesses.

(4) The exclusion will be imposed for a minimum period of six (6) monthsandamaximumperiod of three(3) years.

(5) If the Contractor(s)/Bidder(s) can prove that he has restored/recoupedthedamagetothePrincipalcausedbyhimandhasinstalledasuitablecorruption prevention system,thePrincipalmay,atitssolediscretion, revokeorreducetheexclusionperiodbeforetheexpiryoftheperiodofsuchexclusion.

Section4:CompensationforDamages

(1) If the Principal has disqualified the Bidder(s)/Contractor(s) from thetender processpriortotheawardingoftheProjectaccordingtoSection3, the Earnest MoneyDeposit(EMO)/ BidSecurityfurnished, if any,alongwiththeoffer,as per termsof the Invitation of Tender, shall also beforfeited.The Bidder(s)/Contractor(s) understandsandagreesthatthiswillbeinaddition to the disqualification andexclusionoftheContractor(s)/Bidder(s)asmaybeimposedbythePrincipal,intermsof Section3above.

(2) If,atanytimeaftertheawardingoftheProject,thePrincipalhasterminatedthe contractaccordingtoSection3,orifthePrincipal isentitledtoterminatethecontractaccording to Section 3, the Security Deposit/PerformanceBank Guarantee furnished by the contractor, if any, as per the termsof the NIT/Contract shall beforfeited without prejudice toany other legalrightsand remediesavailabletothePrincipalundertherelevantclausesofGeneral/SpecialConditionsofContract.

The Contractor(s)/Bidder(s)understands and agreesthatthiswillbe in additiontothe disqualificationandexclusionoftheBidder(s)/Contractor(s),asmaybeimposedbythePrincipalin termsof Section3above.

Section5:Previoustransgression

(1) The Bidder(s)/Contractor(s) herein declares that it has committed no transgressions in the last 5 years with any other company in any

country, conforming to the anti-corruption approach as detailed herein, or with the government, Central Government, or State Government, or any other Public Sector Enterprise in India, that could justify its exclusion from the tender process.

(2) If at any point of time during the tender process or after the awarding of the Contract, it is found that the Bidder(s)/Contractor(s) has made an incorrect statement on this subject, he can be disqualified from the tender process or, if the Contract is already awarded, it will be terminated for such reason and the Bidder(s)/Contractor(s) can be blacklisted in terms of Section 3 above.

(3) If the Bidder/Contractor can prove that he has rectified/recouped the damage caused by him and has installed a suitable corruption prevention system, the Employer may, at its own discretion, revoke the exclusion prematurely.

Section6: Independent External Monitor I Monitors

(1) The Principal shall, in cases where the Project Value is in excess of Rs 5.0 crore and above, appoint competent and credible Independent External Monitor(s) with clearance from the Central Vigilance Commission. The Monitor shall independently review the cases referred to it to assess whether and to what extent the parties concerned comply with the obligations under this Integrity Pact.

(2) In case of non-compliance with the provisions of the Integrity Pact, the complaint or non-compliance is to be lodged by the aggrieved party with the Nodal Officer only, as appointed by the CMD, WAPCOS. The Nodal Officer shall refer the complaint or non-compliance received by him to the aforesaid Monitor.

(3) The Monitor will not be subject to any instructions by the representatives of the parties and will perform its functions neutrally and independently. The Monitor shall report to the Chairman-cum-Managing Director, WAPCOS.

(4) The Bidder(s)I Contractor(s) accepts that the Monitor shall have the right to access, without restriction, all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/her request and demonstration of a valid interest, unrestricted and unconditional access to its project documentation. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s)with confidentiality.

(5) The Principal will provide the Monitor with sufficient information about all meetings among the parties related to the project, provided such meetings could have an impact on the contractual relations between the Principal and the Contractor.

As soon as the Monitor notes, or believes to note, a violation of this Pact, he will inform the Principal and request the Principal to discontinue and/or take corrective action, or to take other relevant action(s). The Monitor can

in this regard submitnon-bindingrecommendations.However,beyondthis,theMonitor has no righttodemandfromthepartiesthat they act in a specificmannerand/or refrainfromactionand/ortolerateaction.

(6) The Monitor will submit a written report to the CMD, WAPCOS within 4 to 6 weeks from the date of reference or intimation to it and, should the occasion arise, submit proposals for corrective actions for the violation or the breaches of the provisions of the agreement noticed by the Monitor.

(7) If the Monitor has reported to the CMD, WAPCOS, of a substantiated suspicion of an offence under the relevant IPC/PC Act, and the CMD, WAPCOS, has not, within a reasonable time, taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Chief Vigilance Officer, WAPCOS.

(8) The word 'Monitor' means Independent External Monitor and includesbothsingular and plural forms.

(9) For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matters should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

(10) IEM should examine the process integrity, they are not expected to concern themselves with fixing responsibility of officers. Complaints alleging malafide on the part of any officer of the organization should be looked into by the CVO of the concerned organization.

(11) The role of IEM is advisory, would not be legally binding, and is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organizations

(12) Issueslike warranty/guaranteeetc.ShouldbeoutsidethepurviewofIEMs.

(13) The role of the CVO of the organization shall remain unaffected by the presence of IEMs. A matter being examined by the IEMs can be separately investigated by the CVO in terms of the provisions of the CVC Act or Vigilance Manual if a complaint is received by him/her or directed to him/her by the commission

Section7-CriminalchargesagainstviolatingBidder(s)/Contractor(s)/Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder/Contractor or any employee or a representative or an associate of a Bidder/Contractor, which constitutes a criminal offence under the IPC/PC Act, or if the Principal has substantive suspicion in this regard, the Principal will forthwith inform the same to the Chief Vigilance Officer, WAPCOS

Section8-Durationofthe IntegrityPact

This Pact shall come into force when both parties have legally signed it. The Pact shall expire, in case of the Contractor(s), 3 (three) months after the last payment under the Contract is made and in case of the unsuccessful Bidder(s), 2 (two) months after the contract for the project has been awarded

If any claim is made or lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged or determined by CMD of WAPCOS

The Bidder(s)/Contractor(s), however, understand and agree that even upon the completion of the Project and/or the last payment under the Contract having been made, if any transgression/violation of the terms of this Pact comes/is brought to the notice of the Principal, it may, subject to its discretion, blacklist and/or exclude such Bidder(s)/Contractor(s) as provided for in Section 3, without prejudice to any other legal right or remedy so available to the Principal.

Section9-Otherprovisions

(1) This agreementissubjectto IndianLaw.Place of performance and jurisdictionistheRegisteredOfficeoftheprincipal,i.e.NewDelhi.

(2) Changesandsupplements as well as termination notices need to be madeinwriting.

(3) If theBidder/Contractoris a partnershiporaconsortium,thisagreementmustbesignedbyallpartnersorconsortium members.

(4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement shall remain valid and binding. In such a case, the parties will strive to come to an agreement in accordance to their original intentions

(5) Whereverhe or his is indicated in the above sections, the same may be read as he/she or his/her, as the case may be.

(6) Itis agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement/Pact, any action taken by the Principal in accordance with this Integrity Agreement/Pact or interpretation thereof shall not be subject to arbitration

- -	- -
(For& On behalfof the Principal)(OfficeSeal)	(For& On behalfof Bidder/Contractor) (OfficeSeal)
Place Date Witness1:	Place Date Witness1:

(Name&Address)
Witness2:
(Name&Address)

(Name&Address)
Witness2:
(Name&Address)

ANNEXURE – VI
FORMAT OF RESUME OF PROPOSED PERSONNEL

The bidder shall provide all the information requested below:

Position		
Personnel information	Name	Date of birth
	Professional qualifications	
Present employment	Name of Employer	
	Address of Employer	
	Telephone	Contact (manager / personnel officer)
	Fax	E-mail
	Job title	Years with present Employer

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company, Project , Position, and Relevant Technical and Management Experience

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

{day/month/year}

Name of Personnel **Signature** **Date**

{day/month/year}

Name of authorized Representative of the Contractor **Signature** **Date**

ANNEXURE –VII
SAFETY CODES

1. 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. 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 thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3. 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. 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. 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. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder up to and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least ¼" 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. (a) 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 side 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.

(b) Safety Measures for digging bore holes:-

   i. If the bore well is successful, it should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned ones should be completely refilled to avoid caving and collapse;

ii. During drilling, Sign boards should be erected near the site with the address of the drilling contractor and the Engineer in-charge of the work;

iii. Suitable fencing should be erected around the well during the drilling and after the installation of the rig on the point of drilling, flags shall be put 50m all-round the point of drilling to avoid entry of people;

iv. After drilling the bore well, a cement platform (0.50m x 0.50m x 1.20m) 0.60m above ground level and 0.60m below ground level should be constructed around the well casing;

v. After the completion of the bore well, the contractor should cap the bore well properly by welding steel plate, cover the bore well with the drilled wet soil and fix thorny shrubs over the soil. This should be done even while repairing the pump;

vi. After the bore well is drilled the entire site should be brought to the ground level.

7. 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 or a 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. 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 asphaltic 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 colour 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 of 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 metres away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

(l) The workers engaged for cleaning the manholes/sewers should be properly trained before allowing to work 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 carefully 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 extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-in-Charge regarding the steps to be taken in this regard in an individual case will be final.

(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:-

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

(r) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.

(s) 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. The 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 a 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.

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

(ix) Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

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

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

(i) (a) 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.

(b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

(ii) 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.

(iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load each safe working load and the 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.

(iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regards contractor's 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. 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. 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. 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. 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. 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.

For & on behalf of Tenderer

ANNEXURE – VIII

MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS EMPLOYED BY CONTRACTORS

1.APPLICATION

These rules shall apply to all buildings and construction works in which twenty or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the contract work is in progress.

2.DEFINITION

Work place means a place where twenty or more workers are ordinarily employed in connection with construction work on any day during the period during which the contract work is in progress.

3.FIRST-AID FACILITIES

(i) At every work place, there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 contract labour or part thereof ordinarily employed.

(ii) The first-aid box shall be distinctly marked with a red cross on white back ground and shall contain the following equipment:-

(a) For work places in which the number of contract labour employed does not exceed 50- Each first-aid box shall contain the following equipment's:-

1. 6 small sterilized dressings.
2. 3 medium size sterilized dressings.
3. 3 large size sterilized dressings.
4. 3 large sterilized burn dressings.
5. 1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.
6. 1 (30 ml.) bottle containing Sal volatile having the dose and mode of administration indicated on the label.
7. 1 snakebite lancet.
8. 1 (30 gms.) bottle of potassium permanganate crystals.

9. 1 pair scissors.
10. 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
11. 1 bottle containing 100 tablets (each of 5 gms.) of aspirin.
12. Ointment for burns.
13. A bottle of suitable surgical antiseptic solution

(b) For work places in which the number of contract labour exceed 50. Each first-aid box shall contain the following equipment's.

1. 12 small sterilized dressings.
2. 6 medium size sterilized dressings.
3. 6 large size sterilized dressings.
4. 6 large size sterilized burn dressings.
5. 6 (15 gms.) packets sterilized cotton wool.
6. 6. 1 (60 ml.) bottle containing a two per cent alcoholic solution iodine.
7. 1 (60 ml.) bottle containing Sal volatile having the dose and mode of administration indicated on the label
8. 1 roll of adhesive plaster.
9. 1 snake bite lancet.
10. 1 (30 gms.) bottle of potassium permanganate crystals.
11. 1 pair scissors.
12. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institutes /Government of India.
13. A bottle containing 100 tablets (each of 5 gms.) of aspirin.
14. Ointment for burns.
15. A bottle of suitable surgical antiseptic solution.

(iii) Adequate arrangements shall be made for immediate recoupment of the equipment when necessary

(iv) Nothing except the prescribed contents shall be kept in the First-aid box.

(v) The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

(vi) A person in charge of the First-aid box shall be a person trained in First-aid treatment in the work places where the number of contract labour employed is 150 or more.

(vii)In work places where the number of contract labour employed is 500 or more and hospital facilities are not available within easy distance from the works. First-aid posts shall be established and run by a trained compounder. The compounder shall be on duty and shall be available at all hours when the workers are at work.

(viii) Where work places are situated in places which are not towns or cities, a suitable motor transport shall be kept readily available to carry injured person or person suddenly taken ill to the nearest hospital.

4.DRINKING WATER

(i) In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

(ii) Where drinking water is obtained from an Intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

(iii) Every water supply or storage shall be at a distance of not less than 50 feet from any latrine drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and waterproof.

(iv) A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5.WASHING FACILITIES

(i) In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of contract labour employed therein.

(ii) Separate and adequate cleaning facilities shall be provided for the use of male and female workers.

(iii) Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

6.LATRINES AND URINALS

(i) Latrines shall be provided in every work place on the following scale namely:-

a. Where female are employed, there shall be at least one latrine for every 25 females.

b. Where males are employed, there shall be at least one latrine for every 25 males.

c. Provided that, where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females as the case may be upto the first 100, and one for every 50 thereafter.

(ii) Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

(iii) The inside walls shall be constructed of masonry or some suitable heat-resisting non-absorbent materials and shall be cement washed inside and outside at least once a year, Latrines shall not be of a standard lower than borehole system.

(iv) (a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers “For Men only” or “For Women Only” as the case may be.

(b) The notice shall also bear the figure of a man or of a woman, as the case may be.

(v) There shall be at least one urinal for male workers up to 50 and one for female workers up to fifty employed at a time, provided that where the number of male or female workmen, as the case may be exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females up to the first 500 and one for every 100 or part thereafter.

(vi) (a) The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

(b) Latrines and urinals other than those connected with a flush sewage system shall comply with the requirements of the Public Health Authorities.

(vii) Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

(viii) Disposal of excreta: - Unless otherwise arranged for by the local sanitary authority, arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternately, excreta may be disposed off by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose

and covering it with a 15 cm. layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn to manure).

(ix) The contractor shall at his own expense, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of night soil and other conservancy work in respect of the contractor's workmen or employees on the site. The contractor shall be responsible for payment of any charges which may be levied by Municipal or Cantonment Authority for execution of such on his behalf.

7.PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost, four suitable sheds, two for meals and the other two for rest separately for the use of men and women labour. The height of each shelter shall not be less than 3 meters (10 ft.) from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sq.m. (6 sq.ft) per head. Provided that the Engineer-in-Charge may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8.CRECHES

(i) At every work place, at which 20 or more women worker are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room shall be used as a play room for the children and the other as their bedroom. The rooms shall be constructed with specifications as per clause 19H (ii) a,b& c.

(ii) The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

(iii) The contractor shall supply adequate number of toys and games in the play room and sufficient number of cots and beddings in the bed room.

(iv) The contractor shall provide one ayaa to look after the children in the crèche when the number of women workers does not exceed 50 and two when the number of women workers exceed 50.

(v) The use of the rooms earmarked as crèches shall be restricted to children, their attendants and mothers of the children.

9.CANTEENS

(i) In every work place where the work regarding the employment of contract labour is likely to continue for six months and where in contract labour numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the contractor for the use of such contract labour.

(ii) The canteen shall be maintained by the contractor in an efficient manner.

(iii) The canteen shall consist of at least a dining hall, kitchen, storeroom, pantry and washing places separately for workers and utensils.

(iv) The canteen shall be sufficiently lighted at all times when any person has access to it.

(v) The floor shall be made of smooth and impervious materials and inside walls shall be lime washed or colour washed at least once in each year.

(vi) Provided that the inside walls of the kitchen shall be lime-washed every four months.

(vii)The premises of the canteen shall be maintained in a clean and sanitary condition.

(viii) Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

(ix) Suitable arrangements shall be made for the collection and disposal of garbage.

(x) The dining hall shall accommodate at a time 30 per cent of the contract labour working at a time.

(xi) The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs shall not be less than one square meter (10 sft) per diner to be accommodated as prescribed in sub-Rule 9.

(xii)(a) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number.

(b) Washing places for women shall be separate and screened to secure privacy.

(xiii) Sufficient tables stools, chair or benches shall be available for the number of diners to be accommodated as prescribed in sub-Rule 9.

(xiv) (a)(1). There shall be provided and maintained sufficient utensils crockery, furniture and any other equipment's necessary for the efficient running of the canteen.

(2). The furniture utensils and other equipment shall be maintained in a clean and hygienic condition.

(b)(1). Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.

(2). A service counter, if provided, shall have top of smooth and impervious material.

(3). Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment's.

(xv) The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the contract labour.

(xvi) The charges for food stuffs, beverages and any other items served in the canteen shall be based on 'No profit, No loss' and shall be conspicuously displayed in the canteen.

(xvii) In arriving at the price of foodstuffs, and other article served in the canteen, the following items shall not be taken into consideration as expenditure namely:-

a) The rent of land and building.
b) The depreciation and maintenance charges for the building and equipment provided for the canteen.
c) The cost of purchase, repairs and replacement of equipment including furniture, crockery, cutlery and utensils.
d) The water charges and other charges incurred for lighting and ventilation
e) The interest and amounts spent on the provision and maintenance of equipment provided for the canteen.

(xviii) The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10.ANTI-MALARIAL PRECAUTIONS

The contractor shall at his own expense, conform to all anti-malarial instructions given by the Engineer-in-Charge including the filling up of any borrow pits which may have been dug by him.

11. The above rules shall be incorporated in the contracts and in notice inviting tenders and shall form an integral part of the contracts.

12.AMENDMENTS

Government may, from time to time, add to or amend these rules and issue directions - it may consider necessary for the purpose of removing any difficulty which may arise in the administration thereof.

For & on behalf of Tenderer

SECTION– VII

ELIGIBILITY CRITERIA AND IT'sFORMS:

FORM A
LETTER OF TRANSMITTAL

To
CHIEF EXECUTIVE DIRECTOR (ENVT & CM)
WAPCOS Limited, Environment Division,
76-C, Sector -18, Gurgaon- 122 015

Subject: Submission of bids for the work of "Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**

Sir,

Having examined the details given in press notice and bid document for the above work, I/we hereby submit the relevant information.

1. I/we hereby certify that all the statement made and information supplied in the enclosed forms A to J and accompanying statement are true and correct.
2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to supply.
3. I/we submit the following certificates in support of our suitability, technical knowledge and capability for having successfully completed the following eligible similar works:

Name of work	Certificate from

Certificate:
It is certified that the information given in the enclosed technical bid are correct. It is also certified that I/we shall be liable to be debarred, disqualified/ cancellation of enlistment in case any information furnished by me/us found to be incorrect.

Enclosures:

Seal of bidder

Date of submission: **Signature(s) of Bidder(s)**

FORMAT FOR POWER OF ATTORNEY FOR SIGNING OF PROPOSAL FOR AUTHORIZED SIGNATORY

(On Rs. 100 stamp paper)

Knowallmenbythesepresents,we . . . . . .
(Nameofthe
Tendererandaddressoftheirregisteredoffice)doherebyconstitute,appointandauthorizeMr
/Ms . . . . . (nameandresidentialaddressofPowerofAttorneyholder) who is presently employed with us and holding the position of . . . . . asourattorney,todoin ournameandonourbehalf,allsuchacts, deedsandthingsnecessaryinconnectionwithorincidentaltoourBidforthe Project and submission of all documents andprovidinginformation / responses to
,representingusinallmatters before,andgenerallydealingwith
Inallmattersinconnectionwithourproposalforthesaid Project.Wehereby agreetoratifyallacts, deedsandthingslawfullydonebyoursaidattorneypursuant to this PowerofAttorneyandthatallacts,deedsandthingsdonebyouraforesaidattorneyshallandshallalwaysbedeemedtohavebeen done by us.

FORM B
FINANCIAL INFORMATION

Financial Analysis: Details to be furnished should be duly supported by figures in balance sheet/ profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

Years	Gross Annual Turnover	Profit/Loss (After Tax)
2023-2024		
2022-2023		
2021-2022		
2020-2021		
2019-2020		

Signature of Chartered Accountant **Signature of Bidder(s).**

(withUDIN Number and Seal)(with Seal)

FORM C
SOLVENC CERTIFICATE FROM A SCHEDULED BANK

To

WAPCOS LIMITED
Plot No-76 C Intuitional Area Sector-18
Gurugram-122015

Name of the Work: "Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1)"

This is to certify that to the best of our knowledge and information that

M/s……..... having marginally noted address, as a Customer of our bank are/is respectable and can be treated as good for any engagement upt o a limit of Rs……..…….

(Rupees……)

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature) For the Bank
(Email id of the bank)

NOTE:
1. Bankers Certificates should be on letter head of the Bank, addressed to tendering authority.
2. In case of Partnership firm, certificate should include names of all partners as recorded with the Bank.

FORM D

DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING LAST SEVEN YEARS

Sl. No	Name of Project & Location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of Commen-cement as per contract	Stipulated date of completion	Actual date of completion
1						
2						
3						
4						
5						
6						
7						

(Signature of the Bidder)

Note: This should be accompanied by Completion certificate and work order along with bill of quantities.

FORM E (On letter Head)

STRUCTURE & ORGANISATION

S.No.	Particulars	Details Submitted by Bidder
1.	Name & address of the Bidder:	
2.	Telephone no./Mobile No./Telex no./Fax no.	
3.	Email id for communication	
4.	Legal status of the bidder (attach copies of original document defining the legal status) (a) An Individual (b) A proprietary firm (c) A firm in partnership (d) A limited company or Corporation	
	Particulars of registration with various Government Bodies (attach attested photocopy)	
5.	Organization/Place of Registration 1. 2. 3.	Registration No.
6.	Names and titles of Directors & Officers with designation to be concerned with this work along with their contact number and Email id	
7.	Designation of individuals authorized to act for the organization	
8.	Has the bidder, or any constituent partner in case of partnership firm Limited Company/ Joint Venture, ever been convicted by the court of law? If so, give details.	
9.	Banker of Agency with full address (Attach bankers certificate of account maintenance for the last two years) Telephone number of banker	

10	PAN of the firm	
11	Statutory requirements: a) Whether the firm/company is registered with labour Department of State Government/UT Administration b) Whether the firm/company is registered under the employees State Insurance Act, 1948 c) Whether the firm/company is registered under the Employees Provident Fund and Miscellaneous Provision Act, 1952.	
12.	ESI, P.F, GST, Labour Registration No.	
13.	GST Paid last receipt	
14	Affidavit by the firms to pay minimum rates wages to the workers engaged as per applicable order Government CLC and to enhance the rates, as and when it is revised.	
15.	Undertaking by the firm to provide clearance from police authorities in respect of workers.	
16.	Any other information considered necessary but not included above.	

Signature of Bidder(s)

FORM F

Format of Undertaking to be furnished on Company Letter Head with regard to Blacklisting/Non-Debarment by the contracting Agency

Name of work:

Ref: Tender No…….dated…..

To

CED (Envt& CM)
WAPCOS Limited
76-C , Industrial Area
Gurgaon, Haryana

This is to certify that we have taken the cognizance of Blacklisting Policy of WAPCOS Limited. Further, we hereby confirm and declare that we, M/s……., is not blacklisted/de-registered/debarred by any Government department/Public Sector Undertaking/Private Sector/or any other agency for which we have Executed/undertaken the works/services during the last 5 years.

For……..
Authorized Signatory
Date:-

FORM G
FORMAT FOR UNDERSTANDING THE PROJECT SITE

(on Bidder Letter Head)

To

CHIEF EXECUTIVE DIRECTOR (ENVT & CM)
WAPCOS Limited, Environment Division,
76-C, Sector -18, Gurgaon- 122 015

Subject: Undertaking of the Site Visit for of "Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1)"

Sir,

I/we hereby certify that I/we have examined & inspected the site & its surrounding satisfactorily, where the project is to be executed as per the scope of works. I/ We are well aware about the Location of the Building and existing utilities to connect to the system, conditions prevailing at site, availability of materials, availability of land and transport facilities, weather condition at site, the extent of leads and lifts involved in execution of work etc.

I / We hereby submit our BID considering above all facts gathered during site visit and each & every aspect have been considered in the Quoted cost of the project as per BOQ

Yours faithfully,

Date: (Signature, name and designation of the Authorized signatory)

Place: **Name and seal of Bidder**

FORM H
FORMAT FOR NO DEVIATION CERTIFICATE

[To be submitted on Bidder's Letter Head]

To,

CHIEF EXECUTIVE DIRECTOR (ENVT & CM)
WAPCOS Limited, Environment Division,
76-C, Sector -18, Gurgaon- 122 015

Subject: No Deviation Certificate for " Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**

Dear Sir,

With reference to above this is to confirm that as per Tender conditions we have visited site before submission of our Offer and noted the job content and site condition etc. We also confirm that we have not changed/modified the above tender document and in case of observance of the same at any stage it shall be treated as null and void.

We hereby also confirm that we have not taken any deviation from Tender Clause together with other reference as enumerated in the above referred Notice Inviting Tender and we hereby convey our unconditional acceptance to all terms & conditions as stipulated in the Tender Document.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null and void.

Thanking you,

Yours faithfully,

Date: (Signature, name and designation of the Authorized signatory)

Place: **Name and seal of Bidder**

FORM I
CONSENT LETTER FOR INTEGRITY PACT

To,

CHIEF EXECUTIVE DIRECTOR (ENVT & CM)
WAPCOS Limited, Environment Division,
76-C, Sector -18, Gurgaon- 122 015

Sub: Integrity Pact for **"**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**

Dear Sir,

I/We acknowledge that WAPCOS is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by WAPCOS. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, WAPCOS shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully,

Date:

(Signature, name and designation of the Authorized signatory)

Place:

Name and seal of Bidder

(On 100 Rs Stamp Paper)
FORMAT FOR INTEGRITY PACT

This Integrity Agreement is made at ..... on this ..... day of ..... 20.....

BETWEEN

WAPCOS Limited, New Delhi (Hereinafter referred as the **„Principal/Owner",** which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....
(Name and Address of the Individual /firm/ Company) through ..... (Hereinafter referred to as the (Details of duly authorized signatory) **"Bidder/Contractor"** and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal / Owner has floated the Tender (NIT No. .....) (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract for..... (Name of work) hereinafter referred to as the "Contract".

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

(1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavor to exclude from the process any person, whose conduct in the past has been of biased nature.

(2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

(1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the WAPCOS all suspected acts of fraud or corruption or Coercion or Collusion

of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

(2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

(a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

(b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

(c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/ Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/ representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

(e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

(3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

(4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the WAPCOS interests.

(5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

(1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days" notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

(2) Forfeiture of EMD/Performance Guarantee/Security Deposit: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

(3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

(1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
(3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

(1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/sub-vendors

(2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

(3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

Defect Liability period shall be one year. This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, WAPCOS.

Article 7- Other Provisions

(1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Headquarters of the Principal/Owner, who has floated the Tender.

(2) Changes and supplements need to be made in writing. Side agreements have not been made.

(3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

(4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

(5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8- Legal and Prior Rights

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:
1. .....
(signature, name and address)

2. .....
(signature, name and address)

Place:

Dated:

FORM-K
UNDERTAKING
(Rule 144(xi) in the General Financial Rules (GFRs), 2017

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and Is eligible to be considered.

Date

Place

Signature, name and designation of the Authorized signatory)
Name and Seal of the bidder

SECTION-VIII

SCOPE OF WORK

"Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) "

The scope of work includes **"**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **".**
ESIC/WAPCOS reserves the right to add or delete any dispensary/ office in the below mentioned list.

Sl no.	Name of the Buildings/Premises	Location
1	ESIC Hospital at, Jajmau, Kanpur	Kanpur-Uttar Pradesh

"Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh**".**

After a comprehensive condition survey of the existing infrastructure i.e. Buildings, Services, Equipment is & Plants including ancillary structures existing inside the premises/complex shall be carried out by them to assess the maintenance needs for each component of the infrastructure for restoring and sustaining the utility of the facilities.

Intelligent Addressable Fire Alarm System

The latest development in fire alarm system, Detectors Technology is Intelligent Addressable Fire Alarm System over conventionalsystem. It is now become almost necessary to install this system inevery functional and important building because the system has many advantages over conventional automatic fire alarm system such as:

(i) Accurate quick response to emergencies.

a. Early fire warning

b. Individual Device identification / location

c. Analog Signal feed back

d. Pre-alarm notification

(ii) Eliminates nuisance alarms

(iii) Powerful operator interface

(iv) Reliable

(v) Advance on line diagnostics i.e.

a. Continuous circuit supervision

b. Detection and isolation of faults

c. Continuous processing of analog value sensor data

d. Maintenance diagnostics

e. Panel test

f. Control Board self test

(vi) Reduction in maintenance costs by:

a. Remote testing and sensitivity adjustment.

b. Panel testing of smoke sensor to meet International Standard.

c. Individual sensor cleaning on need based only.

(vii) Flexible application

An intelligent addressable fire alarm system is provided to effect total control over the lifesafety services required in the building. The system is provided with addressable and analogfire alarm initiating, annunciating and control devices. The system is such that smoke sensors/detectors, thermal sensors/detectors and manual call points etc. can be identifiedwith point address. Thesystem is capable of:

(a) Setting smoke sensor sensitivity remotely on a pre-programmed sequence. The system is able to recognize normal and alarm values that reveal trouble condition,pre alarm or need of maintenance.

(b) Provide a maintenance / pre-alert capability at smoke sensors to prevent the detectors from indications a false alarm due to dust, dirt, etc.

(c) Provide alarm verification of individual smoke sensors. Alarm verification printed on the in-built printer of the main fire alarm panel on the external printer attached.

(d) Provide outputs that are addressable i.e. output have a point address to be set from the main control station. The operator is able to assign such points to logical point groups (software zones) for pre-programmed operation.

(e) In the event of fire alarm but not in a fault condition, the exact location is shown on the main fire alarm panel, local sounder automatically sounded; the complete information is printed along with time and date of occurrence. Air handling units on the effected zones is automatically switched OFF and simultaneously respective fire dampers are closed. Pressurization fans on the evacuation shafts i.e. stairwells, etc. are automatically switched ON. All system output program assigned via control-by-event programs that are activated by a particular point in the alarm are executed, and the associated system output (alarm

notification appliance and/ or relays) are activated. The audio portion integrated to the system directs the proper signal (tone or Voice) to the appropriate speaker circuits. Pre-recorded alarm messages are played on the public address system.

(f) All the loop elements are able to isolate the short circuits on the loop wiring and thus no element is isolated in the event of single short circuit and the exact location of the short circuit is indicated on the respective fire alarm panel.

(g) The fire alarm panels have necessary interface units for intelligent addressable detectors alarm output modules for external actuations through fail safe programmable relays and communication interface.

(h) Fire alarm management system in an intelligent addressable Fire Alarm and Detection System comprises of Graphical Management System which is multi-user, with a lot of facilities. It has two screen display the left screen dedicated to display the graphic (building floor plans, Alarm panels etc.) and the right screen lists all events (alarm reports , Fault massages, information about disable detectors etc.)

(i) Building management system provides bidirectional monitoring and operation of the attach devices of the Fire Alarm and Detection Systems. Besides, other components/ devices in the building like AHU's Pressurization Doors , lifts etc. can also be monitored and operated from the graphical fire alarm management software.

MANUAL CALL POINTS

2.1 Scope

This section covers the requirements of manual call points (MCP) used in addressable intelligent fire alarm systems.

2.2 Constructional requirements of:-

i. It is used to trigger a fire alarm manually, and should be suitable for connection to the system loop technology. The alarm is raised by breaking the glass with the alarm carrying on until a replacement glass panel is fitted or alarm to be made silent from control panel. Suitable arrangement like scratching by a diamond bit shall be incorporated in the frangible element.

ii. A micro switch within the units is held “off” by the edge of the glass when glass is broken the switch is released and a signal is transmitted to control panel where the alarm is raised. The glass is preferably plastic coated to eliminate the damage of splinters causing injury.

iii. For testing without breaking the glass a test key, should be available so as to lower or remove the glass to release the micro switch. Full functional test is achieved accordingly.

iv. Facility for reset/adjustment of manual call point alarm triggering.

v. The unit shall be made out of polycarbonate ABS blend with flame retardant & self extinguishing properties or cast aluminum or ASA plastic or as per manufacturer design and applicable standards.

vi. It shall preferably contain an integrated short circuit isolator which should ensure that a

fault is localized and that the loop continues to function fully in the event of a wire break or a short circuit.

vii. The call box shall have suitable provision to knock out of termination of a 20mm conduit. This shall also have suitable provision for being fixed on surface or semi recessed in wall.

viii. The word 'FIRE' shall appear embossed in red color on the front.

ix. Acknowledgement LED displays –red for triggered alarm indication (flashing) and / or maintenance evacuation.

x. Protective category shall be IP54 for indoors & IP65 for outdoors applications.

2.2.1 Installation Requirements

INTELLIGENT ADDRESSABLE FIRE DETECTORS

3.1 Scope

The section covers the requirement of automatic intelligent addressable fire detectors.

3.2 Type of Detectors

Same as given in section 3 Part 'A'

3.3 General Features common to all Detectors:

3.3.1 Built-in-response Indicator:

Each detector shall incorporate indicator "LED" at the detector which shall blink onactuation of the detector to locate the detector which is operated while on fire. Thedetector shall not be affected by the failure of the response indicator lamp.

3.3.2 The detector shall have preferably 360^0 visible view of the alarm LED or twin LEDs blink whenever detector is addressed.

3.3.3 The detector shall have preferably with integrated built in short circuit isolator or as per manufacturer design so that in case of any short circuit in the detector, the detector can be isolated so that loop should be able to retain the full functionality or in case built in short circuit isolator not available/ provided by the manufacturer a fault isolator unit shall be provided after every 20 detectors/ devices in a loop. But in later case isolator unit shall ensure that the loop is functional except the faulty detector.

3.3.4 The detector shall be with IP 54 protection category with base.

3.3.5 The detector shall be with built in microprocessor capable of making alarm on control panel based on the information stored in detector.

3.3.6 The detector shall confirm to international standard i.e. NFPA/EN or equivalent.

3.3.7 The detector shall provide electronic address setting by means of configuration software.

3.3.8 The detector shall be plug-in-type and shall have common base to facilitate exchange for cleaning & maintenance. The base of the detector shall be interchangeable with other smoke detectors.

3.3.9 The detector shall be supplied fully tested and each detector should bear the SI. No. and seal of the approving laboratory/body.

3.3.10 The detectors, device including response indicator and control panel shall be of same make.

3.3.11 Reversed polarity or faulty zone wiring shall not damage the detector.

3.3.12 The detector shall be suitable for column/ceiling mounting.

3.3.13 The detector should have static voltage over load protection.

3.3.14 The detector shall be individually identifiable from the control unit by geographical location in the system.

3.3.15 The detector shall connect to the local control unit via a fully supervised two wirecircuit.

3.3.16 The detector shall be inserted into or remove from the base by a simple push twist mechanism with an appropriate tool.

3.4 Addressable Beam Detector (Infra-red light detector)

(i) The Beam Detectors shall be long range, projected beam type smoke detectors which consist of a separate transmitter and receiver and evaluating unit integrated into a compact housing.

(ii) The transmitter shall emit an invisible pulsed infra red beam to receiver when beam is obscured beyond selected threshold (20%, 30%,. 70% obscuration) by smoke,
the receiver shall signal an alarm. If the beam is completely blocked, receiver shallsignal a trouble.

(iii) It shall provide selectable sensitivity and alarm response time for flexibility of installations.

(iv) It shall have a range coverage from 9 mtrs. to 100 mtrs. with upto 16-17 mtrs. spacingbetween adjacent detectors on smooth , flat ceilings.

(v) It shall have automatic environment compensation.

3.5 Addressable Heat Detector:

Type of Heat Detectors as given in para 3.3, 3.51, 3.5.2, 3.5.3 & 3.5.4 (Section-3 Part A) except the following:

(i) The detector and transmission electronics in the detector head for easy exchange inthe event of malfunction. Therefore no electronics are permitted in base.

(ii) It has maximum triggering temperature programmable from 58^0 C to 81^0 C.

(iii) It has high level of immunity to electromagnetic influences.

(iv) The alarm signal when limit temperature is reached is given in Para (ii) above.

(v) Automatic addressing during initial set up or exchange of the detector, withoutmaking adjustment of detector.

(vi) Adjustment of the maximum temperature value in combination with or without the temperature differential value.

(vii) Theft protection to protect against unauthorized removal of the detector from base can be available.

3.6 Addressable optical- Thermal (Multi Criteria Detector):

1. The intelligent multi criteria detector shall have photo electric and thermal technologies in a signal sensing device.
2. The device shall include to combine the signal of the thermal sensor with the signal of the photoelectric signal in an effort to react in the event of a fire condition.
3. It shall have an ability to distinguish between a fire condition and a fire alarm condition by examining the characteristics of the thermal and smoke sensing chambers and comparing them to database of actual fire and deceptive phenomena.

Use:

(i) These detector shall be utilized for slow smoldering fire.

(ii) The microprocessor shall be capable of selecting the appropriate sensitivity levels based on the environmental conditions, it can be in office, manufacturing unit, kitchen etc. and have the ability to automatically change the setting as the environment changes.

3.7 Intelligent Duct Smoke Detectors

(i) The smoke detectors housing shall accommodate either an intelligent ionization detector or an intelligent photo electric detector of that provides continuous analog monitoring and alarm verification from the panel through a control module in the loop system.

(ii) When sufficient smoke is sensed in the return air coming to AHU (Detector unit has to be installed in return air path) an alarm signal is initiated at FACP to close the fire damper and prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by duct system.

Note : Various types of detectors their use and applications are same as given in Section 3 of Part –A

3.8 Detector Base:

(i) The detectors of all types shall fit into a common type of standard base.

(ii) Once a base has been installed, it shall be possible to insert, remove and exchange different types of detectors by a simple push & twist movement.

(iii) The standard base shall be equipped with screw less wiring terminals suitable for securing wire size upto 1.5sqmm and with built in strain limits to prevent permanent terminals deformation and weakening of contact pressure.

(iv) It shall have a sealing plate, prevent dirt, dust condensation or water from the conduit reaching the wire terminals of the detector contact points.

(v) All standard base shall be supplied with a removable dust cover to protect the contact area during installation and construction phase of the building. It must allow the inspection and verification of the zone wiring before insertion of any detectors.

(i) The standard base shall have a built in mechanism, which allows mechanical locking of any installed detector head, thus preventing unauthorized removal or temperin while maintaining.

(ii) Reversed polarity or faulty zone wiring shall not damage the detector.

3.9 Intelligent Addressable Monitor Module

(i) The module shall be suitable to monitor the polling of up to minimum four potential free contacts by using a single or multiple housing and designed for surface or flush mounting.

(ii) The operating mode can be selected and is assigned separately for each input the addressing of the module and the setting of parameters should be carried out using PC software, via the fire alarm control panel.

(iii) The module should contain an integrated short circuit isolator which ensures that the fault is localized and the loop continues to function fully in the event of a wire break or a short circuit.

(iv) The module should be minimum IP 40 protection category when housed in a case or as per manufacturer design.

(v) The module should be with soft addressing to be set with a PC via fire alarm panel at the time of programming.

(vi) The module should have integrated buzzer force signaling maintenance alarms.

(vii) An LED shall be provided that shall flash under normal condition indicate that module is operational.

3.10 Intelligent Addressable Relay / Control Module

(i) Relay module may contain upto four relays each with a potential free changeover contact.

(ii) Each relay contact should be FAIL/ SAFE programmable, means it should be possible to program each contact to operate in three conditions viz. NO FIRE CONDITION, FIRE CONDITION AND LOOP POWER FAILURE CONDITION.

(iii) Both the addressing of the module and setting of parameters to be carried out using PC software via the fire alarm control panel.

(iv) The module contains a short circuit isolator, which ensures that the fault is localized and that the loop continues to function fully in the event of a wire break or a shot circuit.

(v) The module should be minimum with IP 40 protection category when housed in a case or as per manufacture design.

(vi) It should have integrated buzzer for signaling maintenance alarms.

(vii) Its housing have is designed for surface or flush mounting.

3.11 Isolator Module:

(i) The module shall limit the number of module of detectors that may be rendered inoperative by a short circuit on the loop segment.

(ii) At least one isolator module shall be provided for each floor or protected zone of the building.

(iii) If a wire short circuit occurs, the isolator module shall automatically open circuit (disconnect) the loop. When the short circuit condition is corrected, the module shall automatically reconnect the isolated section.

(iv) The module shall not require any address setting and its operation shall be automatic. It shall not be necessary to replace or reset an isolator module after itsnormal operation.

(v) It shall give information on the control panel in the form of audio- visual alarm enunciations along with list of detectors which have become non-functional.

Addressable Fire Alarm Control Panel

4.0 Scope :

This section covers the requirements of main fire alarm, control panel, repeater panel, graphical managementsystem, response indicator etc. used in addressable fire alarm system.

4.1 Functional Requirement.

4.2 General

i. In the event of fire alarm but not in a fault condition, the exact location shall beshown on the Main Fire Alarm Panel (MFAP).

ii. Local sounder should sound automatically.

iii. Complete information shall be printed with time and date of occurrence.

iv. Air handling units on the effected zones shall be automatically switched OFFand respective fire dampers shall also be closed.

v. Pressurization fans of staircase shall automatically be switched ON.

vi. The audio portion integrated to the system shall direct the proper signal (toneor voice) to the appropriate speaker circuits.

vii. Pre-recorded alarm messages shall be played on the Public Address System.

viii. The panel shall have the facility to process the input signals and control the output functions either directly or through interface modules as per the requirements.

ix. The panels shall have necessary interface units for addressable detectors alarm output modules for external actuations through fail safe programmable relays.

x. The processor shall interact with the other modules through a common bus.

xi. The system shall store all basic information and job specific data in memory.

xii. Different password shall protect any change to system operations.

xiii. The design of the panel hardware and software shall incorporate the capability to accept

additional input from fire protection system such as sprinkler and water flow switch, operation of fire dampers, pressurization fans etc.

xiv. The panel shall have an extra loop card to serve as standby in case of burn out or malfunctioning of any operating loop cards.

xv. The panel shall be totally enclosed, dust and vermin proof.

4.3 Type of control and indicating panels:

Following are the types of control and indication panels in Addressable Fire Alarm ControlPanel:

(i) Intelligent Addressable Main Fire Alarm Control and Indicating Panel.

(ii) Graphical Fire Alarm Management System.

(iii) Intelligent Repeater Panel.

(iv) Intelligent Response Indicator

(v) Talk Back System / Fire Fighter Telephone Systems.

4.4 Addressable Fire Alarm Control Panel (FACP)

1. The addressable Fire Alarm Control Panel (FACP) shall function as a network panel & also as a fully stand alone panel. FACP shall have its own microprocessor, software and memory. In the event of failure of panel or communication breakdown between the networked panels the FACP shall automatically operate on stand-alone mode without sacrificing any functions (The networking should be peer to peer). Information of all panel in the network should be available on all individual panels.

2. The panel should be modular microprocessor based in nature and should be expandable from single loop up to 10 loops.

3. FACP shall supervise detection circuits and shall generate an alarm in case of abnormal conditions.

4. FACP shall provide general purpose inputs for monitoring such functions as low battery on AC power failure. FACPs shall provide tamper protection and commandable outputs, which can operate relays or logic level devices.

5. Smoke detectors shall be powered using the FACP based smoke detection circuits FACPs shall provide control for resetting smoke detectors, fault isolation and sensor loop operations. It shall be possible to mix different fire devices within same FACP to optimize field wiring.

6. It shall be possible for the panel to have a loop length with different modules offering 1.5 km length of devices from the panel.

7. FACP shall provide monitoring and control of one floor or area or for multiple floors or areas. FACP shall meet the following requirements to assure the integrity and reliability of the system:

   (a) The FACP shall have proper listing and / or approval from the following recognized agencies:

      (I) National Fire Protection Association (NFPA) -USA. This will cover the following approval:

(i) UL (Under writers Laboratories Inc.)

(ii) ULC (Under writers Laboratories Canada)

(iii) FM (Factory Mutual)

(iv) CSFM (California State Fire Marshal)

(II) EN (European)

This will cover thefollowing approval:

(i) LPCB (Loss Prevention Council Board)

(ii) VDS (Vertauen Durch Sicherheit)

(iii) BRE

FACP shall be NFPA/EN listed independently and as per relevant IS Code as a Fire Alarm Control Panel.

(b) The FACP should have integrated power distribution module and fixed cabling done internally to guarantee a clear and tidy cable feed

(c) The panel should have an LCD display with minimum 300 characters and keypad. The Display should enable a flexible design of the operating menu with variable keys and message windows fixed keys should be used for standard operating steps e.g. for fire alarm securities supervisory trouble and other events. The current status of the system should be displayed by LED'sinterfaces (RS232) enable the connection to a PC.

(d) The panel should have a 230V AC power supply unit in plug in design with rack and panel connector and 24VDC /6Amp. single output power supply. The module should be protected against over voltage and reverse polarity. Theoutput voltage is monitored and regulated externally.

(e) LCD display at the FACP shall be provided to indicate point of alarm or trouble. In Such systems means for manually scanning the points in trouble shall beprovided and a trouble and alarm LED shall be used to indicate that there are points in alarm / trouble. The alarm /trouble LED shall only get switched offwhen all alarm / trouble are cleared from the loop.

(f) It shall be possible to command test, reset and alarm silence from the FACP.

8. FACP switches shall allow authorized personnel to accomplish the following, independent of the central console.

(a) Acknowledge a general alarm condition.

(b) Silence the local audible alarm.

(c) It shall be possible to silence the alarm indicating devices (hooters).

(d) Reset all zones (logical Point Group) / points, after all initiating devices have returned to normal.

(e) Perform a complete operational test of the memory with a visual indication.

(f) Test all panel LED's for proper operation without causing a change in the condition of any zone (Logical Point Group).

(g) Walk test –The system shall provide both a basic and advanced walk test fortesting the entire fire alarm system including testing of all devices, detectors module etc. in the complete system.

9. Software zones/loops shall be circuited and protected by fault isolators such that in the event of a zone/ loop short –circuit, smoke and thermal sensors shall be located and shall report alarm and fault isolator unit after every 20 detector or devices in aloop isolates the part.

10. Monitoring modules shall be provided to monitor and address contact-type input devices. The monitor module shall be housed in the FACP supervised by FACP.

11. The FACP shall have drift compensation facility to compensate for environment. When a detector accumulates dust in the chamber and reaches an unacceptable level but still below the allowed limit, the control panel shall indicate a maintenance alert warning. When the detector accumulates dust in the chamber above the allowed limit, the control panel shall indicate a maintenance urgent warning.

12. The FACP should be NFPA/EN listed approved to provide the sensitivity measurement and documentation required.

13. FACP shall be backed up with its built in UPS power or can be powered separately.

14. The display on FACP shall provide indication for AC power, system alarm, system trouble/security alarm, display trouble and signal silence to this would mean that in the event of change of any detector/zone sequence alterations, the operator can initiate these by use of the LCD & alpha –numeric keys on the FACP panel to reconfigure the above parameters.

15. Power supply unit of FACP shall have following characters:

(a) The main power supply shall be 230V AC ±10% 50Hz ± 3% and shall in turn provide all necessary power of FACP.

(b) It shall provide a separate battery control module with charger. The battery should last for 24 hours minimum in normal operation upon power failure & 30 minutes in alarm condition.

(c) For ease of service, all wiring terminal blocks shall be plug-in type.

(d) The fire alarm panels shall have a possibility of being interlinked by direct connectivity or an optical cable link between the various locations and shouldfurther have connectivity to the main control center.

16. Each loop shall have minimum 99 detectors/devices.

17. There shall be minimum 20% spare capacity in the looping system for future expansions. The firm has to intimate the maximum number of devices/ detectors

can be connected in one loop based on the manufacturer design . Some devices need external supply andsomedevices supported by loop power.

18. The length of loop shall not exceed more than 3000 meter for wire size 1.5sq mm. as per manufacturer recommendations.

19. Each loop should not be divided into more than 8 fire zones.

4.5 Graphical Fire alarm management system

(i) The fire alarm management system shall be a multiuser graphical management system to centrally monitor and operate the fire alarm system by a computer having a graphical software.

(ii) All the messages and status of the connected detectors & devices with main control panel shall be displayed on the PC monitor to operate via keyboard and mouse. All devices & detectors should be visible on building plans superimposed in fire alarmsystem.

(iii) The modular expansion of the system should be possible by adding software modules.

(iv) Power graphics with a dynamic zoom function should be available.

(v) The system shall have password system with individual password and access privileges shall also be available.

(vi) The system should be capable monitoring status of detector. The status of eachdetector be monitored by the fire alarm system.

(vii) The operator should be able to adjust the sensitivity of any detector.

(viii) The operator should be able to define the entire database for the fire system.

(ix) The operator should be able to acknowledge alarm or trouble messages by the fire alarm system.

4.6 Intelligent Repeater Panel

(i) The repeater panel shall be active repeater panel with all the controls and monitoring as on the main fire alarm panel.

(ii) The panel shall be functioning as a controller.

(iii) The panel shall allow remote command in the system reset, trouble and alarmsilence and manual alarm.

(iv) A keyed switch shall enable or disable the keys.

(v) The panel shall be compatible with the analog fire detection and alarm main controlpanel.

(vi) It shall be programmable to display information for the entire system i.e. all panels in the network.

(vii) It shall have minimum 80 characters LCD display (display system status). The back lit display repeats the status, trouble and alarm messages displayed at the fire detection and alarm panel in English text.

(viii) The system text displays shall include: Alarm missing point trouble; system test, service, local system test, extra custom test by polling circuit and address.

(ix) It shall have an internal troublebuzzer .

(x) It shall be possible to connect upto 4 repeater panels with each fire detection &alarm panel.

(xi) It shall annunciate alarm and trouble conditions.

Application:

The repeater panel can be installed in the guard rooms/security room at the entrance of a building or complex which may have one or more buildings so that incase of emergency the security personnel can rush straight to the trouble point.

4.6.1 Installation requirement of repeater panel:

(i) No panel or management system shall be located inside any room the building or in a room of severe environment conditions.

(ii) The panel shall be positioned in "Fire Alarm Control Room" in a building or any other conspicuously sited location so as to be visible without effort on entering a building and as per the drawing approval by the department /consultant architect.

(iii) The panel shall be either wall mounted or floor mounted.

4.7 Response indicator:

(i) The response indicator shall be used to locate a fire alarm if the detector's LED cannot be seen (i.e. it is hidden by false floors, false ceilings etc.). When a detector is set off, as well as the alarm message being sent, unit response indicator is also activated and flashes red.

(ii) The response indicator shall loop powered and separate power supply shall not berequired.

(iii) Remote response indicator shall be installed outside the areas normally kept closed to identify the detector response even if the room is locked. These indicators shall be able to indicate the status of the corresponding detectors in these areas.

4.7.1 Installation of Response Indicator:-

(i) Response indicator shall be installed on wall such that its top is at door level and by the side of the entrance to the respective premises.

(ii) Response indicators for detectors installed over a false ceiling in a corridor shall be installed directly under the false ceiling.

(iii) Response indicators for detectors under a false floor shall be installed at a height of 1 mtr. above false floor level. Additionally, a marking of an arrow pointing downwards shall be made by the side of the response indicator.

(iv) The installation shall be such that visual indications from the response indicators are conspicuous and the affected area is spotted without difficulty.

4.8 Talk Back System/Fire Fighters Telephone Systems:-

(i) Fire Fighters Telephone System Panel:-

Fire Fighters Telephone System Panel shall be microprocessor based with its own microcontroller, memory, communication modules, intelligent initiating and indicating devices and suitable SMPS. The panel shall be suitable for required number talk back unit connections. The fire fighters telephone system will have integral talk back system to provide a 2 way voice communication between the firefighters telephone. The talk back system shall include fire fighter master control console with a backlit LCD display for status display and a fire fighters telephone handset, standby battery for 24 hours in operation and half an hour alarm condition.The Fire Fighter Telephone System shall also includethe following:

A red colored master telephone handset with flexible coiled self winding five feetcord placed within the fire fighters telephone system panel housing:-

The Fire Fighters Telephone Systems Panel shall include:-

- Indicating High power LEDs
- Input power supply : 230 volts AC 50Hz single phase supply 17-28V DC through rectifier, sealed maintenance free battery including trickle/Booster battery charger. Fire fighters telephone system panel housing shall be Dust and vermin proof cold rolled steel sheet 16 gauge powder coated with see through glass front Fire fighters Telephone system shall be able to withstand 10^0 to 490^0C and upto 93 % RH non condensing type.

Fire fighter Telephone system shall be able to be integrated with building and controlsystem and Public Address System.

(ii) Talk back Units/Fire Fighters Telephone:-

Red Colored fire fighters telephone of rugged ABS plastic construction with 1500 mm coiled cord, a hook switch and the telephone jack placed in a surface mountedcabinet of 18 gauge CRC sheet steel construction with a hinged lockable door and abreak glass full front panel labeled. Fire Fighters Telephone including painting withtwo coats of red synthetic enamel paint over one coat of primer.

ADDRESSABLE INTELLIGENT SOUNDERSAND SILENCING SWITCHES

5.1 SCOPE

This section covers the requirements of sounders and silencing switches used in firealarm systems:

5.2 Type of Sounders:

(i) Panel Sounders

(ii) Addressable Loop Fire Alarm Sounders.

5.3 Functional requirements:

(i) Panel Sounder shall be provided in specified fire alarm panel, repeater panel if any so as to draw attention of the caretaking personnel in a building to a fault in the FAS wiring and a fire condition in the protected premises.

(ii) Fire alarm sounder of low intensity type shall be installed to signal to the occupants of the building to evacuate in the event of a fire.

(iii) Fire alarm sounders cum strobe of high intensity types shall be installed to draw the attention of the fire fighting personnel towards the main location of fire in the premises where a fire has erupted. The strobe should have a light intensity of 15cd.To 100cd.

(iv) Fire alarm sounders shall not be used for any purpose other than for fire operations.

(v) Silencing facility shall be provided only for panel sounders and not for fire alarm sounders.

(vi) It shall be designed Suitable for ceiling mounted or wall mounted.

5.4 Operation of sounders and silencing:

(i) Panel sounders shall be actuated automatically from the control panel.

(ii) Panel sounders shall be actuated automatically as soon as fire alarm signal is initiated from any trigger device connected to them. These shall also be sounded when there is a fault alarm signal within their areas of control.

(iii) A silencing switch shall be provided in the panel. Operation of this switch shall mute the audio output from the panel sounder in this panel and in its repeater panel, if any. Silencing switch shall also be provided in repeater panel which when actuated shall mute the audio output in the panel only.

(iv) Fire alarm sounders in a zone affected by a fire shall be actuated automatically as soon as fire alarm signal is initiated from any trigger device in that zone. All other fire alarm sounders shall be actuated only automatically from the fire alarm panel.

5.5 Specification Requirements:

5.5.1 Sounders

(i) The frequency of sound from sounders shall lie in the 500-1000 Hz band. The sound level shall be at least 65dB (A) or 5dB (a) above or any other noise likely persists for a period longer than 30 second at any part of the building sounders with a level greater than 120 dB (A) shall not be provided.

(ii) The sound shall be continuous although the frequencies and amplitude may vary and of the same characteristics from the fire alarm sounders in a building. Coded fire alarm signaling from sounders shall not be provided which may cause hearing damage.

(iii) 'Fault alarm' and 'Fire alarm' in a panel sounder shall be distinctly different.

(iv) The sounder shall be with IP 54 protection category.

(v) It shall conform to EN/NFPA/Indian standards.

(vi) The volume of sounders can be adjusted from the fire detectors control panel. Minimum three volume setting from fire alarm control panel shall be available.

(vii) The strobe cum hooter are two wire devices that offer tone choices of either continuous horn or temporal tone when constant voltage from fire alarm control panel is applied. Each tone has minimum three volume levels that can be selected for installation.

(viii) The strobe cum hooter installed at entrance of building should have three tones programmable from the fire detector control panel so that at least one of these tones can be selected to comply with at least 110dB (A) frequency range of 440Hz to 2850 Hz. The Volume should be adjustable from control panel.

(ix) The strobe should have a light intensity from 15 cd to 110 cd.

5.6 Installation Requirements:

(a) Low intensity fire alarm sounders may be installed on surface of ceilings, suspended from ceiling or recessed in flush with the ceiling, depending on the construction of the sounder and ceiling height.

(b) These shall be installed at a height not lower than 2.4 mtrs. except when recessed in a false ceiling of lower height. In such cases the sounders shall be recessed at false ceiling level.

(c) When installed flush with a false ceiling these shall match the ceiling surface. Necessary provisions such as wooden boxing or frame work to accommodate the sounders shall be made in the ceiling in advance.

(d) High intensity sounders shall be mounted or substantial supports. Provisions for terminating the electrical wiring cables shall be such as not to permit entry of rain water through the wiring conduits or cable runs.

MIMIC PANEL

6.1 SCOPE :

This Section covers the requirements of mimic panel to be provided as part of a Fire Alarm Systems for remote display.

6.2 MIMIC Panel

(i) A clear indication of the locations of all the ZONES shall be provided in mimic panel.

(ii) It shall be provided at a remote location wheresoever's required.

(iii) A topographical representation of the premises shall be provided in the mimic diagram for the purpose.

(iv) The construction shall either in a metal frame work or plastic housing or as per manufacturer design suitable for wall mounting.

(v) The panel shall have alarm LED's display in red, yellow or a combination.

(vi) One set of LED's represent one Zone.

(vii) The mimic panel (Remote Display) shows the display of malfunctions and/ or alarm for detector or detector zone.

(viii) It shall have Built-in-isolator to maintain complete functions of all elements in loop if wires are broken or if there is a short circuit.

(ix) It shall monitor data communication between control panel/panels.

Locations: In Guard room/ Security rooms of the campus /Main Gates / Entrance Gates.

POWER SUPPLY EQUIPMENT AND WIRING

7.0 SCOPE :

This section covers the requirements of power supply equipment for the addressable FireAlarm System (AFAS) and the wiring for the system.

7.1 Main Supply

Power supply at 230 ± 10% V, 50Hz, AC single phase shall be provided by the department,terminating directly into the incoming switches of the C&I panel. Earth wire shall also beprovided with the power supply. Rectification of the input AC supply into DC and furtherstabilization of thevoltageas may benecessaryshallformpartofthe FAS equipment.

7.2 Stand by battery supply

7.2.1 Standby battery shall be provided with Fire Alarm Control Panel.

7.2.2 Battery supply shall be arranged to automatically feed the FAS in the event of variation of input A.C. voltage beyond preset values on high and low sides.

7.2.3 The battery shall be sealed completely maintenance free. The battery shall be conforming to relevant Indian/International Standard. The normal voltage shall be suitable for the AFAS. The Capacity of the battery shall be suitable to feed the fire alarm panel and other addressable loop elements for a period of 24 hours upon a normal power failure and after which sufficient battery shall remain to provide full load operation for at least 30 minutes in line with IS 2189.

7.2.4 Installation:

Battery shallbe located in themain fire alarm panel.

7.3 Battery Charger

7.3.1 The power supply in the fire alarm panel shall be in-built automatic battery chargersuitable to charge the batteries as per the requirements of relevant standard.

7.3.2 The charger shall be complete with necessary voltmeter, ammeter, indicating lamps, fuses etc.

7.3.3 It shall have protection from overloads and short circuits on both AC & DC sides.

7.3.4 It shall have protection to prevent discharge through the charger.

7.4 Wiring for FAS/AFAS

7.4.1 Circuit Design:

(i) The loop element (Smoke Detectors Heat Detectors, Manual Call Points, Monitor Modules Control Modules, Loop Sounders) wiring in AFAS shall be closed circuit

loop type (Class A type) , so that if the communication fails from one side, it is restored automatically from the other side. The wiring shall be independent of thedetector zoning. The Zones shall be software based.

(ii) The design of the system wiring shall match the control and indicating equipment in the system.

7.4.2 Wiring Materials:

(i) The wiring shall be PVC insulated 2 core 1.5 Sq mm FRLS shielded copper Conductor stranded cables in red/black color and generally confirming to IS-694-2010 and meet the signal cabling requirements.

(ii) The strand of cables shall not be cut to accommodate & connect to the terminals. The terminals shall have sufficient cross sectional area to take all the strands.

7.4.3 Installation requirements:

(i) The electrical work connected with a FAS shall be carried out in conformity with CPWD general specification for electrical works Part-I (Internal) 2013, and part-II (external) 1994, both amended up to date.

(ii) In no case the FAS equipment or connections be mounted in or on boxes, cover plates or blanks carrying the accessories or connections of any other service.

(iii) FAS wiring shall be exclusive to the FAS and be physically separated from wiring forany other service in the building.

(iv) Wiring for different circuit voltages in a FAS shall be in separate conduits.

(v) To minimize possible disruption due to fire or other causes, fire alarm circuits should be separated as much as possible from each other . Where practicable, the different fire alarm circuit shall be run through different routes.

(vi) The metal body of all control and indicating panels shall be loop earthed using 2.5 sqmm copper wire and bonded to the earthling system in the building.

Appendix-I

SCHEDULE 'A'

SCHEDULE OF TECHNICAL PARTICULARS

S. No.	Particulars	Guaranteed data
1.	2.	3.
A.	**Manual Call Box**	
1.	Make	
2.	Material	
3.	Thickness of body	
4.	Material of frangible element	
5.	Overall dimensions	
B.	**Detector (Give for each type of detector separately)**	
1.	Make	
2.	Type	
3.	Specification conforming to	
4.	Any special features	
C.	**Control and Indicating panels (Give separately for each type of panel)**	
1.	Make	
2.	Type	
3.	(i) Overall dimensions	
	(ii) Sheet metal thickness	
4.	A.C voltage at input	
5.	D.C voltage for system operation	
6.	Any special features	
D.	**Mimic diagram**	
1.	Overall dimensions	
2.	Thickness for sheet metal	
3.	Material of the top sheet	
4.	Type of indicator lamps	
5.	Any special features	

E. Battery Unit

1. Make
2. Type
3. Voltage
4. AH Capacity

F. Sounders

1. Make
2. Type

G. Exit Sign

1. Make
2. Type

H. Fire Fighter Telephone System

1. Make
2. Type
3. Confirmation Standard

Appendix-I

SCHEDULE 'B'

SCHEDULE OF ADDRESSES OF MANUFACTURERS

S. No.	Item	Manufacturer's Name	Place Where Can Beoffered for test/inspection	Name & Address Of Theperson who should be contacted
1	2	3	4	5
1.	Trigger devices			
2.	Control and indicator panel			
3.	Mimic diagram			
4.	Sounders			
	(a) High intensity			
	(b) Low intensity			
5.	Battery unit			
6.	Exit Signs			
7.	Telephone/Talk back System			

Appendix-I

SCHEDULE 'C'

SCHEDULE OF PROGRAMME OF WORK

S. No.	Details of Items	Months	1	2	3	4	5	6	7	8	9	10
(a)	Supply of drawings for approval.											
(b)	Bringing equipment/material to site											
	1. Trigger devices											
	2. Control and indicating panels											
	3. Mimic diagrams											
	4. High/low intensity sounders											
	5. Battery unit											
	6. Wiring materials											
	7. All other items											
(c)	Installation/testing and commissioning											

ELECTRICAL WORK

1. SCOPE

This chapter covers the requirements for the electrical worms associated with firefighting installations, namely, motors, switch boards, power cabling, control wiring, earthing and remote control-cum-indicating panels.

(a) GENERAL

- Unless otherwise specified in the tender specifications, all equipment and materials for electrical works shall be suitable for operations on 415 V / 240 V + 10% (3 phase/single phase), 50 Hz AC system.
- All electrical works shall be carried out complying Central Electricity Authority (Measures Relating To Safety and Electric Supply) Regulations, 2010 and NEC 2011, as amended up to date.
- All parts of electrical works shall be carried out as per appropriateCPWD General Specifications for Electrical works, namely, Part I (Internal)2013, Part II (External) 1994 work, and Part IV (Sub-station)- 2013 all as amended up to date.
- All materials and components used shall conform to the relevant IS specifications amended to date.

(b) POWER SUPPLY

Power supply to following systems and equipment, where provided, shall be from normaland emergency (standby generator) power sources with changeover facility:

a) Fire pumps
b) Pressurization and smoke venting; including its ancillary systems such asdampersand actuators.
c) Terrace pump
d) Fireman's lifts (including all lifts).
e) Exit signage lighting.
f) Emergency lighting.
g) Fire alarm system.
h) Public address (PA) system (relating to emergency voice evacuation andannunciation).
i) Magnetic door hold open devices.
j) Lighting in fire command center and security room.

The generator shall be capable of taking starting current of all the fire and life safety systemsand equipment as above. Where parallel HV/LV supply from a

separate substation fed from different grid is provided with appropriate transformer for emergency, the provision of generator may be waived inconsultation with the Authority.

The electric supply to the pumping set(s) shall be entirely independent of all other equipment in the premises that is even when the power throughout theentire premises is switched off, the supply to the pump shall continue to be available un-interrupted. This can be achieved by taking the connection for the pump(s) from the incoming side of the main
L.T. breaker. In case, where parallel HV/LV supply from a separate substation fed from different grid is provided with appropriate transformer for emergency connected to a common bus bar, the connection may be taken through the bus bars.

The power supply to the panel/distribution board of these fire and life safety systems shall be through fire proof enclosures or circuit integrity cables or through alternate route in the adjoining fire compartment to ensure supply ofpower is reliable to these systems and equipment. It shall be ensured that thecabling from the adjoining fire compartment is protected within thecompartment of vulnerability. The location of the panel/distribution board feeding the fire and life safety system shall be in fire safe zone ensuring supply of power to these systems.

Circuits of such emergency system shall be protected at origin by an automatic circuit breaker so set as to permit the motor to be overloaded during an emergency to the maximum limit permissible by the manufacturer. Further, the no volt coil/the under voltage release of that circuit breaker shall be removed. Master switches controlling essential service circuits shall be clearly labeled.

- Independent supply shall be provided for water supply pumps if installed in the same pumphouse.

    - If the fire pump house is away from the sub-station building, the route ofthe cable shall not pass under the building or permanent structure. Cable shall be laid along the route which is safe from fire.

- Sufficient spare power shall always be available to drive pumping sets at all times throughout theyear. Suitable capacity ACBs/SDFUs shall be provided inthe electrical panel for extending supplies to fire pumps. Such switches shall be suitably marked "FIRE SWITCH" and shall not be switched-off without permission/intimation to appropriate authority. In case any maintenance/repair work is to be carried out on the electrical panel where

from supplies to fire pumps have been extended, alternative arrangement shall be madeto ensure that power supply to fire pumps continue to be available for operation any time.

MOTORS

- The motors shall be squirrel cage AC induction type. The motors shall be suitable for continuous duty and rating necessary to drive the pump at 150 percent of its rated discharge with at least 65 percent rated head. The motorshall be totally enclosed fan cooled type confirming to protection clause IP 21 of IS: 4691. The class of insulation shall be 'F'. The synchronous speed shall be 1500/3000 rpm as per requirement of the pump. The motor shall conform to IS:325.

MOTOR STARTER

- The motor starter shall conform to IS: 1822 "Motor starters of voltage not exceeding 1000 volts" and shall be air insulated and suitable for 415 V, ± 10%, 50 Hz, 3 phase AC supply and shall be integrated in the panel.
- Starter for the motor shall be direct on line (D.O.L) for motors up to and including 7.5 H.P. rating and automatic star-delta type for motors of higher ratings unless otherwise specified in the tender specifications. However, for main Fire Pump & Sprinkler Pump Soft Starters may be used.
- Each starter shall be provided with the following protections: -
  - Thermal overload on all the three phases with adjustable settings,
  - Independent single phase preventer. (Current sensing type).
- Adequate number of extra NO/NC contacts for interlocks, indicating lamps, remote operation etc. shall be provided on the starter/ contactor.
- Under voltage/No volt trip shall not be provided.

SWITCH BOARDS

- The main switch board shall be floor mounted, free standing or wall mounted cubical type and shall be factory built fabricated by one of the approved switch board manufacturer. The board shall be fabricated from 2.0 mm thick CRCA sheet and powder coated after 7 tank treatment process. The board shall be fabricated with IP 42 degree of protection. It shall be suitable for terminationof the incoming cable(s) from bottom.
- The capacity of switch gear shall be suitable for the requirements of motor fed/ controlled. Starting currents shall be duly considered.
- Switch fuse units shall be used up to and including 32 A and SDFU shall be used for 63 A and above. ACB shall be used for 630 A and above ratings.
- All Switch fuse units/SDFUs shall be of AC 23 duty as per IS: 4064-1978 as amended up to date. They shall be complete with suitable HRC cartridge type fuses.
- Switch boards shall house starters for motors with independent current sensing.

- Volt meter with selector switch, a set of indicating lamps and fuses for voltmeter and lamps shall be provided. Ammeter with CTs, and selector switch shall be provided with each motor starter. Instruments shall be flush mounted with the panel and have a class index not higher than 1.0. The instruments and accessories shall be provided whether or not specifically indicated in the tender specifications.
- The fabrication of switchboard shall be taken up only after the drawings for the fabrication of the same are approved by the Engineer-in-charge.
- Switchboards shall be fabricated as per specifications indicated in sub-para above.
- The layout shall be designed for convenient connections and inter-connections with the various switchgear. Connections from individual compartments to cable alleys shallbesuch asnot toshutdownhealthy circuits intheeventofmaintenance work becoming necessary on a defective circuit.
- Care shall be taken to provide adequate clearances between phase bus bars aswell as between phase bus bars, neutral and earth.
- Where terminations are done on the bus bars by drilling holes therein, extra cross section shall be provided for the bus bars. Alternatively, terminations may be made by clamping.
- Provision shall be made for proper termination of cables at the switchboards such that there is no strain either on the cables, or on the terminators. Cables connected to the upper tiers shall be duly clamped within the switchboard.
- Identification labels shall be provided against each switchgear andstartercompartment, using plastic/aluminum engraved labels.
- Metallic danger board conforming to relevant IS shall be fixed on eachelectrical switchboard.

SYSTEM CONTROLLER

For controlling operation of pumps as per Para 2.4.1.14 and indicating fault, system controller shall be provided. The system controller shall consist of relays, timer, contactors etc. and shall be designed to operate the fire pumps with interlocking and fault indication as described in Para 2.4.1.15. Annunciation window shall be provided to indicate following faults:

- Low water level in UG tank
- Low water level in terrace tank.
- Main pump failed to start.
- Main pump failed during operation.
- Diesel pump failed to start.
- Diesel pump failed during operation
- Supply to Main Pump failed
- Supply to Pressurization Pump failed

- Supply to Terrace Pumpfailed.

Suitable sensors, differential pressure switches, monitors shall be provided at respective locations. The control system shall be operational on 12 Volt/24 Volt DC starting batteries of engine. Battery chargers shall be provided to ensure thatthe batteries remain charged. Batteries shall be sealed maintenance free type.

REMOTE INDICATING PANEL

- The remote indicating panel shall be provided in the fire control room. This panel shall have necessary status indication of all electric motors.
- Back indication to show the status of operation of all the motors, pressure in the system, water level in underground and overhead tank etc. shall beprovided.
- Panel shall be fabricated from not less than 1.6 mm thick CRCA sheet and powder coated after 7 tank treatment process. The panel shall be dust, damp and vermin proof. This shall be of wall mounting type. This shall be complete with necessary termination arrangements, multicore cables, tag blocks, control transformer, designation plastic labels, double earth studs etc. as required.

POWER CABLING

- Unless otherwise specified, the power cables shall be XLPE insulated, PVC outer sheathed aluminum conductor, armoured cables 1100 V grade. The power cables shall be of 2 core for single phase, 4 core for sizes up to and including 25 sq.mm for 3 phase and 3-1/2 core for sizes higher than 25sq.mm for 3phase.

Alternatively, XLPE/PVC insulated copper cable (single core/multicore armoured/un-armoured) of grade 1100 V shall be used.

For main power cable(s) from LT Room to Fire Pumps Panel, if the cable(s) is taken in cable trench duly filled with sand & with proper distancing from other cables within the cable trench, or in fire rated shaft, then the cable(s)of above type be used. However, if the cable(s) is likely to be exposed to fire, then fire survival cable(s) shall be used.

- Power cables shall be of sizes to meet the starting and running current of motors fed and shall be as approved by the Engineer-in-Charge, after taking into consideration the load, the length of cabling.
- Cables shall be laid in suitable metallic trays suspended from ceiling, or mounted on walls. Cable ducts shall not be provided in pump rooms. Cable trays shall be of perforated steel sheet with adequate structural strength andrigidity. Necessary supports and suspenders for cable trays shall be provided by the contractor as required.

CONTROL WIRING

- Control wiring shall be done using ISI marked PVC insulated and PVC sheathed, 2.5 sq.mm, 250 V grade, armoured multi-core copper conductor cable. The control cable shall also be laid in the same manner as power cable.
- The number and size of the control cables shall be such as to suit the control system design adopted by the contractor.
- Runs of control wires within the-switchboard shall be neatly bunched and suitably supported/clamped. Means shall be provided for easy identification of the control wires.
- Control wiring shall correspond to the circuitry/sequence of operations and interlocks approved by Engineer-in-Charge.

EARTHING

- Provision of earth electrodes and the type of earthing shall be as specified in the tender specifications.
- The earth work shall be carried out in conformity with CPWD Specifications for Electrical works (Part-I), Internal 2013.
- Metallic body of all motors, medium voltage equipment and switch boards shall be connected by two separate and distinct earth conductors to the earth stations of the installations. Looping of such body earth conductors is acceptable from one equipment, or switch board to another.
- The size of earth conductors for body earthing of equipment shall be 2 Nos. 6mm dia copper wire/2 Nos. 25 x 3 mm G.I. strip
- Armoring of cables shall be connected to the body of the equipment/switch board at both the ends. Compression type glands shall be used for all such terminations in the case of PVC/XLPE cables.

PAINTING

All panels shall be supplied with the manufacturer's standard finish painting or as indicated in the Schedule of Work.

INSTALLATION, TESTING AND COMMISSIONING

SCOPE

This chapter covers the requirement of Installation, testing and commissioning of firefighting system.

PREPARATION AND APPROVAL OF DRAWING

On award of the work, the contractor has to prepare working drawings as per Para 1.17.2and submit to the Engineer-in-charge for approval. The work is to be executed as per approved drawings. The stage of approval of drawings is therefore very important. All drawings should be carefully and critically examined before approval. The requirements of various components of firefighting system have been described in previous chapters dealing with the components. However, generally following points are to be taken care while examining and approving the drawings.

Site survey should be carried out in detail.

- In addition to building plans, layout plan along with landscape plan/horticulture plan and other services plans should be consulted while deciding route of underground pipes from pump house and around the building.

- As far as possible, underground pipe are not to be laid under road, pavement,building and long open spaces. The locations along road, foot path in earth may be preferred.

- The location of yard hydrants, fire service inlet and fire service connection are to be decided based on consideration of Para 2.4.1.8 to Para 2.4.1.10. However necessary adjustments are to be made so that these components do not become hindrance in vehicular movement and entrance to the building. Requirement of other building services are also to be given due consideration. Symmetry should be maintained for aesthetic considerations.

- Pipe sizes are to be decided in accordance with provision of Para 2.4.1.2 and4.5.4.

- **Pump House**:-The layout of equipment in pump house is very important fromoperation and maintenance considerations. The requirement of pumps and engine have been described in Chapter 5 and 6. In case other equipment i.e.

water supply pumps etc. are to be installed in the same pump house, sufficient space shall be left for them as well. The dimensioned foundation drawing of pumps should be available for marking in the pump room layout.The layout is to be prepared in such a way that it should be possible to maintain any equipment without disturbing the adjoining equipment. Electrical panels are to be installed at a location which is easily accessible near the entrance to the pump house and there should be no possibility of water dripping over or near the electrical panel. Typical layout of fire pump house is shown in Figure -10.

- **Terrace Pumps:-** The location of pumps and terrace pipe may be decided keeping in view location of terrace tanks for firefighting and other services. The pipe line should not cause undue hindrance for movement of maintenance personnel at the terrace.

- **Electrical Panel** :- Complete wiring drawing, layout etc. are to be examined toensure that provisions of agreement are incorporated in the drawing. Sizes of various panel and mounting arrangement may be decided keeping inview ease of operation and aesthetic consideration as well.

- INSTALLATION:-

The requirements of installation of various components have been describedin previous chapters. However, following precautions are to be taken during execution of the work.

- The pump and motor/engine are to be perfectly aligned on the base plate sothat there is no vibration during operation. All nuts, bolts, washers shall be of adequate size and galvanized.

- The pipe supports should be decided in a way that the weight of pipes and valves are not transferred to the pumps and supports do not cause hindrancein movement inside the pump house. As far as possible, floor supports may be provided in pump house.

- All valves shall be installed at a height and in a position that their operation by right handis conveniently possible.

- All pressure gauges should be installed so that the dial is vertical and is visible while entering the pump house.

- Electrical panels should not be installed at floor level. The panels shall be sufficiently raised above ground level. If panels are to be mounted on wall, an angle iron frame shall be provided so that at least 75 mm space is left

behind the panels. The panels shall be easily approachable.

- Cable trays are to be used for laying of power and control cable inside pumphouse. No cable is to be laid at floor level/in trench. Cable tray layout should give neat appearance. All cable tray shall be adequately supported from the ceiling/floor.

- Drain pump shall be installed in the sump provided as per Para 3.2.2 (viii). The pump shall operate automatically for which water level sensor shall be provided.

- In no case any structural member i.e. RCC wall, column, beam and floor are to be damaged during installation. Mechanical fasteners are to be used for grouting support.
  U.G. tank wall is not to be used for any support. No pipe/cable is to cross the pump house below ground level. Openings above ground level are only to be used for this purpose.

- The engine installation work shall be carried out in accordance with the requirement of engine manufacturer and be got approved by the manufacturer or their authorized service center. The exhaust pipe shouldbe suitably extended outside the pump houseso that smoke does not effect nearby structure. Fuel tank shall be properly supported and located in a way that the same does not cause hindrance in movement in the pump house.

- While excavating for laying of external pipes, suitable sign board/ barricading shall be provided to ensure that no person falls in the trench.

- The width and depth of trench shall be adequate for laying the pipe 1m below ground level.

- No earth or any other matter is to be allowed to enter the pipes. The ends shall be kept closed always.

- The anticorrosive treatment is to be applied on the entire length laid underground in accordance with Para 7.5. The treatment is not to be damaged.

- Pressure testing is to be carried out in sections before filling the earth back in the trench.

- The earth filling is to be done in layers of 20 cm each and properly rammed so as to avoid possibility of settlement. Surplus earth/malba shall beremoved fromthe site by the contractor.

    - Where pipes crossing road likely to have heavy traffic, additional protectionover pipe shall be provided to ensure that pipe is not damaged. However, semi-circular RCC Pipes shall be provided over cast iron pipes at road crossings.

    - External hydrants and fire service connection/ inlet shall be located parallel to the nearby road/ foot path so as to give proper appearance. Foundation shall be raised from below ground level and shall be properly plastered in plumb. The hydrants shall be facing the road/ approach. There shall be no

obstruction in approaching the hydrants for operation.

- Risers shall be parallel to the wall and in plumb. Adequate supports shall be provided from the wall. Opening around the pipe in slab shall be filled with CCand finished with plaster.

- Internal hydrant shall be provided in the center and facing outside for ease of operation. Sufficient space shall be provided around the handle for operation. There shall be no hindrance in moving the first aid hose reel.

- Terrace pipes shall be supported on CC pedestals of adequate height. The pipe route shall be such as no hindrance is created in movement at the terrace. Pipes shall be sufficiently raised above terrace. It is to be ensured that water proofing isnot damaged during laying of pipes.

- *TESTING*

- **Initial Testing**
  - During laying of pipes, the same shall be subjected to 10 kgf/cm^2 hydraulic pressure for a period of 24 hours, in sections.

  - After completion of the work, all vaIves/ fittings shall be installed in positionand entire system shall be tested for 24 hours at a pressure of 10 kgf/ cm^2. The drop of pressure up to 0.5 kgf/cm^2 shall be accepted.

Final Testing

- After completion, all operation checks as per Para 2.4.1.14 shall be carried out for automatic operation of the systems. For this purpose, landing valves may be opened at different locations. The exercise shall be repeated coupleof times to ensure trouble free operation of the system.

- ***Flow Test***: - The design flow of pumps shall be checked. The pump shall be operated after opening a number of landing valves at different locations. Design pressure is to be maintained in the pump house. Water discharge is tobe measuredby drop in level in UG tank for a certain period. All pumps shallbe tested one by one. The flow rate shall be not less than as specified while maintaining the design pressure in pump house.

- INSPECTION BY LOCAL FIRE OFFICER

After completionof thework andtesting totheentiresatisfaction of Engineer-in- Charge, the installation shall be offered for inspection by Chief Fire Officeror his representative. Testing as desired by the Fire Officer shall be carried out. The contractor will extend all help including manpower during testing. The observations of Chief Fire Officer shall be part of the agreement. These shall beattended by the contractor. Nothing extra shall be paid for testing asabove.

- COMMISSIONING

- **Flushing the System**: Before commissioning, the entire system shall be flushed to ensure that any earth/ foreign matters which might have entered during installation are taken out. For this, pump may be operated and valvesopened at differentlocations.

- As soon as the work is complete, the system shall be commissioned and made available for use. Requirement of firefighting installations is equally important during occupation of the building. If the building is to be occupied in part, firefighting system of building completed shall be commissioned by isolating the system of under construction portion of the building.

- The firefighting system shall be maintained and manned from the very first day of its commissioning.

- Any defects noticed during the warranty period shall be promptly attended by the contractor and availability of the system at all time is to be ensured.

- FIREFIGHTING SYSTEM:

- Following types of water based fixed firefighting installations are normallyprovided in buildings:

(i) Wet Riser
(ii) Down Comer
(iii) Wet Riser cum Down Comer
(iv) Automatic Sprinkler

- In all the above systems, lines are laid in and/or around the building and permanently charged with water from a pressurized supply.

In a building, any one system or a combination shall be provided as specified in Table-7 of National Building Code of India-2016, Vol-1, Part-4 as amended up to date, depending upon the occupancy, use and height for protection.

The effective capacity of Under-ground static & Terrace Water Storage Tanks and capacity of Fire Pumps etc. shall also be as specified in Table-7 of NBC- 2016. The same has been reproduced as Appendix-A of this document. The effective capacity of the reservoir shall be measured above the top of the pump casing (flooded suction).

Note: For additional occupancy wise requirements of various Groups mentioned in Para 2.1 above, the provisions contained in *Clause 6 of NBC 2016, Vol-1, Part-4 shall be referred to.*

- Municipal Regulation of the city shall also be taken in to consideration while selecting and designing firefighting system for a building.

- SYSTEM COMPONENTS

Besides architectural and building provisions such as underground tank, pump houses, terrace tank, shafts for installation of internal hydrants, etc. firefighting systems shall generally comprise supply, installation, testing and commissioning of components as detailed in Table

- SYSTEM ENGINEERING:

The capacities and sizes of various components described above will depend upon the type and height of the building. Specifications of various components have been described in succeeding chapters. Following factors shallbe takenin toconsideration while designing variouscomponents.

- Wet Riser cum Down Comer:-

- Pressure at hydraulically remote hydrant and at the highest hydrant shall notbe lessthan 3.5 kgf/cm^2. The pressure at the hydrants shall however not exceed 7 kgf/cm^2.

- The pipe line will be designed in such a way that it should be possible to getdischarge at any location. Design parameters shall be as under:-

(i) Maximum flow velocity : 2.5 mps
(ii) Maximum Friction : 5 m per 100 m run

However, the size of wet riser shall be as given in Table 4.1 under Para 4.5.4(ii).

- Main Fire Pumps (Both electrical as well as diesel) shall be selected for:

(iii) Discharge : 1620 lpm/2280 lpm/2850 lpm(To be selected from Appendix-A)

(iv) Head : 35 m + Height of terrace level hydrant above pump level + 6% ofthe maximum length of pipe frompump discharge to any hydrant atterrace level

- **Terrace pump shall be selected for:**

(v) Discharge : 450 lpm/900 Ipm (To be selected from Appendix- A)

(vi) Head : 20 m+ 6% of the maximum lengthof pipe from terrace pump to any hydrant atterrace level

- Pressurization pump (Jockey Pump) shall be selected for :

(vii) Discharge : 180 Ipm

(viii) Head : 35 m + height of terrace levelhydrant above pump level

- No. of Risers:- Number of risers will be decided to fulfill the followingconditions:-

(ix) No corner of the building is farther than 30 m from nearest riser.

(x) Horizontal distance between two risers shall not be more than 50 m.

Normally one riser is provided for every 1000 sq.m of plinth area or partthereof. However, the number of risers can be suitably increased to meet the given situation

VARIOUS COMPONENTS OF FIREFIGHTING INSTALLATIONS

S. No.	System component	Wet Riser	Down Comer	Wet Riser cum Down Comer
(i)	Electric Motor Driven Fire Pump	Y	N	Y
(ii)	Diesel Engine Driven Fire Pump(asstand by)	Y	N	Y
(iii)	Pressurization Pump (Jockey Pump)	Y	N	Y
(iv)	Terrace Pump	N	Y	Y
(v)	Vertical risers in the building.	Y	Y	Y
(vi)	Pipe network inside the buildingthroughout the area to be protected with Sprinklers	N	N	N
(vii)	External pipe line around thebuilding.	Y	N	Y
(viii)	Internal Hydrant	Y	Y	Y
(ix)	Yard Hydrant (External Hydrants)	Y	N	Y
(x)	First-aid hose reel.	Y	Y	Y
(xi)	Hose Pipe and Branch Pipe.	Y	Y	Y
(xii)	Air Vessels.	Y	Y	Y
(xiii)	Fire Service Connections.	Y	N	Y
(xiv)	Fire Service Inlet.	Y	Y	Y
(xv)	Control components like pressure switches, flow switches level indicator, alarm etc.	Y	Y	Y
(xvi)	Electrical Power and Control Panelwith cable and earthing etc.	Y	Y	Y
(xvii)	Pipe line accessories like Butterfly/ Sluice Valve, Non-Return Valve etc.	Y	Y	Y

- **Internal Hydrant**: Every riser will be provided with the following at every floorincluding terrace and basement over and above sprinkler system.

(xi) Single headed outlet -2 Nos.

(xii) First Aid Hose Reel -1 No.
[Length of pipe shall be such that nozzle of thehose can be taken into every room and within 6 m of anypart of the rooms keeping in view layout and obstruction.]

(xiii) Hose Pipe 63 mm dia, 15 m long with male and female coupling at ends. -2 Nos.

(xiv) Branch pipe 63 mm dia with 20 mmnominal internal diameter nozzle and suitable for instantaneous connection. -1 No.

Yard Hydrant (External Hydrant)

- For fighting fire from outside the building, yard hydrants are provided around the building and in the closed court yard. For connecting yard hydrants a ring of pipe shall be laid underground around the building at a minimum distance of 2 m from the face of the building. All internal risers shall be connected with this ring.

Yard hydrants shall be located at a minimum distance of 2 m but not more than 15 m from the building face. The yard hydrants shall be easily accessibleand should normally be provided near boundary wall/along road. While locating yard hydrants it should be ensured that same do not become hindrance in vehicular movement or entrance to the building. Yard hydrants,should be located around the building in such a way that it should bepossible to fight fire on any face of the building from the nearest hydrant.At least one hydrant post shall be provided for every 45 m.

- Fire Hydrants shall be of stand post type conforming to IS 908. All Yard hydrant outlets shall be situated 1 m above ground level.

- The stand posts shall be 80 mm in diameter for single headed hydrants. The stand posts shall be painted ‘fire red’ as per Para 1.13. Mild steel stand post may be accepted even in cases where underground mains are of cast iron, using flanged joints.

- Only Oblique hydrants conforming to IS 5290 with outlets angled towards ground shall be used. The hydrant couplings shall be of the instantaneous spring-lock (female) type of 63 mm diameter and valves shall be of the screwdown type.

- Suitable pressure reducing devices shall be provided for yard as well asinternal hydrants where the pressure exceeds 7 kgf/cm^2, considering the safety of operators.

- All hydrants should be serially numbered.

- Yard hydrant will include the following accessories

(i) Connection from ring main with 80 mm dia MS pipe

(ii) 63 mm dia single head landing valve - 1 No.

(iii) Butterfly/sluice valve 80 mm dia - 1 No.

(iv) Hose pipe 63 mm dia 15 m long with male and female coupling at ends - 2 Nos.

(v) Branch pipe 63 mm dia with 20 mm nominalinternal diameter nozzle, suitable for instantaneous connection - 1 No.

All above components shall be housed in a suitable size MS cabinet made from 2 mm thick sheet with glass panel on front. The cabinet shall be painted red as per Para 1.13.

(Note:- In case hose pipes and branch pipes are likely to be stolen from yardhydrants, the same may be kept in a central place i.e. fire control room/ fire pump room.)

- **Fire Service inlet :-** In order to facilitate feeding of water in the system by fireservice, a 2/3 way 63 mm diameter collecting head shall be provided and connected with each riser/down comer and the ring main with non-return valve and butterfly/sluice valve. This should be located at a place where fire brigade tender can reach.

- **Fire Service connection:** It is for feeding water to underground storage tank byfire tenders. The static water storage tank shall be provided with a fire brigadecollecting head with 4 number 63 mm diameter instantaneous male inlets arranged in a valve box at a suitable point at street level. If tank is not approachable for the fire engines, the fire brigade collecting head shall be connected to the static tank by a suitable fixed galvanized iron pipe not less than 150 mm in diameter to discharge water into the tank when required.

- **Fire Brigade draw out collecting head:** Each of the static water storage tanks shall also be provided with a fire brigade draw out collecting head with 63 mmdiameter instantaneous male draw out arranged in a valve box at a suitable point at street level. This draw out shall be connected to galvanized iron pipe of 100 mm diameter with foot valve arrangement in the tank.

- **Air Vessel**: - To counteract the water hammer effect, air vessel shall be provided at the top of each riser.

- **Orifice Plate**: - Suitable pressure reducing devices shall be provided for yard as well as internal hydrants to control pressure to desired limit especially at lower level hydrants. *(refer Para 2.4.1.1 & 2.4.1.8.5 above)*

- **Alarm for Wet Riser System: -** To indicate the flow of water in the system, turbine type alarm shall be provided at a prominent place outside the pumphouse in the main line before any connection is taken. The alarm will indicate the healthiness of the system and shall not be silenced till the main fire pump is in operation.

Control system-

- The system shall be designed for operation automatically so that as and when water is drawn from the system through any hydrant, the pumps willoperate automatically and feed water in to the system. However once a fire pump starts working, it will be stopped only manually (except jockey pump) or on account of any fault or non-availability of power supply to electrical pumps or low waterlevel inUG/Terrace tank.

Facility shall also be provided for manual operation. A selector switch forauto/manualselection shall be provided for each pump.

- The control system shall be designed to provide the following sequence of operation:

i) The Pressurization Pump shall maintain pressure in the system and shall operate only on account of slow pressure loss. In case of sudden pressure loss the Pressurization Pump shall not operate. The pump shall start when the water pressure in the system falls to a pre-set value (about 0.35 kgf/cm^{2}below normal system pressure) and shut down when the system pressure reaches the set value. Both limits shall be adjustable.

ii) Main Electric Fire Pump shall operate on account of sudden pressure loss. So long as Main Electric Fire Pump is working, other Fire Pumps will not operate. The pump shall start when the water pressure falls to a pre-set value in the system (about 1 kgf/cm^2).

In case, Normal Electric Supply fails while the Main Electric Fire Pump is running, the DG Set for essential supply will start within 5 seconds.

iii) The Diesel Fire Pump will start on sudden pressure loss, only in case supplyto Main Electric Fire Pump is not available or within a pre-set time theMain Electric Fire Pump fails to start or fails during operation. No other pump will be working when Diesel Engine Fire Pump is in operation. Audio-Visual Alarmshall be available to indicate failure of Main Electric Fire Pump.

iv) A three attempts starting facility will be provided for diesel pump.

v) If within a pre-set time, the standby pump also fails to start or fails to develop pressure, the standby pump shall also be shut down and locked out. An audio visual alarm indication shall be given at the control panel.

vi) The Terrace Pumps will start on sudden loss of pressure only when both the Fire Pumps have either failed to start or exhausted water.

vii) In case sprinkler pump is also provided :

a) Sprinkler pump will start on pressure loss (about 1 kgf/cm^2) in thesprinkler header.

b) If sprinkler pump does not start in preset time or fails during operation, the main electric fire pump shall start and feed water to sprinkler system.

c) Diesel pump will start and feed water only in case supply to main electricpump is not available or within a preset time the main electric pump fails to start or fails during operation. No other pump will be working when diesel pump is in operation. Audio- visual alarm shall be available toindicate failure of both sprinkler and main electric pump.

viii) Only one pump will be working at a time. In manual mode more than onepump can be started.

ix) Water level in UG and terrace tanks shall be monitored and in case of lowwater level, pumps connected with the tank shall not operate (even on manual mode) or stop operation as the case may be. An audio-visual alarm shall be given at the control panel.

- **Wet Riser**:- In wet riser system all components described in 2.4.1 shall be provided except terrace pump. Terrace tank shall not be required.

Wet Riser shall be interconnected at terrace level to form a ring and cut-off shall be provided for each connection to enable repair/maintenance without affecting rest of the system.

- **Down Comer**:- In down comer, underground tank, fire pumps at ground level, ring main and yard hydrant will not be provided. Except these items, all other items described in 2.4.1 shall be provided. Following points are also to be taken in to consideration:

- A minimum of two terrace pumps (eIectricaI) shall be provided. One pump

shall act as standby.

- **Down comer Pipes**: - Consideration of Para 2.4.1.6 shall apply.

- All down comer pipes shall be inter connected at the terrace level. In case terracesare not interconnected, all building will be treated as individual buildings.

- Fire service inlet shall be provided with each Riser/down comer for facilitatingpumping of water from fire service tenders.

- **Control system**: - The starting of terrace pump shall be automatic i.e. with the opening of any hydrant valve or hose reelon any floor, the pump will start automatically with fall in line pressure. In addition start/stop push buttonsshall be provided at ground floor near internal hydrant for starting the pump manually. Where fire control room has been provided, remote operation of terrace pump may be done from fire control room in place of near internalhydrant. The control panel for terrace pumps shall be provided near the pumps in a suitable enclosure to avoid unauthorized operation.

Automatic Sprinkler :-

- In addition to all provisions of Wet riser and Down comer system described in Para 2.4.1, in automatic sprinkler system, water lines of various size are laid throughout the area to be protected and sprinkler heads are provided atregular interval so that water from sprinkler heads cover the entire area under fire.

- Sprinkler has two functions to perform i.e. to detect fire and then to provide adequate distribution of water to control or extinguish it. Sprinkler heads operate at pre- determined temperature to discharge water over the affectedarea below. Only those sprinkler heads operate which are in the vicinity of fire i.e. those which become sufficiently heated.

- Lines for sprinklers shall be separate or common with wet riser system depending upon requirements mentioned in Appendix-A.

- The area to be protected by sprinkler is divided in to various zones. For detecting operation of sprinkler in a zone, flow switches are provided which are wired to an annunciation panel installed in the Fire Control Room. In theevent of operation of sprinkler(s) in an affected area, the annunciation panel

will give audio-visual alarm and indicate the affected zone. Thisarrangement will be independent of fire alarm system.

- The sprinkler shall be installed only where there is no danger of freezing ofwater in the pipes at any time.

- Details of sprinkler installations have been given in separate Chapter 9.

ARCHITECTURAL AND STRUCTURAL REQUIREMENTS

SCOPE

This chapter outlines the general guidelines for planning the space requirements, equipment location, floor loading and other structural requirements for firefighting systems.

- Following provisions/spaces are required for firefighting system:
- **Static Water Storage Tanks: -** Inorder to ensure satisfactory supply of waterfor the pumps of firefighting, static water storage tanks exclusively for the purpose of firefighting shall be provided. The tank shall be provided both underground and/or at terrace. Reservoir for Wet Riser System shall be lined. The effective capacities of the reservoir above the top of the pump casing (flooded suction) for various types of occupancies shall be as indicated in Appendix- A.

While deciding the capacities of underground and terrace tanks following points shall also be taken into consideration:

(i) In case common pump house and underground tank are to be provided for more than one building in a campus, the capacity of UG tank shall beincreased, if required in consultation with local Fire Brigade.

(ii) Arrangement shall be made for replenishment of water from alternative source at the rate of 1000 lpm for underground tank. When this is not feasible the capacities of storage tanks (both underground and terrace tanks) shall be increased suitably in consultation with local Fire Brigade.

(iii) Water for firefighting shall be stored in two or more interconnected compartments of equal size to facilitate cleaning and maintenance of the tanks without interrupting the water availability for firefighting.

(iv) The underground fire water storage tank(s) shall not be more than 7 m in depth from the level having fire brigade draw-out connection, while the draw-out connection shall not be more than 5 m away from the tank wall. *Para 2.4.1.11 above may also be referred.*

- Following factors are to be considered for deciding the location of underground water storage tank:

(i) The tank shall be by the side of road so that fire brigade personnel can drawwater fromthe tank or discharge water into the tank. Suitable manhole shallbe provided for this purpose.

(ii) When the slab of the tank forms a part of pathway/drive way, it shall be designed to withstand the vehicular load of 45 tonnes (or as applicable) equally divided as a fourpoint load.

(iii) Arrangement shall be made to replenish water by mains or alternative source.

(iv) Suitable arrangement shall be made to prevent stagnation of water in the tank. For this purpose, the tank of domestic or other water supply may be fedfrom the over flow of static water storage tank to ensure water level there in.*Figure 7 may be referred to.*

(v) The static water storage is meant for firefighting only and is not to be used for any other purpose except when the tank is to be cleaned.

(vi) There shall be no leakage in the tank.

- Following factors are to be considered for deciding the location of terracetank:

(vii) The terrace tank should be easily accessible.

(viii) Connection to terrace pump shall be conveniently made.

(ix) Factors at 3.2.1.2 (iii) to (vi) shall also be considered.

(x) The terrace tank may be of masonary, cement concrete, M.S. or plasticdepending uponrelevant considerations.

- **Pump House**: - For installation of firefighting pumps (Main Electrical Pump, Diesel Engine Driven and Pressurization Pump) along with Electrical & Control Panel, valves, diesel tank etc., pump house is required. Following factors are to be considered:

(v) In order to provide positive (flooded) suction to fire pumps, the pumphouse shall be at a level below or equal to that of static water storage tank.

(vi) The pump house at ground level shall be easily accessible for firefighting operations and at least 6 meters away from all surrounding buildings and overhead structures. In case, the 6m spacing of pump room fromsurrounding buildings is not feasible, the provisions of Para 5.1.12 of IS 13039:2014 shall be followed.

(vii) The pump house shall not be located in the building to be protected. However, the pump house can be located in the basement subject to conditions of Clause 12.2.2 of IS 15105.

(viii) General water supply pumps can be installed in the same pump house.

(ix) Size of the pump house shall be not less than 6.0 m (W) x 8 m (L) x 3.5 m (H). If two electrical pumps are to be provided, the length of the pump house shall be not less than 12 m. If the water supply pumps are to be installed in the same pump house, then either the width of pump house be increased by 1 m or length be increased by 2 m or suitably as is necessary.

(x) Suitable ramp with proper slope and/or cutout in roof shall be provided for lowering the equipment in to the pump house. Stair case with entry door at ground level and locking arrangement shall be provided.

(xi) Ventilators at least 500 mm height shall be provided on three sides for natural light. Adequate ventilation for dissipation of heat due to operation of

motors/engine shall be provided.

(xii) Proper water proofing shall be provided. A sump of size 0.6 m x 0.6 m x 0.3 m with 1(Working)+1(Standby) dewatering pumps shall be provided in the pump house in one corner adjacent with the tank wall. The floor slope will lead towards thesump so that waterleakage can be pumped out.

(xiii) In order to ensure that there is no leakage of water in the pump house, no pipe/ cable shall cross the pump house below ground level. Suitable opening in wall above ground level shall be provided for crossing of pipes/cables.

(xiv) Installation of negative suction arrangement and submersible pumps shall not be allowed.

(xv) There shall be no beam under the floor of pump house.

(xvi) The floor of the pump house shall be designed for loading of 1500 kgf/sq.m. Foundation of pumps shall be raised over finished floor and in no case flooring or RCC walls shall be damaged while installing equipment in the pump house.

(xvii) Pump house shall be separated by fire walls all around and doors shall be protected by fire doors (120 min rating).

(xviii) The pump house shall be clearly marked by luminous sign.

(xix) Typical layout of fire pump house has been shown in Figure-10.

- **Terrace Pump** - Terrace pump is to be installed near terrace tank. The tank shall be at higher level to provide positive suction to the pump. No separate pump house is required for terrace pump. However suitable enclosure forprotection of pump is to be provided. The pump may be located in stair case mumty if suitable space is available. The pump may be located near beam so that its load is not transferred to slab.

- **Internal Hydrant** - Internal hydrants are provided to fight fire from within the building. Following factors are considered for deciding location of internal hydrant:

(xx) Internal hydrants are provided at every floor at the same location and connected with risers.

(xxi) Hydrant for firefighting shall be located in the lobby in firefighting shaft. Those hydrants planned to be provided near fire exit staircase on the floor shall be within 5 m from exit door in exit access.

(xxii) Numbers and location of risers shall be decided as per Para 2.4.1.6. Every wing of the building shall preferably be provided with independent hydrants. Hydrant shall be located in the center of the building so that one hydrant cancover area on both sides.

(xxiii) A masonry enclosure on three sides of size minimum 1200 mm wide and 800mm deep and 2100 mm height shall be provided. Cut-out of size 200 mm x 200 mm be provided in one corner in the slab for down comer/wet riser

pipe. If sprinkler installations are to be provided, additional cut out of similar size for sprinkler pipe and drain pipe as the case may be, shall be provided. Steel shutter with 1250 mm glazing on top with lockingarrangement shall be provided in front of the hydrant. The shutter shall be painted red as per para 1.13. Typical arrangement has been shown in Figure-8.

(xxiv) Internal hydrant shall be easily accessible. A clear space of at least 1.5 m should be available in front of the internal hydrant for operation. Internal hydrant shall not be provided in a lockable room.

(xxv) Internal hydrant shall be clearly marked with the inscription of "FIRE HOSE CABINET" of letter size 75 mm in height and 12 mm in width by luminous sign. Suitable lighting arrangement shall be provided in front of the internal hydrant. The location of such cabinets shall be shown on floor plan and duly displayed in the landing of the respective fire exit staircase.

- *BUILDING TO BE SPRINKLER PROTECTED*

The sprinkler pipes are installed throughout the area to be protected. The structure shallbe designed to support sprinkler pipes and the contained water. Inbuilt drainage with slope shall be provided throughout the area so that in the event of operation of sprinkler, water is drained out without spreading to other parts of the building. Storage racks/platforms shall be sufficiently raised above floor.

It is essential to make provisions for avoiding water from Sprinkler/hydrant operation entering lifts and electrical rooms.

- *FIRE CONTROL ROOM*

For all buildings 15 m in height or above, and apartment buildings with height30 m and above, a fire control room (size 4 m x 4 m Approximately) shall be provided on the entrance floor of thebuilding. One store for keeping spares for firefighting system shall also be provided adjacent with the fire control room.

PLANNING, DESIGNING AND COORDINATION

INTRODUCTION

Planning of firefighting system is to be done right at the stage when the building plans are prepared by the Architect. Subsequently during preparation of working drawings, all architectural and structural provisions described in Chapter 3 are also to bekept in the building plans.

Careful planning from the initial stage itself will avoid changes and problemsat a later stage. This chapter covers aspects of planning, designing and coordination of firefighting system.

SCHEME

The provision of firefighting installation depends upon building use, height, floor area etc. Considering these factors, the system or a combination of systems which will be required to be adopted should be finally selected in accordance with National Building Code and regulations of local fire authorities, if applicable.

APPROVAL OF LOCAL BODIES

In the building plans which are submitted to local bodies for approval, detailsof firefighting system proposed in the building are also indicated. Localbodies normally refer the same to Chief Fire Officer and recommendations of Chief Fire Officer are conveyed to the officer who submitted the plans. The proposed system should incorporate the recommendation of Chief Fire officer.

ARCHITECTURAL PROVISION

- For any firefighting system, underground tank and pump house are required.These may be located anywhere in the campus subject to proper approach. The pump house should preferably be near the sub-station. It will be a good practice if all building services including firefighting are located at one place in the campus.

- In campus having more than one building to be protected, it is not required to have individual system for every building. A number of building in the campus can be protected by common fire pumps. However yard hydrants/internal hydrants and terrace pump shall be provided in each building. When the buildings are close by, the yard hydrants can be located insuch a way that one yard hydrant cover more than one building.

- In a large campus, buildings of different heights may be proposed. As per National Building Code, provision of firefighting system may not be requiredin building with lesser heights. Provisions of firefighting system as indicated in NBC are mandatory minimum required for any building which does not debar higher provisions. An unsafe building in a campus will become potential danger to the safety of other buildings. If firefighting system is being provided in a campus on account of one or more buildings, it isdesirable to extend the facility to other buildings also where this may not berequired as a mandatory provision. This will ensure safety of all the building in the campus.

- The shafts for vertical risers are to be provided in the building. Their number and location be decided as per guidelines given in Chapter 2 and 3.

- Location of yardhydrant shall be selected in accordance withprovision of Para 2.4.1.8.

- Route of pipe connection from ring main to the riser shall be selected properly. Position of tie beam or any other structural member shall be checked so thatit doesnot come in the way of pipes.

- For vertical riser pipe passage, opening of 200 mm x 200 mm shall be left in slab in the internal hydrant shaft as per Para 3.2.4(iii). The opening shall be located vertically one above the other. Inbuildings wheresprinkler system is tobe installed, additional opening of same size is to be provided within the nitch at the other corner for sprinkler pipe.

- Details of internal hydrant door with glass is to be provided to concerned architect/division in advance. This may be modified for architectural considerations provided the glass height is not changed. Hydrants for firefighting and hose reels shall be located in the lobby in firefighting shaft. Those hydrants planned to be provided near fire exit staircase on the floor shall be within 5 m from exit door in exit access. Such hydrant cabinet may finish with doors to meet interior finishes with requirement of glass panel toprovide visibility to the installations inside and inscribed with the word: “FIRE HOSE CABINET” of letter size 75 mm in height and 12 mm in width. Such door of the fire hose cabinet need not be fire resistant rated. The location of such cabinets shall be shown on floor plan and duly displayed in the landing of the respective fire exit staircase.

- Sprinkler pipes are laid throughout the area to be protected. Therouted

pipes is to be pre-decided in consultation with the Architect. For vertical pipes, shafts for risers are to be used. Layout of horizontal pipe and location of sprinkler head are to be decided keeping in view of location of fans and fitting. In case false ceiling is being provided in the area, horizontal pipes may be laid above false ceiling and only sprinkler head is provided below false ceiling. If the building is centrally air-conditioned, location of duct and air termination may be taken into account. Reflected ceiling plan shall be prepared indicating all services above false ceiling.

- *DESIGNING*
- Requirement of components for various firefighting systems has been given in Para - 2.3. Capacity of pumps shall be worked out in accordance with Para-2.4.1.

- Fire pumps shall be provided with positive suction and automatic starting devices capable of sequential starting of the pumps.

- Insertions like flexible couplings/connections, bellows, etc., in the suction and delivery piping shall be suitably planned and installed.

- The pipe sizes shall be selected as under :-
- Suction and delivery pipes of pumps shall not be less than following.

Pump Discharge	Suction dia (mm)	Delivery dia (mm)
(a) 450 lpm	50	50
(b) 900 lpm	75	50
(c) 1400 Ipm	100	100
(d) 2280 lpm	150	150
(e) 2850 lpm	200	150
(f) 4540 Ipm	250	200

(i) Pipe connecting pump house to ring main shall be not less than 150 mm diameter. Higher size pipe shall be selected depending upon length of pipe and friction loss. Size of Ring main and Risers shall be as given in table below:

Table 4.1

S. No. (1)	Size of the Mains/Risers(mm) (2)	Type of Building (3)	Remarks (4)
i)	100 mm with single outlet landing	a) Residential building (A): 1) Dormitories 2) Apartments 3) Hotels	 - - Up to 45 m height

	valves	b) Educational buildings (B) c) Institutional buildings (C) d) Assembly buildings (D) e) Business buildings (E) f) Mercantile buildings (F) g) Industrial buildings (G)	- Up to 30 m height - Up to 45 m height - Up to 15 m height
ii)	150 mm with single outlet landing valves	a) Hotels b) Starred Hotels c) Institutional buildings (C) d) Business buildings (E) e) Industrial buildings (G) f) Storage buildings (H) g) Hazardous buildings (J)	Above 45 m height - Above 30 m height Above 45 m height Above 15 m height Up to 15 m height Up to 15 m height

(ii) Down comer pipe size shall be of 100 mm dia.

(iii) Where wet riser/down comers are not to be provided but hose reel and terrace tanks are to be provided, pipe of size 65 mm diameter shall be provided in between the pump and hose reel.

(iv) Fire service inlet and fire service connection shall be with pipe size not less than 150mm diameter.

(v) All Tee off connections for landing valves from vertical risers and for external hydrantsfrom ring main shall be with pipe size not less than 80 mm diameter.

- **Selection of Material**:- Components like landing valve, hose coupling branch pipes etc. are available in three material i.e. Aluminum Alloy, Gun metal and Stainless steel. Aluminum Alloy is prone to wear and tear and weather conditions faster than other two materials. However being cheaper, Aluminum Alloy may be used in location where chances of pilferage are more. Stainless steel may be considered at location not very safe from theft. Gunmetal may be used in installations which are well protected.

- **Hose Pipes/ Branch pipes**:- A minimum of two number of 63 mm diameter, 15 m long hose pipe with instantaneous coupling at both ends and one number branch pipe with nozzle shall be kept with every internal and external hydrant.

- **Orifice Plate**:- The pressure in a firefighting system varies from point to point. The pressure will be maximum in the pump house and minimum at the

farthest hydrant at terrace level. To reduce pressure to safe operating

pressure at every internal/external hydrant, orifice plates are provided before connection of landing valve between the flanges of landing valve andpipe flange. The size of orifice shall be calculated as per details given inTable 4.2.

TABLE 4.2 SELECTIONOF ORIFICE PLATE

Pressure LossKgf/cm^2	Diameter of Orifice (mm)	
	Pipe Size	
	80 mm	100 mm
3.5	41.9	
3.0	43.0	
2.5	44.80	
2.0	46.40	
1.5	48.90	56.20
1.0	52.30	57.60
0.9	53.20	59.00
0.8	54.10	60.40
0.7	55.30	62.00
0.6	56.60	63.90
0.5	58.20	66.50
0.4	59.80	69.70
0.3	62.00	74.20
0.2	65.00	81.10
0.1		82.20

Other suitable means may also be used for reducing the pressure apart fromorifice plates.

- Fire pumps shall be provided with positive suction.

COORDINATION

- *Award of Work*:- Depending upon progress of building work, the work of firefighting should be awarded well in time.

- *Power and Water supply for Erection*: - If the department is to provide powerand water for erection, the same should be made available before start of the work since without these facilities, firefighting work cannot be started.

- The Pump house and underground tank where main equipment is to be installed should be available immediately after the work has been awarded.

During Construction of underground tank, 2 Nos. 200 mm diameter MS -C Class pipe with flanges on both sides shall be embedded for connection withsuction header of the fire pumps. In case separate sprinkler pumps are to be provided, additional pipes shall be embedded as per actual requirement.The pipe shall be extended at least 100 mm on both sides of the finished wall.

- The underground tank and Pump house shall be tested for any leakage/seepage before start of the work. It shall be ensured that both tankand pump house are free from leakage/seepage.

- The work of laying of pipe for sprinklers should be taken up in coordination with the duct installation in case of building being provided with central air-conditioning, otherwise after plaster work is over and one coat of white wash has been applied.

- The sprinkler pipes should be tested area wise and capped for connectionto pipesof adjoining area.

- The route of external pipe i.e. pipe from pump house and ring main should be decided in coordination with other building services. Guide lines of Chapter 2 and 4 are to be followed. It will be desirable to prepare a services drawingwhere all services i.e. sewage, drainage, water supply lines, UG cable, pipes for air- conditioning and firefighting are reflected.

- Riser pipes shall be installed after the riser shafts are available dulyplastered.

- For laying of external pipes, excavation up to a depth of 1.25 m or more isto be carried out. This may cause hindrance in execution of other building works. External pipes shall therefore be laid in a phased manner in coordination with other agencies. The pipes shall be tested and earth filled back before excavationfor next phase is taken up. Equipment for testing etc. should be available in advance before start of underground pipe laying work.

- All underground pipes are to be laid much before starting of finishing work i.e.pavement, road/ horticulture work etc. around the building.

- The work of installation of equipment in pump house should be carried out simultaneously and kept ready for connection to the pipe network.

- Before occupation, the building is to be inspected by the representative of

Chief Fire Officer and local bodies. The building will be issued N.O.C. for occupation only when all safety provisions including firefighting work are complete to the satisfaction of Chief Fire Officer. As such, firefighting workis to be completed and commissioned with temporary power supply well before other building works and services are complete.

FIRE PUMPS

- **SCOPE**

  This chapter covers the general requirements of water pumps for main fire pump, jockey pump and terrace pump.

  - **TYPE**

  Pumps conforming to IS 12469 shall be exclusively used for Firefighting purposes. The pumps shall be centrifugal type direct driven with a 3 phase, 415 V $\pm$ 10%, 50 Hz, A.C. motor. The standby fire pump shall be driven by diesel engine. The pumps may be either of horizontal split casing (HSC) type with operating speed not exceeding 1500 rpm, or solid casing with operating speed not exceeding 3000 rpm as specified inthe tender documents.

- **RATING**

  The main fire pump and terrace pump shall be suitable for continuous operation in the system. The jockey pump shall be suitable for intermittent operation to buildup pressure in the system on account of leakage. The head and discharge requirements shall be as specified in the tender documents. The head shall be suitable for the system and shall take into consideration thepressure drops across the various components in the water circuit as well as the frictional losses.

  The rated discharge of Electric Driven and Diesel Engine Driven pump shall be as specified in Table given in Annexure-A. Pump shall be capable of dischargingnot less than 150 percent of the rated discharge at a head of not less than 65 percent of the rated head. The shut off head shall not exceed 120 percent of the rated head in the case of horizontal Pumps.

- **MATERIAL AND CONSTRUCTION**

(i) The centrifugal pumps shall conform to IS 1520.

(ii) The pump casing shall be of heavy section close grained cast iron and designedto withstand 1.5 times the working pressure. The casing shall be provided with shaft seal arrangement as well as flanges for suction and delivery pipe connections as required.

(iii) The impeller shall be of bronze, brass or stainless steel. This shall be shrouded type with machined collars. Wear rings, where fitted to the impeller, shall be of the same material as the impeller. The impeller surface shall be smooth finished for minimum frictional loss. The impeller shall be

secured to the shaft by a key.

(iv) The shaft shall be of stainless steel and shall be accurately machined. The shaft shall be balanced to avoid vibrations at any speed within the operating rangeof the pump.

(v) The shaft sleeve and wearing ring etc. shall be of bronze, brass or stainless steel.

(vi) The bearings shall be ball or roller type suitable for the duty involved. These shall be grease lubricated and shall be provided with grease nipples/cups. The bearings shall be effectively sealed against leakage of lubricant or entry ofdust or water.

(vii) The shaft seal shall be mechanical type, so as to allow minimum leakage. A drip well shall be provided beneath the seal.

(viii) The pumps shall be directly coupled to the motor/diesel engine shaft through a flexible coupling protected by a coupling guard.

(ix) The pump and motor/diesel engine shall be mounted on a common robust bed plate fabricated from mild steel section. The bed plate shall have rigid, flat and true surfaces to receive the pump and motor/diesel engine mounting feet. The pump will be perfectly aligned with the motor/engine so as to avoidany vibration during operation at all variations of load.

- **ACCESSORIES**

Each pump shall be provided with the following accessories: -

(a) Sluicevalves on suction and delivery.

(b) Reducers, as may be required to match the sizes of the connected pipe work.

(c) Non-return valve at the delivery.

(d) Pressure gauge at delivery side between pump and the non-return valve.

(e) Flexible coupling/connections shall be provided between Pump sets andValves on suction and delivery sides of all the pump sets.

Note:

1) No butterfly valves shall be installed inside the pump room.

2) The size of the non-return valve and cut off (Sluice valve) shall not be lessthan the size of the initial delivery pipe.

- **INSTALLATION**

(i) The pump and motor/engine assembly shall be mounted and arranged for ease ofmaintenance and to prevent transmission of vibration and noise to thebuilding structure or to the pipe work.

(ii) The pump and motor/engine assembly shall be installed on suitable RCC foundation. The length and width of the foundation shall be such that 100 mm space is left all around the base frame. The height of foundation shall be so decided that the total weight of foundation block is 1.5 times the

operating weight of the pump assembly. The foundation shall be isolated from the floor by vibration isolating pads. Angle iron frame of size 35 mm x 35 mm x 3 mm shall be provided on the top edges of the foundation.

(iii) More than one pump and motor assembly shall not be installed on a single base or cement concrete block.

(iv) The suction/discharge pipe shall be independently supported and their weight shall not be transferred to the pump. It should be possible to disconnect any pump for repairs without disturbing the connecting pipe line.

(v) A minimum clearance of 1 m around the main pumps shall be provided. For jockey pump-clearance of 75 cm shall be adequate.

(vi) Sufficient space is to be left in front for the radiator of diesel engine for free discharge of hot air. Arrangement for discharging hot air to outside the pump house shall be provided so that hot air does not stagnate in the pumphouse.

DIESEL ENGINE FOR FIRE PUMP

- **SCOPE**

This chapter covers the details of requirements of a diesel engine for main fire pump to act as standby.

- **GENERAL**

The diesel engine shall be suitable for automatic operation complete with necessary automatic starting gear, battery system and shall be complete with all accessories. Both engine and pump shall be assembled on a common bed plate, fabricated from mild steel channel.

- **DRIVE**

The pump shall be only direct driven by means of a flexible coupling. The coupling between the engine and the pump shall allow each unit to be removed without disturbing the other. Coupling guard shall be provided. The speed shall be 1500 RPM.

- **DIESEL ENGINE**

(i) ***Environment conditions***- The engine shall be suitable to operate under the conditions of environment at site.

(ii) ***Engine Rating***- The engine shall be multi cylinder/vertical 4 stroke cycle, water cooled, developing suitable HP at the operating speed specified to drive the fire pump. Continuous capacity available for the load shall be exclusive of thepower requirement of auxiliaries of the diesel engine, and after correction for altitude, ambient temperature and humidity for specified environment conditions. The engine rating shall be suitable to drive the pump at 150 percentof its rated discharge with at least 65 percent of rated head or 20% in excess of the maximum brake horsepower required to drive the pump at its duty point, whichever is higher. The engine shall have 10% overload capacity for one hour in any period of 12 hours continuous run.

The engine shall be:

- naturally aspirated, supercharged or turbo-charged and rather air or water-cooled.
- provided with an in-built tachometer to indicate rpm of the engine.

- suitable for cold starting for which suitable heaters shall be provided in lubricating oil.
- able to develop full load within 15 seconds from the receipt of the signal to start.
- The diesel engine shall conform to BS 649/ IS 1601/ IS 10002, amended upto date.

(iii) **Engine Accessories-** The engine shall be complete with following accessories:

(i) Fly wheel dynamically balanced
(ii) Direct coupling for pump and coupling guard
(iii) Radiator with hoses, fan, water pump, drive arrangement and guard
(iv) Air cleaner dry type
(v) Fuel service tank with necessary pipe work
(vi) Fuel filter
(vii) Pump for lubricating oil and lub. oil filter
(viii) Electric starting battery 12 V/24 V with 2 Nos. batteries
(ix) Exhaust silencer with necessary pipe work
(ix) Governor
(x) Instrument panel housing all the gauges, including Tachometer, hour meterand starting switch with key (for manual starting)
(xi) Necessary safety controls
(xii) Winterisation arrangement
(xiii) Hand operated semi rotary pump for filling the service tank
(xiv) A standard kit of tools (this shall be kept on hand at all times)

(iv) **Cooling System-** The engine shall be radiator water cooled. The radiator assembly shall be mounted on the engine. The radiator fan shall be driven by the engine as its auxiliary with multiple fan belts. When half the belts are broken, the remaining belts shall be capable of driving the fan. Cooling water shall be circulated by means of an auxiliary pump of suitable capacity driven by the engine in a closed circuit.

(v) **Fuel System**- The fuel system shall be gravity fed from the fuel tank to the engine driven fuel pump. The engine fuel tank shall be mounted either adjacent to the engine or suitably wall mounted on brackets. The fuel filter shall be suitably located to permit easy servicing.

The fuel tank shall be of welded steel construction (3mm thick) and of capacity sufficient to allow the engine to run on full load for at least 8 hours. The tank shall be complete with necessary floor mounted supports, level indicator (protected against mechanical injury) inlet, outlet, overflow connections and drain plug and piping to the engine fuel tank. The outlet should be so located as to avoid entry of any sediments into the fuel line to

the engine.

Any valve in the fuel feed pipe between the fuel tank and the engine shall be placed adjacent to the tank and it shall be locked in the open position.

All fuel tubing to the engine shall be with M.S.'C' class pipe with flexible hose connections where required. Pipe joints shall not be soldered and plastic tubing shall not be used.

The following shall be provided:

i) A sludge and sediment trap shall be provided.

ii) An inspection and cleaning hole

iii) Means to enable the entire fuel system to be bled of air (Air relief cocksare not allowed; screwed plugs are permitted)

(vi) **Lubricating Oil System**- Forced feed lubricating Oil system shall be employed for positive lubrication. Necessary lubricating oil filters shall be provided, located suitably for convenient servicing.

(vii) **Starting System**- The starting system shall comprise of necessary batteries 12 Volts/ 24 Volts, starter motor of adequate capacity and axle type gear to match with the toothed ring on the fly wheel. Suitable protection to protect starting motor from excessively long cranking runs shall be suitably integrated with engine protection system.
The capacity of the battery shall be suitable for meeting the needs of the starting system.
The battery capacity shall be adequate for 10 consecutive starts without recharging with cold engine under full compression.
Three attempt starting facility shall be provided. If the engine fails to start after third attempt, the engine shall be locked out and suitable audio-visual alarm shall be given to indicate engine failure. The starter motor used for automatic starting may also be used for manual starting provided there are separate batteries for manual starting.
The scope shall cover all cabling, terminals, initial charging etc.

(viii) ***Exhaust System***- The exhaust system shall be complete with residential grade silencer suitable for outdoor installation and silencer piping shall be extended up to 1 m, outside pump house duly insulated with 50 mm thick glass wool and 1.0 mm thick aluminum sheet cladding.
Retrofitted emission-control equipment shall be used having a minimum specified PM-capturing efficiency of at least 70%, type approved by one of the five CPCB recognized labs. (Recommendations of National Clean Air Program 2019 launched by Ministry of Environment, Forest and Climate

Change)

(ix) ***Engine shut down mechanism*-** This shall be manually operated and shallreturn automatically to the starting position afteruse.

(x) ***Governing System*-** The engine shall be provided with an adjustable governor to control the engine speed within 5% of its rated speed under all conditions of load up to full load. The governor shall be set to maintain rated pump speed atmaximum pump load.

(xi) ***Engine Instrumentation*** - Engine instrumentation shall include the folIowing:-

(i) Lub.oil pressure gauge
(ii) Lub.oil temperature gauge
(iii) Water temperature gauge
(iv) Tachometer
(v) Hour meter

The instrumentation panel shall be suitably mounted on the engine.

(xii) ***Engine protection devices*** - Following engine protection and automatic shutdown facilities shall be provided:-

(i) Low lub. oil pressure.
(ii) High cooling water temperature.
(iii) High lub. oil temperature.
(iv) Over speed shut down

(xiii) ***Pipe work***- All pipe lines with fittings and accessories required shall beprovided for fuel oil, lub.oil and exhaust systems.

(xiv) ***Anti vibration mounting*-** Suitable vibration mounting duly approved by engineer-in-charge shall be employed for mounting the unit so as to minimize transmission of vibration to the structure.

(xv) **Battery Charger-**

Battery of diesel engine operated fire pump shall have separate charger from emergency power supply circuit. Necessary float and boost charger shall be incorporated in the control section of power and control panel with manual selection of boost charge, to keep the battery under trim condition. Voltmeter to indicate the state of charge of the batteries shall be provided. Where separate batteries are provided for automatic and manual starting, the charging equipment shall be capable of trickle charging both the batteries simultaneously. Equipment shall be provided to enable the state of charge of the batteries to be determined.

(xvi) The engine installation shall be approved by the representative of engine

manufacturer (who shall carry out after sales service under AMC).

(xvii) The following spare parts shall be supplied with the engine and kept on hand:

- Two sets of fuel filters, elements and seals;
- Two sets of lubricating oil filters, elements and seals;
- Two sets of belts(where used);
- One complete set of engine-joints, gaskets and hoses;
- Two injector nozzles;
- One complete set of piston rings for each cylinder; and
- One inlet valve and one exhaust valve).

PIPE WORK

- **SCOPE**

This chapter covers the requirements of pipe work in firefighting installations.

- **PLUMBING DESIGN**

Pipe sizes shown in tender documents are purely for contractor's guidance. The contractor shall be responsible for selection of sizes as per detailed engineering to be done by him. Plumbing design to be done by the contractor shall incorporate the following: -

(i) (a) Sluicevalves shallbeprovidedatsuction anddelivery sidesofpumps.
(b) External hydrant
(c) Fire service connection/inlet.
(d) Test valve.
(e) Drain connections.

(ii) For testing the system healthiness and automatic operation on daily basis, one test pipewith sluicevalve shallbeprovided incommon discharge header. For avoiding wastage of water, this pipe shall discharge water inthe tank.

(iii) Non-return valve shall be provided at the delivery of each pump and fireservice inlet. This shall be of swing type.

(iv) Air release valves with ball valve shall be provided in the piping system forventing trapped air with a size of 25 mm for pipes up to 100 mm and 40 mm for larger pipes.

(v) Plumbing drawings showing the sizes of pipe, valves, layout and other details shall be prepared and shall be got approved from the Engineer-in- Charge before the execution of the plumbing work.

- **PIPE MATERIALS**

Pipes shall be of the following materials:

(a) Mild steel heavy class (C-class) conforming to IS:1239 for sizes up to 150 mm.

(b) Welded black steel pipe, Class 2, conforming to IS: 3589, for sizes greater than 150 mm. These pipes shall be factory rolled and fabricated from minimum 6mm thick M.S. Sheet for pipes upto 350 mm diameter and from minimum 7 mm thick M.S. sheet for pipes of 400 mm diameter and above.

MS pipes may be allowed for extension of existing systems which are laid with CI pipes.

(c) Cast iron double flanged pipe, Class-A conforming to IS 1536 or IS: 1537 (to be provided only in underground application).

Note: For pipe work of Automatic Sprinkler System inside the building, Stainless Steel Pipes and fittings of grade AISI 304 as per JIS standard 3448 are also permitted particularly where replacement of pipes is not easy like areas above false ceiling etc., subject to the condition that these pipes with associated fittings are suitable to safely withstand the system test pressures.

(d) (i) GI Pipe medium Class (B-class) conforming to IS:1239 (For Drain)

(ii) Cadmium plated steel nuts/bolts/washers shall be used.

(iii) Flex drop of stainless steel metallic pipe with mounting accessories, frame for installation on false ceiling.

- **PIPE JOINTS**

i) Electric welding joints shall be provided in the MS pipe work. Flanged joints shall be provided for connections to valves, pumps, air vessels etc. and also on straight lengths at suitable points to facilitate erection and subsequent maintenance.

ii) For connection of C.I.Pipe, fittings shall also be of C. I. heavy grade conforming to IS:1538. The flanges shall be smooth faced and neoprene gasket shall be provided between joints. All bolt holes in flanges shall be drilled. The drilling of each flange shall be in accordance with the relevant Indian Standards. Where un-avoidable and to connect underground pipe with risers, MS pipe may be used in the form of distant pieces. The joint between C.I. and MS pipe shall be flanged type. MS pipe laid at such locations shall be provided anti-corrosive treatment as per Para 7.5.

iii) Mild steel flanges shall be in accordance with Table - 17 of IS : 6392 i.e. “Plate Flanges for Welding" and flange thickness shall be as under. Gasket thickness shall not be less than 3 mm.

Pipe diameter	Flange Thickness
200 mm	24 mm
150 mm and 125 mm	22 mm
100 mm and 80 mm	20 mm
65 mm	18 mm
40 mm and below	16 mm

iv) Fittings installed underground shall be of cast iron ‘heavy’ grade conforming to IS 1538 whereas those installed above ground shall normally be of medium grade wrought steel or mild steel conforming to IS 1239 (Part 2) or malleable iron fittings conforming to IS 1879.

v) All hardware items such as Nuts, Bolts, Washers shall be of appropriate size. Washers shall be used on both sides of the bolt.

- **ANTI-CORROSIVE PROTECTION ON UNDER GROUND MS PIPE**

Corrosion protection tape shall be wrapped on MS pipes to be buried in

ground. This corrosion protection tape shall comprise of coal tar/asphalt component supported on fabric of organic or inorganic fibre and minimum 4 mm thick and conform to requirement of IS : 10221-Code of practice for coating and wrapping of underground mild steel pipe line. Before application of corrosion protection tape all foreign matter on pipe shall be removed with the help of wire brush and suitable primer shall be applied over the pipe thereafter. The primer shall be allowed to dry until the solvent evaporates and the surface becomes tacky. Both primer and tape shall be furnished by the same manufacturer. Corrosion protection tape shall then be wound around the pipe in spiral fashion and bounded completely to the pipe. There shall be no air pocket or bubble beneath the tape. The overlaps shall be 15 mm and 250 mm shall be left uncoated on either end of pipe to permit installation and welding. This area shall be coated insitu after the pipe line is installed. The tapes shall be wrapped in accordance with the manufacturer's recommendations. If application is done in cold weather, the surface of the pipe shall be pre- heated until it is warm to touch and traces of moisture are removed and then primer shall be applied and allowed to dry.

Holiday Testing for wrapping and coating is essential. Holiday testing may preferably be carried by flexible and detachable ring probe, which will enable the entire 360^{o} of the surface of the pipe to be scanned.

At least 10 percent of all the welded joints shall be radio graphically tested and half of the joints radio graphed shall be the 'field joints'.

- **VALVES**

Each pump shall be provided with a non-return valve and a sluice valve on the delivery side, the sluice valve being installed on the upstream side of the non- return valve. A pressure gauge shall also be provided between the pump and the non-return valve. The size of the non-return valve and cut off (sluice) valve shall not be less than the size of the initial delivery pipe and, in no case, less than the delivery outlet of the pump. No butterfly valves shall be installed inside the pump room.

Sluice valve shall conform to IS: 780.

Butterfly valve, wherever used, shall conform to IS:13095.

All valves shall be suitable to with-stand the pressure in the system and rating shall be PN 1.6. All valves shall be right handed (i.e. handle or key shall be rotated clock wise to close the valve), the direction of opening and closing shall be marked and an open/shunt indicator fitted.

(i) The material of valves shall be as under: Body - Cast iron
Disc - Cast Bronze or Stainless Steel Seat- Either integral or Nitrile rubberO-ring - Nitrite/ Silicon

(ii) Non return valves shall be swing check type in horizontal run and lift checktype in vertical run of pipes.

(iii) Air release valves shall be of gunmetal body.

- **ISOLATION VALVES :**

(i) Isolation valves shall be provided in the network to enable isolation of any section of the network without affecting the flow in the rest. These valves are distributed according to the general layout of the installation. The isolation valves shall be normally located near the loop junctions. Additionalvalves shall be provided in the segments where the length of the segment exceeds 300 m.

(ii) Cut-off valves shall conform to IS 780 (PN 1.6 rating)/IS 14846, Class 3.

(iii) Butterfly valves can be accepted subject to the condition that the valves of diameter exceeding 150 mm shall necessary be of gear operated.

(iv) All Cut-off valves shall be of the right-hand type and enclosed in properly constructed surface boxes, at least 1 m^2 in area so as to allow for broken joints being easily remade. The top of the surface box shall be 80 mm aboveground level, except where it is located on a road. Valve wheels shall have an arrowhead engraved or cast thereon showing direction for turning open and close.

It is recommended that the position of the surface box be indicated by an iron plate painted fire red with distinct lettering. Such plates shall also show the open and close direction as cast or indicated on the valves and the serial number of the sluice valve.

(v) Locations where vehicles can pass shall be avoided for provision of valve below ground. (CPWD Specs Para 7.10 (xii))

(vi) In case of installations in earthquake prone zones, flexible couplings shall be used for jointing purposes at required locations.

- Valves in fixed firefighting installations shall have supervisory switch with its signalling to fire alarm panel or to have chain(s), pad lock(s), label and temper-proof security tag(s) with serial number to prevent tempering/unauthorized operation. These valves shall be kept in their intended ‘open’ position.

- **STRAINERS**

Stainless steel strainers shall have minimum 1 mm thick screen with 3 mm perforations. Strainers shall be provided with flanges.

- **ORIFICE PLATE**

Orifice plate shall be made of 6 mm thick stainless steel and shall have an identification tag projecting beyond any flange between which it is clamped. The orifice shall be plain central hole without burs and diameter

not less than one-half of the internal diameter of the pipe to which it is fitted.

- **INSTRUMENTS**

(i) Pressure gauge of appropriate range and 150 mm diameter size shall beprovided.

(ii) The pressure gauge shall be duly calibrated before installation andshall be complete with shut off valve.

- **AIR VESSEL**

Air vessel shall be provided on top of each riser and shall be fabricated out of 8 mm thick M.S. Sheet. The ends shall be dished. This shall be of 250 mm diameter, 1.2 m high and installed vertically on suitable legs. The legs shall be provided with M.S. Plate of size 75 mm x 75 mm x 5 mm at the bottomso that the legs do not puncture the roof. The legs shall be grouted in CC foundation. Flange connection shall be provided for connection with wet riser pipe. Air release valve and pressure gauge with shut off valve shall be provided. The air vessel shall be tested at 25 kgf/cm^2 pressure before installation.

- **INSTALLATION**

(i) The installation work shall be carried out in accordance with the detailed drawings prepared by the contractor and approved by the Engineer-in-charge.

(ii) In pipe above ground level, expansion loops or joints shall be provided to take care of expansion or contraction of pipes due to temperature changes.

(iii) Tee-off connections shall be through equal or reducing tees, otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

(iv) Open ends of piping shall be blocked as soon as the pipe is installed to avoid entrance of foreign matter.

(v) Piping installation shall be supported on or suspended from structure adequately. The contractor shall provide, clamps, hangers etc. in accordance with Para 7.16.

Proper lines and levels shall be maintained while installing exposedpipes.

(vi) Pipe supports in pump house shall be floor mounted and of mild steel/ G. I. Spacing of pipe supports shall not be more than that specifiedbelow:

Nominal Pipe Size (mm)	Spacing (m)

20 and 25	2.00
32 to 125	2.50
150 and above	3.00

Extra supports shall be provided at the bends and at heavy fittings like valves to avoid undue stress on the pipes.

(vii) Anti-vibration pads, springs or liners of resilient and non-deteriorating material shall be provided at each support, so as to prevent transmission ofvibration through the supports.

(viii) Pipe sleeves of diameter larger than the pipe by least 50 mm shall be provided wherever pipes pass through walls and the annular spaces shall befilled with felt and finished with retaining rings.

(ix) (a) Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb. Risers passing from floor to floor shall be supported ateach floor by clamps as per Para 7.16.

(b) The space in the floor cut outs around the pipe work shall be closed using cement concrete (1:2:4 mix) or steel sheet, from the fire safety considerations, taking care to see that a small annular space is left around the pipes to prevent transmission of vibration to the structure.

(c) Riser shall have suitable supports at the lowest point.

(x) Where mild steel pipes shall be buried under ground the same shall be treated in accordance with Para 7.5 before laying. The top of the pipes shall be not less than 1m below the ground level. Where this is not practicable, permission of the Engineer-in-charge shall be obtained for burying the pipesat lesser depth. Masonry or C.C.blocks shall be provided for supporting the pipes at interval in accordance with Para 7.11(vi). After the pipes have beenlaid, the trench shall be refilled with the excavated soil in layers of 20 cm and rammed and any extra soil shall be removed from the site of work by the contractor.

(xi) Underground pipe shall be laid at least 2m away from the face of the building preferably along the roads and foot paths. As far as possible laying of pipes under road, pavement and large open spaces shall be avoided. Pipes shall not be laid under buildings and where unavoidable, these shall be laid in masonry trenches with removable covers and cut-off valves shall be provided at points of entry and exit.

(xii) Pipe over ground shall be painted in red color as per Para 1.13. Suitable identification shall be provided to indicate the run of underground pipe wherever the route of underground pipe cannot be ascertained from the location of yard hydrant/isolating valves.

(xiii) It shall be made sure that proper noiseless circulation is achieved in the system. If proper circulation is not achieved due to air-bound connections, the contractor shall rectify the defective connections. He shall bear all the expenses for carrying out the above rectification, including the tearing up and refinishing of floors, walls, etc. as required.

- **FLUSHING ARRANGEMENT**

Flushing connections with isolation valves should be provided at suitable locations in the firewater ring main.

- **PRESSURE TESTING**

(a) All piping shall be tested to hydrostatic test pressure of at least one and a half times the maximum operating pressure, but not less than 10 kgf/sq.cm for a period not less than 24 hours. While Hydro Testing, inclusion of cut-off valves in the mains to be tested can be avoided. All leaks and defects in joints revealed during the testing shall be rectified to the satisfaction of the Engineer-in-Charge.

(b) Piping repaired subsequent to the above pressure test shall be re-tested in the same manner.

(c) System may be tested in sections and such sections shall be securely capped.

(d) Pressure gauges may be capped off during pressure testing of the installation.

- **PIPE SUPPORTS**

For installing pipes vertically or horizontally inside the building standard pipesupports of reputed make shall be used. Following supports shall be used.

(i) Split pipe support clamps withrubber lining for vertical, horizontal and roofhanging.

(ii) Clevis Hangers for horizontal supports to adjust varying heights.

(iii) Sprinkler Hangers for horizontal supports for pipes from 15 mm dia to150mm dia.

Fastners and fully threaded rods shall be used for installing the pipe supports. The sizes of pipe supports and installation shall be in accordance with manufacturer's recommendations. Some of the typical supports are shown in the Figure-9.

For pipes of size 100 mm and above, with the prior approval of Engineer-in- Charge, 'U' clamp with dash fastener may be used for supporting horizontal pipe from ceiling.

- **MEASUREMENT**

Measurements of plumbing work shall be on following basis:-

(a) Piping shall be measured along the centre line of installed pipes including allpipe fittings and accessories but excluding valves and other terms for which quantities are specifically indicated in the schedule of work. No separate payment shall be made for fittings and accessories.

(b) The rates for piping work shall include all wastage allowances, flanges pipe supports, hangers, excavation, refilling, testing, nuts and check nuts, vibration isolators, suspension where specified or required, and any other item required to complete the piping installation. None of these items will beseparately measured and paid.

FIREFIGHTING ACCESSORIES

- **SCOPE**

This chapter covers landing valves, first aid hose reels, hose pipes, branch pipes etc., which are vital tools for firefighting.

- **LANDING VALVE**

Landing valves are provided in the system for connection of hose pipes for discharging water for fighting fire by fire brigade or trained personnel.

(i) The landing valves shall be as per IS: 5290

(ii) Material of construction

- Body, outlet and cap etc. : Bronze or Aluminum alloy or stainless steel
- Spindle : Brass for Bronze body, stainless steel for Aluminum alloy and stainless steel body.
- Hand wheel : Mild steel or cast iron.

(iii) The water discharge shall be not less than 900 lpm for single head valves at 7kgf/cm^2 pressure.

Installation

- The landing valve shall be fitted to a T-connection of the riser at the landing in such a way that the valve is in the center of the internal hydrant opening and at a height of 900 mm from floor level.
- The valve base shall be vertical and the valve facing outside. There should beno hindrance in operation of the handle.

- **FIRST AID HOSE REEL**

First Aid Hose Reel is meant for delivering small quantity of water in earlystage of fire and can be operated even by untrained personnel, and thus provides a most effective firefighting facility. It shall consist of 20 mm (nominal internal) diameter hose tubing length wrapped around a reel with water inlet pipe, stop valve and shut-off nozzle. The entire assembly is mounted on a wall bracket and can swing 180 degrees. The water inlet shall be connected directlyto the riser/down-comer mains by means of 37 mm socket and valve. Thehose tube can be pulled out easily for the purpose of discharge of water on fire.

- First aid hose reel shall be as per IS-884. The coupling, branch pipe and nozzleshall be as per IS:8090.

- **Material of Construction -**

(i) Hub and sides : Aluminum Alloy / Mild steel / Aluminum sheets.

(ii) Wall Bracket : Cast iron / Mild steel.

(iii) Hose tube (20 mm) (nominal internal dia) : Thermoplastic (Textile Reinforced) Type-2 as per IS-12585

(iv) Nozzle with branch Pipe : Brass

(v) Stop Valve(Ball Valve) : Gun metal

Normally M S construction is used. Other material may be used in areas having corrosive atmosphere.

- The water flow rate shall be not less than 24 lpm and the range of jet shall benot less than 6 m.

- **lnstallation**

- First aid hose reels are installed with internal hydrant (Para 2.4.1.7.) space for which is provided as per Para 3.2.4. Where space is not provided, first aid hose reel shall be installed in suitable size MS cabinet made from 2 mm thick sheet with glass door. The cabinet shall be painted red as per Para

1.13. The size of the cabinet shall be such that there is no obstruction in swinging the hose reel. The location of cabinet shall be such that it does not form an obstruction in passage/escape route.

- The length of hose tube shall be such that the nozzle of the hose can be taken into every room and within a range of 6 m from any part of theroom.

- There shall be no obstruction in swinging the hose reel and should be installed above landing valve where provided.

- The inlet valve shall be at 900 mm above floor level.

- Hose reel bracket should be firmly grouted on the wall with the help of rawl bolts.

- **FIRE HOSE DELIVERY COUPLING, BRANCH PIPE AND NOZZLES:-**

- These are important accessories used for firefighting operations.

- **Material of Construction**

- Copper Alloy
- Aluminum alloy
- Stainless Steel

- **Delivery Hose Couplings**

  - The delivery hose couplings consist of male half coupling and female half coupling. Grooves are provided on outer side on both coupling for binding hosepipes with wires. In female coupling spring loaded cam tooth is provided for holding male half coupling in position. Male half coupling and female half coupling are provided on both sides (i.e. on one side male and on other side female) of hose pipes. Two or more pipes can be joined together with the helpof these couplings instantaneously.

  - **Sizes**:- These are available in two sizes i.e. 63 mm and 70 mm. Normally size 63mm is used.

  - **Branch Pipe and Nozzle** :- Branch Pipes with nozzle are mounted at the end ofhose pipe. Branch pipe is properly finished and free from sharp edges. During operation, a fireman has to hold the branch pipe. One end of branch pipe is fixed with hose coupling and the other end is threaded to fit the nozzle.

Nozzle is tapered pipe with one end threaded internally which is fixed on branchpipe. The size of other end i.e. nozzle shall be 20 mm (nominal internal diameter).
Spare Branch pipes and nozzles to the extent of 10 percent of the above requirements, with a minimum of two sets, shall always be kept readily available in fire control room/pump room.

- **FIRE SERVICE INLET AND FIRE SERVICE CONNECTION**

  - These are provided for connection of fire service hose pipes for either directly pressurizing the system with their pumps or filling water in the tank from a distance. In the first case non-return valve with butterfly valve shall be provided for holding water pressure. Fire service inlet shall be provided with each wet riser/down comer and the ring main. The arrangement has been shown in Fig.5. These are fixed to 150 mm diameter pipe and located in MS Box made of 2 mm thick mild steel sheet with openable glass cover.

8.4.1 These shall be as per IS: 904.

- **Material of Construction**

Copper Alloy

Aluminum Alloy

- **HOSE PIPES**

- Hose pipes shall be rubber lined woven jacketed and 63 mm in diameter. They shall conform to Type A (Re-inforced rubber lined) of IS: 636. They shall be flexible and capable of being rolled. Length of hose pipe will be 15 m.

- The hose pipe shall be complete with male and female coupling at the ends as per Para 8.4.3.

Besides keeping hose pipe with internal hydrant and yard hydrant, spare hose pipes to the extent of 10 percent of the above requirements, with a minimum quantity of 30 m shall always be kept readily available in fire control room/pump room. Such spare hose shall be in 15 m lengths, readily attached to couplings.

a) NATURE OF CIVIL WORKS :

All Carriage of material by mechanical transport including loading and uploading with earth excavation of all kind of soil. Clearing outside periphery of premises removal and Disposal of rubbish/moorum/malba/similar waste material by local transport including loading, unloading and transportation and proposal of following requirements also included in the estimate bellow:

- Providing & fixing of Items as per the Requirement as per the CPWD and Government guidelines and BOQ.
- Portland Cement (OPC-43 grade), White Cement, Coarse sand (zone III), Fine sand (zone IV), Common burnt clay F.P.S. bricks tile class designation 10, Water proofing materials, Stone Aggregate (Single size) : 20 mm & 10mm nominal size, Bleaching powder, Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades , G.I. Pipes Class/PVC, G.I. Tees (Equal) /PVC, G.I. Elbow/PVC, G.I. Nipple/PVC, S.C.I. Single equal tee, S.C.I. Plain Bend, S.C.I. Plain shoe Bend, Mild Steel Clamps, Stainless steel screws etc.
- Dismantling G.I. pipe including stacking; Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab; Painting Steel work with Deluxe Multi Surface Paint to give an even shade; Taking out existing wooden door shutter, repair by cutting, painting etc. and refixing of repaired door shutters to existing door frames.
- Any Other Work assigned by WAPCOS/Medical Superintendent/Engineer (ESIC) as per respective jurisdiction of buildings.

Payment Terms:

The Associate/Sub – Consultant/Sub-Contractor acknowledges that under the present Contract/Agreement/Work Order/Arrangement, WAPCOS is only working as intermediary between ESIC being Principal Employer/Client and Associate/Sub-consultant/Sub-Contractor. Thus the Associate/Sub-consultant/Sub-Contractor unconditionally acknowledges that the payments under the present contract/Agreement/Work Order/Arrangement shall be made proportionately by WAPCOS only on back to back basis i.e. after 21 days subject to receipt of payment from ESIC being Principal Employer/Client. The Associate/Sub-consultant/Sub-Contractor also unconditionally agree that in the event the payment or part thereof, under the present Contract/Agreement/Work Order/Arrangement is not received from ESIC (Principal Employer/Client), then WAPCOS &/or any of its Employee/Officer shall not be responsible to pay any amount to Associate/Sub-consultant/Sub-Contractor. The said condition shall supersede any and all other conditions of Contract/Agreement/Work Order/Arrangement between the parties.

The Contractor / Agency shall submit the Running bills at the end of every month and payment will be made within 30 (thirty) days of receipt of the bill subject to verification of attendance and measurement of work at site. All the applicable taxes and duties will be deducted from each bill. Along with Bill, Contractor will submit the consumable item sheet duly verified by engineer in charge WAPCOS/ESIC/Satisfactory person. Payment terms will be same as per Work Order received by WAPCOS from ESIC. The copy of the same is attached in NIT.

- Payment to labour shall be dispersed by the contractor by the 7th of every month positively.
- Payment of contractor shall be given by WAPCOS on the basis of proof submission by the contractor for the disbursement of payment to labour minimum wages as per CLC,ESI, EPFetc employed by him.
- All emergent Repair and Maintenance related complaints within DLP period shall be attained to within 48 hours with concern of WAPCOS/ESIC, failing which a recovery of rs 1000.00 per event per day shall be made from the subsequent payments to the agency and old material / items replaced with new one shall be deposit to ESIC with care and returned certificate should be submit along with subsequent bill.
- In the event of failure to attended the compliant within 03 days, the authorized officer of WAPCOS will get the work done at the risk and cost of the agency and expenditure incurred will be deducted from the subsequent payment/ Security deposit of the agency .
- On submission of consumable item sheet duly verified by engineer in charge WAPCOS/ESIC/Satisfactory person.

1. Agency /Contractorshallstrictlyadheretoallrelevantstatutoryprovisionsasmaybeapplicablefo rsuch work award.

SECTION IX

LIST OF APPROVED MAKES

LIST OF MAKE

Acceptable makes of materials to be used in the work are as follows. In case of non-availability of these makes, after the approval of WAPCOS, the Contractor can use the alternative makes only BIS marked materials. Non BIS marked materials may be permitted by the WAPCOS only when BIS marked materials are not manufactured.

CIVIL WORKS

S.NO.	NAME OF ITEM	MAKE APPROVED
1	ORDINARY PORTLAND CEMENT GRADE 43/53, PORTLAND POZZOLONA CEMENT	JK, ACC, ULTRATECH, JAYPEE, SHREE, AMBUJA,
2	WHITE CEMENT	JK, BIRLA, ACC, JAYPEE, AMBUJA
3	REINFORCEMENT STEEL	TATA , SAIL, RINL, JINDAL, JSW STEEL
4	PLY / BOARD / MDF	DURO, MERINO, GREEN PLY, AGNI , KITPLY, CENTURY
5	LOCK/BRASS FITTING	DORSET, DORMA, OZONE, GODREJ, HAFELE
6	WALL PUTTY	JK, BIRLA, ACRO, BERGER
7	STRUCTURAL STEEL/TUBULAR TRUSS	TATA , SAIL, RINL, JINDAL, APOLLO
8	PAINT/POLISH/ PRIMER/ WATER PROOFING PAINT	BERGER, ASIAN, DULUX, NEROLAC
9	POWDER COATING	AKZONOBEL, ASIAN

10	EPOXY PAINT/ WATER PROOFING WORKS	FIBREX/BASF/ SIKA/FOSROC/PIDILITE
11	FLOOR & WALL TILE(VITRIFIED & CERAMIC)	KAJARIA, ORIENTBELL ,SOMANY, NITCO
12	GLASS / MIRROR	ASAHI, SAINT GOBAIN, PILKINGTON, MODI GUARD
13	CONSTRUCTION/WATERPROOFIN G CHEMICAL, ADMIXTURES	ROFFE, FOSROC, SIKA, ULTRACON, PIDILITE
14	ANTI TERMITE	VAM ORGANICS, PYRAMID, TERMISOL
15	GRID FALSE CEILING & WALL PARTITION	ARMSTRONG, DEXUNE, NEW AGE, HUNTER DOUGLAS, SAINT GOBAIN. DIAMOND FALSE CEILING TILES
16	GYPSUM WALL PARTITION/CEILING	BORAL, INDIA GYPSUM, GYPROC, SAINT GOBAIN, DIAMOND FALSE CEILING TILES
17	FLUSH DOOR	DURO, CENTURY, MERINO, ARCHIDPLY, AGNI
18	DOOR FITTINGS & FIXTURES	DORMA, OZONE, DORSET, EBCO, HAFELE
19	GLASS/SS HANDRAIL	DORMA, OZONE, DORSET
20	ALUMINIUM SECTIONS	JINDAL, BHAROUKA, HINDALCO
21	XPS INSULATION	OWENS CORNING
22	GLASS PROCESSING	GOLDPLUS, GSC
23	MODULAR FURNITURE	GODREJ, BP ERGO, FEATHERLITE, WIPRO
24	VENEER/LAMINATE	MERINO, CENTURY, AGNI, DURO, GREEN,ARCHIDPLY
25	SIGNAGES	3M, XENON OR EQUIVALENT
26	UPVC DOORS AND WINDOW	FENESTA, LINGAL, DECEUNINCK, ENCRAFT, DUROPLAST
27	PAVER BLOCK/KERB STONE OF M30 GRADE AND 60 MM THICK	NITCO,UNITILE, NIMCO OR EQUIVALENT
28	FIRE RETARDANT PAINT	NULLIFIER/SIGNUM/GODREJ/NIPPON/ CARBOLINE
29	FIREDOOR	SUKRI, NAVAIR, DORMA
30	FIRE RATED GLASS	SCHOTT (GERMANY) AND EQUIVALENT
31	PIPES RELATED WORKS	REFRE MAKE LIST FOR PHE WORKS
32	STAINLESS STEEL (GRADE 304) RAILING MADE OF HOLLOW TUBES, CHANNELS, PLATES ETC	JINDAL, TATA, MONNET
33	ACP	VIVA, ALSTRONG, ALUDECOR, ALUCOBOND, VIRGO
34	REINFORCEMENT COUPLER	SNTP, DEXTRA, MOMENT, LENTON
35	EXPANSION JOINT	KOHINOOR ENTERPRISES, MIGUA, CS
36	WATER PROOFING AGENCY	SIKA, FOSROC, BASF, PIDILITE

ELECTRICAL WORKS

ITEM	MANUFACTURERS NAME
AIR CIRCUIT BREAKER	SCHNEIDER /SIEMENS/ L&T/ABB
MOULDED CASE CIRCUIT BREAKER WITH ROTARY OPERATING HANDLE.	SCHNEIDER/ SIEMENS/ L&T/ ABB/ POLYCAB
TRANSFORMER / COMPACT SUBSTATION	ABB/ SCHNEIDER/ KRILOSKAR/ CROMPTON
DIGITAL METERS	EL MEASURE / L&T/ CONSERVE/ TRINITY / NEPTUNE DUCATI
CONTACTORS, TIMERS	SCHNEIDER/ ABB/ L & T/ LEGRAND/ SIEMENS
CAPACITORS / CAPACITOR WITH RELAY	SCHNEIDER/ EPCOS/ L & T
VOLTMETER & AMMETER	CONZERVE/ ENERSOL/ HPL
SWITCH GEAR	SCHNEIDER/ SIEMENS/ L&T/ ABB/ CROMPTON
SELECTOR SWITCH	KAYCEE/ L & T
CURRENT TRANSFORMER	MATRIX/AE/ C&S / G&M
INDICATING LAMP	L & T/ SIEMENS/ AE
PROTECTIVE RELAYS	ABB/ L & T /SIEMENS/SCHNEIDER / GE
MULTI FUNCTIONAL METER	L&T/ LEGREND/ CONZERV
APFC RELAY (MICROPROCESSOR BASED)	SYNTRON/ ENERCON/ L & T/ DUCATI/ SCHNEIDER
BATTERIES	EXIDE/AMAR RAJA/OKAYA/LUMINOUS
BATTERY CHARGER	UPTRON/VOLTSTAT ELECTRONICS
L.T. / H.T. CABLE	POLYCAB/ HAVELLS/ FINOLEX/ KEI
DC MINIATURE CIRCUIT BREAKER	SCHNEIDER/SIEMENS/POLYCAB/ LEGRAND
CABLE LUG (TINNED COPPER)	DOWELLS/ MULTI/CAPITAL
CABLE GLAND	PEECO/ COMMET/ GRIPWELL/ POWER
MAIN L.T. PANEL, CAPACITOR PANEL & DISTRIBUTION PANEL	SPC ELECTROTECH/ TRICOLITE/ ADLEC/ APPLICATION CONTROL/ PRECISION
CABLE TRAY / RACEWAY	PILCO/CTM ENGINEERS/KME/SLOTCO/STEELWAYS
FIRE EXTINGUISHERS	ZENITH/MINIMAX/NEWAGE/ CEASE FIRE
ENERGY ANALYZER METER	CONZERVE/ELEMEASURE/ENERSOL
VOLTMETER & AMMETER	CONZERVE/ ELMEASURE/ ENERSOL
DISTRIBUTION BOARDS WITH MINIATURE CIRCUIT BREAKERS, RCCB	HAGER/LEGRAND/ POLYCAB/L & T/ HAVELLS
PVC INSULATED COPPER CONDUCTOR SINGLE CORE STRANDED WIRES OF 650/1100 VOLT GRADE	HAVELLS/FINOLEX /POLYCAB
TELEPHONE TAG BLOCK	KRONE/ TVS R&M

PVC CONDUIT	BEC/AKG/POLYCAB/ RMCON/ ASTRAL
M.S. CONDUIT	BEC/AKG / RMCON/ JINDAL
MODULAR SWITCHES & SOCKETS	LEGRAND/HAVELLS/POLYCAB/ ANCHOR
LV SYSTEM WIRE	SIEMENS/LEGRAND/ AMP/ HAVELLS/POLYCAB
TV/TELEPHONE OUTLET	SIEMENS/LEGRAND/ HAVELLS/POLYCAB
DATA OUTLET	SIEMENS/LEGRAND/ HAVELLS/POLYCAB
DATA RACK	SIEMENS/APW/LEGRAND/ WIPRO
LIGHT FIXTURE	PHILIPS/HAVELLS/POLYCAB/ WIPRO
LAMPS	PHILIPS/ HAVELLS/ POLYCAB/ WIPRO
CEILING FAN	ORIENT/HAVELLS/CROMPTON GREAVES/BAJAJ
EXHAUST FAN WITH LOUVERS	ORIENT/HAVELLS/CROMPTON GREAVES/BAJAJ
GEYSER	HAVELLS/ BAJAJ/V-GUARD/ A-O SMITH/ JAGUAR/ CROMPTON GREAVES
FIRE ALARM SYSTEM	NOTIFIER HONEYWELL/ SIEMENS/ TYCO/ EDWARDS/ AGNI
PRESENCE DETECTOR	HAGGER/LEGRAND/PHILIPS
RCC HUME PIPE FOR ELECTRICAL WORKS	ISI MARKED OF REPUTED COMPANY
PLC	SIEMENS/ALLEN BRADLEY
TELEPHONE / CO AXIAL WIRE	POLYCAB/FINOLEX/HAVELLS
PROFESSIONAL LED PANEL	PANASONIC/ SAMSUNG/SONY
PUBLIC ADDRESS SYSTEM	HONEYWELL/ BOSCH/TYCO/EDWARDS
D.G. SET (ENGINE)	CUMMINS/CATTERPILLAR/STAMFORD/KIRLOSKAR
D.G. SET (ALTERNATOR)	STAMFORD/ LERROYSOMMER/ CATTERPILLAR
D.G. ACCOUSTIC ENCLOSURE	JAKSON/STERLING/CATTERPILLER/SUDHIR
H.T. PANEL	ABB/ SCHNEIDER/SIEMENS
H.T. TERMINATION KIT	RAYCHEM/DENSON
SMOKE DETECTORS	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
HEAT DETECTORS	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
MANUAL CALL BOX	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
HOOTER/ SOUNDER	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
RESPONSE INDICATOR	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
FIRE PANEL	NOTIFIER HONEYWELL/ TYCO/ SIEMENS CERBERUS-PRO/SHRACK
PA AMPLIFIER	HONEYWELL/ BOSCH/HEINRICH/ATIES
PA SPEAKERS	HONEYWELL/ BOSCH/HEINRICH/ATIES
LINE MATCHING TRANSFORMER	HONEYWELL/ BOSCH/HEINRICH/ATIES
GOOSE NECK MIKE	HONEYWELL/ BOSCH/HEINRICH/ATIES

INVERTER	TOPAZ INTERNATIONAL/ LUMINOUS/ HYTES/ SU- KAM/ MICROTECH
CAMERA WITH ALL ACCESSORIES	AXIS / INPULSE/ IDIS/ BOSCH/PELCO
ROAD BARRIER	NICE/ MAGNETICS/ GODREJ/ GE
CARD READER	SENSORMATIC-USA/ MOTOROLA /HONEYWELL(XLS- 3000)
MONITOR	LG/ SAMSUNG/SONY
MULTIPLEXER	SENSORMATIC OR EQUIVALENT
SEQUENCER	ALBA/ VANTAGE
PROXIMITY CARD	MOTOROLA/ HUGHES/ HONEYWELL/GE/SIEMENS/HID
TELEPHONE TAG BLOCK	CTM ENGG/SYSTIMAX/SCHNEIDER/PANDUIT
TELEPHONE CABLES	DELTON / SKYTONE/ CLIPSAL/ HAVELLS
CO-AXIAL CABLES	FINOLEX/ HAVELLS/ POLYCAB
EPABX	ALKATEL/ SIEMENS/ NEC/ AVAYA/ PANASONIC
CCTV SYSTEM	AXIS / IMPULSE/ IDIS/ BOSCH/ HONNEYWELL /TYCO
ACCESS CONTROL SYSTEM	HONEYWELL/ SIEMENS/SYRIS
NURSES CALL SYSTEM	AMTEK/RAULAND/AFCON/DAKSH
VIDEO CONFERENCE SYSTEM	POLYCOM/SONY/SYSCO
AUDIO PROCESSOR	BOSE/BSS/CLEARONE
BMS CONTROLLER/SOFTWARE CENTRAL CONTROL BMS SERVER	IBM/HP/DELL
BUILDING MANAGEMENT SYSTEM, BUILDING MANAGEMENT WEB BASED SERVER SOFTWARE, PROGRAMMABLE & APPLICATION SPECIFIER CONTROLLER	SIEMENS/HONEYWELL EBI/TYCO / SCHNEIDER
SENSOR & FIELD DEVICES IMMERSION TYPE TEMPERATURE SENSORS, FLOW METER,ULTRA SONIC THERMAL ENERGY METER , OUTSIDE T+RH SENSOR	SIEMENS/KELE/SAUITER RACE
WATER LEVEL SWITCHES, FLAME PROOF LEVEL SWITCHES	KELE/ VESKLER/FLIPRO
DC VOLTAGE TRANSDUCER, CURRENT RELAY	KELE/SITU/OMICRON
ROOM TYPE TEMP. SENSOR, CO2 SENSOR, AMBIENT TEMP. SENSOR	SIEMENS/KELE/TRANE
CO SENSOR	DWYER/KALE/MSR GERMAN
PRESSURE TRANSMITTER	SIEMENS/TRANE/OMICRON
DIFFERENTIAL PRESSURE SENSOR	SIEMENS/TRANE/VESKLER
FIRE SUPPRESSION SYSTEM	SIEMENS/KIDDE/TYCO
HIGH MAST AND POLES	BAJAJ ELECTRICALS / MY FAIR LIGHT/

	PARUTHI ENGINEERING
SERVICE/ PASSENGER ELEVATORS	KONE/SCHINDLER/OTIS

PHE WORKS

S.NO.	ITEM	MANUFACTURERS NAME
1.	VITREOUS CHINA AND FIRECLAY SANITARYWARE WITH COVER	JAQUAR/HINDWARE/PARRYWARE/ ROCA / KOHLER / CERA
3.	STAINLESS STEEL SINKS	JAYNA/ PARRYWARE/ NEELKANTH/ NIRALI/ CERA
4.	C.P. FITTINGS & ACCESSORIES	JAQUAR/HINDWARE/PARKO/ROCA/ CERA
5.	C.P. WASTE, SPREADERS, URINAL FLUSH PIPES	JAQUAR/ HINDWARE/ PARRYWARE/ ROCA / CERA
6.	SS COCKROACH TRAPS, GRATINGS FOR FLOOR DRAINS, FLOOR TRAPS AND RAIN WATER GRATINGS	CHILLY/ JAYNA/ CAMRY
7.	SOIL, WASTE & FITTINGS (a) CENTRIFUGALLY CAST SPUN CAST IRON PIPES (IS:3989)	SKF/ NECO/BIC/ PRINCE/ SUPREME/ KISSAN
8.	RCC PIPES	PRAGATI / JAIN SPUN/ ISI MARKS OF REPUTED COMPANY
9.	PVC/ CPVC PIPES & FITTINGS	ASTRAL/ ASHIRVAD /PRINCE/ FINOLEX /PRAKASH/ SUPREME
10.	HAND DRIER	JAQUAR/ HINDWARE/EURONICS
11.	BALL VALVES	ZOLOTO/ LEADER/ AIP/ SANT / NEU-G
12	RAIN WATER PIPES & FITTINGS UPVC PIPES AND FITTINGS	PRINCE/ SUPREME/ PRAKASH/ FINOLEX/ ORI-PLAST
13.	WAFER TYPE BUTTERFLY VALVES	ZOLOTO/ LEADER/ AIP/ DANFOSS/ SANT / NEU-G
14.	WAFER TYPE NON-RETURN VALVES	ZOLOTO/ LEADER/ AIP/ DANFOSS SANT / NEU-G
15.	WATER METRES	CAPSTAN/KRANTI/KAYCEE/AQUAMET
16.	BALL COCKS	GPA/ DRP/ SANT/ L & K
17.	STONEWARE PIPES & GULLY TRAPS	PERFECT/ BURN/ RK/ SAURAKHI / MOU
18.	C.I. MANHOLES COVERS AND FRAMES	NECO/ RIF/ BIC/SKF/BIC/ RPMF

19.	RCC MANHOLE COVERS & FRAMES	KK/ PRAKASH/ JSP
20.	FASTNERS	HILTI/ INTELLOTEC / TRUCTEK / FISHER
21.	WATER HEATER	HAVELLS/ BAJAJ/ CROMPTON GREAVES
22.	HOT WATER NEOPRENE INSULATION	KAIFLEX
23.	GATE/ FULLLL WAY VALVES AND GLOBE VALVES	LEADER/ZOLOTO/SANT
24	AIR RELEASE VALVES	SANT/ LEADER/DANFOSS/ ZOLOTO
25.	PIPECOAT	IWL LIMITED/ PYPKOTE
26.	C. I. PIPE	RIF, NECO, SKF, HEPCO, BIC
27.	G. I. PIPE	JINDAL, TATA, SWASTIK, APL APOLLO, SURYA PRAKASH
28.	G.I. FITTINGS (MALLEABLE CAST IRON)	JINDAL / SURYA PRAKASH /DRP-M/ ZOLOTO-M/ UNIK
29	M.S. FITTINGS (FORGED)	DRP/ VS
30	OVERHEAD WATER TANK	SINTEX, SHEETAL, EUREWELL
31	WATER COOLER	BLUE STAR/VOLTAS/GODREJ
32	R.O WATER PURIFIER	KENT/EUREKA FORBES/ ION EXCHANGE
33	WATER TREATMENT PLANT	ION EXCHANGE/ THERMAX/ BRISANZIA
34	HDPE PIPE	PRINCE/ SUPREME/ PRAKASH/ FINOLEX/ DUROLINE
35	DI PIPE	JINDAL/ PRINCE/ SUPREME/ PRAKASH/ FINOLEX/ JAI BALAJI
36	DI PIPE FITTINGS	JINDAL/ PRINCE/ SUPREME/ PRAKASH/ FINOLEX/ JAI BALAJI

NOTE: Above list of makes is the General List of makes for various items used in the works. However, contractor will select the makes from above list in accordance with the scope of works mentioned for this work and other makes may be ignored. Some makes of material also mentioned in Bill of quantity and tender drawings/images. In case of any discrepancy between makes of material mentioned in Bill of quantity &tender drawings/images AND above "List of Make" then make of material mentioned in Bill of quantity & tender drawings/images will prevail.

VOLUME II

FINANCIAL BID

LETTER OF TRANSMITTAL FOR FINANCIAL BID

To

CHIEF EXECUTIVE DIRECTOR (ENVT & CM)
WAPCOS Limited, Environment Division,
76-C, Sector -18, Gurgaon- 122 015

Subject: Financial Bid for the work of **"**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**

Sir,

With reference to your NIT document dated …….., I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project.

The Bid is unconditional and unqualified.

1. I / We acknowledge that the WAPCOS will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.

2. The BID Price has been quoted by me / us after taking into consideration all the terms and conditions stated in the NIT, draft Agreement, our own estimates of costs and after a careful assessment of the site and all own the conditions that may affect the project cost and implementation of the project.

3. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

4. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into an Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

5. I / We shall keep this offer as specified in the NIT.

6. I / We hereby submit our BID and offer a BID Price for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

Yours faithfully,

Date: (Signature, name and designation of the Authorized signatory)

Place: **Name and seal of Bidder**

SUMMARY OF COST

Name of Work: "Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**

S No.	Particulars	Percentage Quoted Excluding GST	
		Percentage Quoted (below/above/at par)	**Total Amount as per % Quoted**
A	**"**Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh (Package-1) **"**	*Do Not fill percentage here*	*Do not fill cost here*
	Total (A) (Excluding GST) ***(Do not fill cost here as it is Technical Proposal File*)**		

Note:-

- Total amount quoted should be exclusive of GST.
- The rate quoted in Bill of Quantities, included all costs associated with the project including any out of pocket / mobilization expenses, indirect Taxes if any applicable as per Govt. terms, to be paid by the Contractor
- The tenderer shall quote rates up to zero decimal and as well as in words. In case of any discrepancy, the lowest rate quoted shall prevail.
- Demolition if occur any, it will be the property of ESIC/WAPCOS. Contractor cannot claimed for the same.
- All materials, equipment's etc. shall be provided by the contractor only and disposal of the same at designated place shall come under the scope of contractor. No extra payment claim will be paid to the contractor for the same.
- Contractor has to comply all the regulation as per circulated by the State Government or Central Government or ESIC or WAPCOS regarding construction, environment, pollution, Covid-19 guidelines etc. No extra payment claim will be given to the contractor for the same.
- The payment will be done based upon the actual quantity of work done at site certified by site in charge, within the quantity mentioned in BOQ.
- The Contractor should follow all the prevailing statutory regulations with respect to safety, labour welfare, insurances etc. without any additional burden to WAPCOS and ESIC.
- **The summary of cost only be filled separately in attached excel BOQ**

****

Signature of the authorized representative :
Name of the agency :
Name and designation :
Contact Details a) Communication address:
b) E-mail id :
c) Contact Nos. :

Date: Place:

Name of Work : Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh-Bill of Quantity

GRAND SUMMARY -TOTAL COST FIRE FIGHTING & CIVIL

S.No.	Description	Amount(Rs.)
1	Fire fighting works Grand total (Excluding GST)	14,416,612.20
2	Civil works Grand total(Excluding GST)	1,046,294.84
3	Sub Total	15,462,907.04

(Rupees One Crore Fifty Four Lakh Sixty Two Thousand Nine hundred and Seven Only)

*** *Above mentioned rates exclusive of GST and inclusive of CPOH, labour cess, other services charges and Administrative service Charges and worker as per only latest CLC norms per month quoted by the firm in financial bid shall be commensurate with the administrative and supervisory efforts required for the executing the contract**

*** Payment shall be released only for executed quantity and manpower as per the direction of Engineer-in Charge/ESIC**

Name of Work : Special Repair of Fire Fighting and Obtaining fire NOC of Hospital Building for ESIC Hospital, Jajmau, Kanpur-Uttar Pradesh-Bill of Quantity

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
		EXTERNAL YARD HYDRANT SYSTEM				
1	18.6	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding exavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling, the trench etc. of following sizes,				
	18.6.2	150mm dia	m	3804.00	1000.00	3,804,000.00
2	18.7	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				-
	18.7.6	80 mm dia	m	1885.00	124.58	234,833.30
3	18.10.1	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal/Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required : Single headed Gunmental	set	7646.00	10.00	76,460.00
4	18.16.1	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required : Gun Metal	set	5202.00	16.00	83,232.00
	18.19	Supplying and fixing of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904 as required :				-
5	18.19.2	4 way, 150 mm dia M.S. pipe	set	13974.00	2.00	27,948.00
						-
		SPRINKLER AND INTERNAL HYDRANT SYSTEM				-
	18.7	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				-
6	18.7.10	250mm dia	m	6659.00	10.00	66,590.00
7	18.7.8	150 mm dia	m	3574.00	170.00	607,580.00
8	18.7.7	100 mm dia	m	2555.00	170.00	434,350.00
9	18.7.6	80mm dia	Rm	1885.00	180.00	339,300.00
10	18.7.5	65 mm dia	m	1614.00	120.00	193,680.00
11	18.7.4	50 mm dia	m	1281.00	120.00	153,720.00
12	18.7.3	40 mm dia	m	1034.00	90.00	93,060.00
13	18.7.2	32 mm dia	m	851.00	90.00	76,590.00
14	18.7.1	25 mm dia	m	744.00	1000.00	744,000.00
15	18.17.2	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. (a).20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 (b).20 mm nominal internal dia gun metal globe valve & nozzle. (c).Drum and brackets for fixing the equipmets on wall. (d).Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket. (40METER)	set	12073.00	8.00	96,584.00
16	18.9.1	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required:Single headed Gunmetal	set	7646.00	25.00	191,150.00
17	18.16.1	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required : Gun Metal	set	5202.00	28.00	145,656.00
18	18.21.1	Providing, fixing, testing Erection, testing and commissioning of 15mm dia quartzoid bulb type sprinklers of rating 68 degree Centigrade with required accessories: Pendent Sprinkler(Different colour for diff. areas of Hospital) For reference NFPA guidelines for variable temperature of different areas like Kitchen,CSSD,TSSU,Laundry etc.)	each	522.00	578.00	301,716.00

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
	18.24	Providing, fixing, testing & commissioning of installation control valve of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc of follwing sizes as required:				-
19	18.24.3	150mm dia	set	48202.00	4.00	192,808.00
	18.25	Supplying, installation, testing & commissioning of sprinkler flexible pipe (UL Listed) of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of following sizes comblete as reauired.				-
20	18.25.2	1000 mm	set	1578.00	600.00	946,800.00
		MAIN MOTOR. JOCKEY, DG SET, PANNEL				-
	18.1	(a).Supplying, installation, testing and commissioning of **Electric driven Main Fire Pump** suitable for automatic operation and consisting of following, complete in all respects, as required : (b) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520. (c) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325. (d) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. (e) Suitable cement concrete foundation duly plastered with anti vibration pads. Note:The head of the pump is selected in a manner so as to give a minimum 3.5kg/cm2 pressure at the highest/farthest point				-
21	18.1.4	2280 lpm at 88 m Head	set	403506.00	1.00	403,506.00
	18.2	(a).Supplying, installation, testing and commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following, complete in all respects, as required : (**Diesel Driven Pump**) (b).Horizontal type, multistage, centrifugal pump of cast of iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520. (c).Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required. (d).M.S fabricated, common base plate, coupling, coupling guard, foundation bolts etc. as required. (e).Suitable cement concrete foundation duly plastered and with anti vibration pads.Note:The head of the pump is selected in a manner so as to give a minimum 3.5kg/cm2 pressure at the highest/farthest point				-
22	18.2.4	2280 lpm at 88 m Head	set	635909.00	1.00	635,909.00
	18.3	(a).Supplying, installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following, complete in all respects, as required : (**Jockey Pump**) (b).Horizontal type, multistage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS : 1520. (c).Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325. (d).M.S.fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. (e).Suitable cement concrete foundation duly plastered and with anti vibration pads.				-
23	18.3.1	180 lpm at 88 m Head	set	127148.00	1.00	127,148.00

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
	18.4	(a) Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump) (b) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical confirmingto 1S : 1520 (c) Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to 1S-325. (d) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required. (e) Suitable cement concrete foundation duly plastered and with anti vibration pads.				-
24	18.4.1	900 lpm at 35 m Head	set	101859.00	1.00	101,859.00
	18.5	Fabrication, supply, Insallation testing & commissioning of Electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, interconnection with suitable size copper conductor cable/solid copper strip, having switchgears and accessories, mountings and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for main fire pump, pressurisation pump & diesel pump set complete as per CPWD specification with following in coming and Outgoings, suitable for operation on 415V, 3 phase, 50Hz Ac Supply with enclosure protection class IP 42 as required :				-
25	18.5.2	**Materials Incomings** 4322 400A, 50kA 4 Pole MCCB, Ics=100% Icu rating Digital Voltmeter 0-500V with selector switch Ammeter (0-400 A) with selector swtich & CTs etc. LED type RYB phase indicating lamps, ON, OFF, trip indicating lamps Set of Copper Bus Bar 500A **OUTGOING** (Note : All outgoing feeders for pumps should have digital Ammeter with selector switches, and LED type ON, OFF, trip indicating lamps) **MAIN FIRE PUMP** 200 A, 50kA TPN MCCB, Ics=100% Icu, with fully automatic Star/Delta starter suitable for 75 hp pump with overload protection, current sensing type single phase preventor complete with all acceessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation. **JOCKEY PUMP** 100 A, 50kA TPN MCCB, Ics=100% Icu, with suitable HP fully automatic Star/Delta starter with overload protection, current sensing type single phase preventor complete with all acceessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation. **DIESEL ENGINE CONTROL** Control for diesel engine comprising - Automatic/Manual selctor switch & 3 attempt starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication Battery charger suitbale for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0-20 A DC Ammeter All standard relays and accessories for automatic operation of diesel engine SYSTEM CONTROLLER Designing, Supply, Installation, Testing and commissioning of system controller to control operation of main electric fire pump, diesel pump, Pressurization pump, Terrace pump in sequence as per specification consisting of relays, timers. Sensors, annunciation window for fault indication, complete as per specifications.	SET	287855.00	1.00	287,855.00
	18.15	Providing, installation, testing and commissioning of stainless steel Y- strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.				-
26	18.15.1	80mm dia	Each	4710.00	2.00	9,420.00
27	18.15.3	150mm dia	Each	11144.00	2.00	22,288.00
28	18.15.2	100mm dia	Each	6664.00	2.00	13,328.00
29	18.15.4	200mm dia	Each	22265.00	1.00	22,265.00
	18.11	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				-
30	18.11.2	50mm dia	Each	3784.00	8.00	30,272.00
31	18.11.6	150mm dia	Each	8960.00	6.00	53,760.00
32	18.11.8	250mm dia	Each	20426.00	1.00	20,426.00
33	18.11.4	80mm	Each	4982.00	4.00	19,928.00
34	18.11.5	100mm	Each	6667.00	4.00	26,668.00
35	18.11.7	200mm	Each	15207.00	1.00	15,207.00
36	18.22	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	Each	1546.00	10.00	15,460.00
37	18.23	Providing & fixing flow switch in following sizes M.S. pipe including connection etc as required.				-
38	18.23.1	100mm dia	Each	7514.00	2.00	15,028.00
39	18.23.2	150mm dia	Each	9021.00	2.00	18,042.00
						-
		Supplying, fixing, testing & commissioning of Double flanges Sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat ISI marked complete with nuts, bolts, washers, gaskets and confirming to IS 780 of following sizes as required				-

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
40	18.12.4	80mm		10696.00	1.00	10,696.00
41	18.12.5	100mm		14641.00	1.00	14,641.00
42	18.12.6	150mm		22762.00	1.00	22,762.00
43	16.8	Providing and fixing in position the industrial type Pressure Guage 16 Kg with gun metal / brass valves complete as required		1196.00	4.00	4,784.00
44	18.20	Supply & Fixing air vessel made of 250mm dia 8mm thk MS sheet 1200mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25mm dia gun metal wheel valve with required accessories, pressure guage and painting with synthetic emanel paint of approved shade as required		18244.00	2.00	36,488.00
45	18.18.2	Supply & Fixing 63mm SS Short Branch Pipe with 20mm nominal internal diameter size nozzle confirming to IS 903 suitable for instance connection to interconnect hose pipe coupling as required: Stainless Steel (Grade 304)		1662.00	60.00	99,720.00
		SITC Electric Driven Pressurisation Pump (Terrace Pump)				-
46	4315	900 LPM at 35 Head(SITC)	Each	70909.00	1.00	70,909.00
47	4316	450 LPM at 35 Head	Each	59091.00	1.00	59,091.00
48	4317	Air Vessel 250 mm	Each	12646.00	2.00	25,292.00
49	4318	Pressure switch	Each	986.00	0.00	-
50	4235	Butter fly valve PN 1.6 rating 50mm dia butterfly valve	Each	1948.00	4.00	7,792.00
51	4223	Water flow switch 150mm dia	Each	6083.00	2.00	12,166.00
		DETECTION SYSTEM				-
52	17.2.4	Supplying, installation, testing & commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required	each	2858.00	450.00	1,286,100.00
53	17.2.14	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	each	3871.00	150.00	580,650.00
54	17.2.5	Supplying, installation, testing & commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.	Each	276.00	450.00	124,200.00
55	17.2.6	Supplying, installation, testing & commisssioning of intelligent addressable programmable sounder complete as required.	each	2651.00	15.00	39,765.00
56	17.2.17	Supplying, installation, testing & commissioning of fire fighter telephone handset complete as required.	each	5740.00	5.00	28,700.00
57	17.2.19	Supplying, installation, testing & commissioning of fire fighter telephone jack complete as required.	each	1600.00	12.00	19,200.00
58	17.3.1	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.	each	126411.00	1.00	126,411.00
59	17.3.3	Supplying, installation, testing & commissioning of 1.5/3/6W metal box ceiling/wall speakers complete as required.	each	1793.00	40.00	71,720.00
60	17.3.7	Supplying, installation, testing & commissioning of digital audio amplifier 75 Watt, 25V rms operating at 240 Volt AC Supply complete as required.	each	145793.00	1.00	145,793.00
61	17.3.9	Supplying, installation, testing & commissioning of Voice command keypad 6 zone, with microphone assembly complete as required	each	81756.00	1.00	81,756.00
62	17.5.1	supplying & laying of 2x1.5 sqmm fire survival armoured cable 600/1000 v rated with annealed copper conductor having glas mica fire barrier tape covered by an extruded layer of cross linkable ethylene propylene rubber(EPR) insulation and LSZH inner bedding,steel wire armouring & LSZH outer shealth complete as required	m	359.00	3000.00	1,077,000.00
63	17.5.3.1	Speaker cable four pair two core 1.5 sq mm	m	54.00	1200.00	64,800.00
64	17.5.4	supply and fixing 25mm dia ms flexable pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required	m	53.00	975.00	51,675.00
65	17.2.1	SITC of Micro processer based intellgent addressable main fire alram pannel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics / LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 +or- 5% V, 50 hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evaculation system (which is part of the schedule of work under SH: PA system) and shall be complete with all accessories. The panel shall be compatible for IBMS system with open protocol BAC net/Modbus overIP complete as per specifications.				
66	17.2.1.2	2 loop panel(Integration will be required)	Each	239225.00	2.00	478,450.00

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
					Total DSR	**15,188,987.30**
		MATERIAL RATES(DSR), as per GST new circular dated 10.08.2022 adding multiplying factor 1.0633 with DSR items to update GST 12% to 18%				**16,150,450.20**
					Without GST	**13,686,822.20**
		Civil Works				
SL NO.	**DSR 2023**	**Description**	**Unit**	**Rate in (Rs.)**	**Quantity**	**Amount in (Rs.)**
		Construction of Pump House cum underground water sump				
67	2.8.1	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, for all lift, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	cum	260.30	326.00	84,857.80
68	2.1.1	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in-Charge: All kinds of soil	sqm	129.85	6.00	779.10
69	2.28.1	Surface dressing of the ground including removing vegetation and inequalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m. All kinds of soil	sqm	34.15	85.00	2,902.75
70	4.1.6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:3:6 (1 Cement: 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 40 mm nominal size derived from natural sources).	cum	7178.75	2.40	17,229.00
71	4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:1½:3 (1 Cement: 1½ coarse sand (zone-III) derived from natural sources: 3 graded stone aggregate 20 mm nominal size derived from natural sources).	cum	8340.85	5.00	41,704.25
72	5.1.2	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) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	cum	9045.75	44.66	403,983.20
73	5.9.2	Centering and shuttering including strutting, propping etc. and removal of form for Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	Sqm	842.50	256.00	215,680.00
74	5.22.6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. Thermo-Mechanically Treated bars of grade Fe-500D or more.	Kgs	107.85	2800.00	301,980.00
75	6.1.1	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)	cum	7370.65	1.27	9,360.73
76	6.13.1	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:3 (1 cement :3 coarse sand)	sqm	1150.50	10.80	12,425.40
77	13.5.1	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:4 (1 cement: 4 coarse sand)	sqm	411.75	9.50	3,911.63
78	13.4.1	12 mm cement plaster of mix : 1:4 (1 cement: 4 coarse sand)	sqm	357.35	9.50	3,394.83
79	13.41.1	Distempering with 1st quality distemper(ready mixed) having VOC content less than 50gram/litre of approved manufacture and of required shade and colour all complete to achieve even shade and colour : New work (two or more coats) over and including water thinnable priming coat with cement primer having VOC content less than 50 gram/litre	sqm	185.65	32.61	6,054.05
80	13.46.1	Finishing walls with Acrylic Smooth exterior paint of required shade : 13.46.1 New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	160.60	32.61	5,237.17
81	10.1	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kgs	117.35	695.00	81,558.25
82	13.61.1	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	155.90	4.00	623.60

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
83	9.1.3	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). Kiln seasoned and chemically treated hollock wood	cum	83378.05	0.05	4,168.90
84	9.53	Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embedding in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size).	each	228.85	21.00	4,805.85
85	9.20.1	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters: 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	3473.85	2.00	6,947.70
86	10.13.1	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer. Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size).	Kg.	141.70	40.00	5,668.00
87	10.31	Providing and fixing angle iron frames for doors, windows and ventilators of mild steel Angle sections of size 35x35x5 mm, joints mitred and welded by angle iron 35x35x5 mm or 35x 5 mm flat pieces to the existing T-iron frame or to the wall with dash fastener, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer, all complete as per the direction of Engineer-In-charge.	kg	130.50	100.00	13,050.00
88	10.30.1	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows, all complete with : 4.0 mm thick glass panes	sqm	1064.65	0.80	851.72
89	12.1.3	Providing corrugated G.S. sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.0.63 mm thick with zinc coating not less than 275 gm/m²	sqm	1087.65	6.00	6,525.90
90	18.18	Proving & fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete				
91	18.18.3	25mm nominal bore	Each	464.05	2.00	928.10
					Sub Total	**1,234,627.91**
					Total for Civil DSR works with GST	**1,234,627.91**
					Total for Civil DSR works without GST	**1,046,294.84**
SL NO.	**MR**	**Description**	**Unit**	**Rate in (Rs.)**	**Quantity**	**Amount in (Rs.)**
		MR Items				
		G.I Flanges				
92	MR	80mm Flange	each	400.00	10.00	4,000.00
93	MR	100mm Flange	each	400.00	10.00	4,000.00
94	MR	150mm Flange	each	500.00	10.00	5,000.00
95	MR	200mm Flange	each	500.00	2.00	1,000.00
96	MR	Providing & Fixing of weather proof hose cabinets fabricated from 16 S.W.G. M.S. Sheet with centre opening full front glass door and locking arrangement, suitable to accommodate one landign valve (Yard Hydrant), 2 nos. 15M long hoses and 1 no. Branch pipe with nozzle. Teh cabinet shall be painted with one coat of primer and 2 or more coasts of synthetic enamel paint of approved make & shade and shall be suitably mounted on a raised masonry platform complete as reqd.				
		(a). 900 x 600 x 450	Ecah	6000.00	26.00	156,000.00
97	MR	Foot Valve 200mm	each	1200.00	2.00	2,400.00
98	MR	Supply of co2 fire extinguisher 4.5 kg	each	5700.00	36.00	205,200.00
99	MR	Supply of DRY powder fire extinguisher 6 kg	each	3000.00	18.00	54,000.00
100	MR	Supply of FOAM fire extinguisher 9ltr	each	3500.00	25.00	87,500.00
101	MR	Supply of water fire extinguisher 9ltr	each	3900.00	25.00	97,500.00
102	MR	Supply of DRY powder fire extinguisher 25 kg	each	9000.00	2.00	18,000.00
					Total	**634,600.00**

SL NO.	DSR 2022	Description	Unit	Rate in (Rs.)	Quantity	Amount in (Rs.)
					Add CPOH 15%	95,190.00
					Total fire fightjng MR Material without GST	**729,790.00**
					Add GST 18%	131,362.20
					Total fire fighting MR Material with GST	**861,152.20**

		Grand Total for fire fighting DSR & MR works with GST	**17,011,602.40**
		Grand Total for fire fighting DSR & MR works without GST	**14,416,612.20**

		Grand Total for Civil DSR Material & Works with GST	**1,234,627.91**
		Grand Total for Civil DSR Material & Works without GST	**1,046,294.84**