



National Highways Authority of India
(Ministry of Road Transport and Highways)

Tender for

Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi.

**(Technical
Bid) Volume-I**

Plot No. G-5 & 6, Sector - 10, Dwarka, New Delhi - 110 075

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FINANCIAL BID	

NOTICE INVITING TENDER

SECTION-I
Notice Inviting Tender

(National Competitive Bidding through e-Tendering mode only)

No. NHAI/E&BM/HQ/ComprehensiveO&M/2023-24/Efile 224411

09th July 2026

The National Highways Authority of India (NHAI) hereby invites bid through e-tendering from experienced firms / organizations for contracts for the following work.

Sl. No.	Name of Work	Estimated cost (including of all taxes)	Earnest money
1.	Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi.	Rs. 11,60,77,512/-	Rs.23,21,550/-

Bid Security / EMD : Rs. 23,21,550/-
Cost of Bid Documents (**Non-Refundable**) : Rs. 10,000/-

The preliminary requirements (detailed requirements are given in the Bid Document) of bidding firm / Contractor for above packages are mentioned as under:-

EMD / Bid Security (Rs.)	Average Turnover during last 3 years (Rs.)	Work of similar nature during last 7 years (Rs.)	Time period of AMC
Rs. 23,21,550/-	Rs. 3.48 Cr.	One work of Rs. 9.28/- Cr. OR Two works of Rs. 5.80 Cr. OR Three works of Rs. 4.64 Cr.	24 Months

The Scope of Work is as per Section-VI and BOQ, which includes following works:-

A) New Building

Sl. No	Work
1.	Operation and Comprehensive Maintenance 600KVA X 3nos of D.G. Sets including AMF panel, battery charger, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2.	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like VCB, Transformers, Servo, linking sandwich bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of

	entire building lighting system, automated curtains, power points, touch controls etc. for a total floor area more than 1, 90,000 sq. ft. Lighting decoration of building as mentioned in RFP.
3.	Operation and comprehensive maintenance of 120KVA *4 nos. of UPS along with associated transformer panel, distribution panel and battery bank.
4.	Operation and comprehensive maintenance of ELV system consisting of entire CCTV system, Access system, BMS system and integration with other system like fire, RO, DG, Ventilation, Server room AC as specified in BMS software. Comprehensive maintenance includes software up gradation of all systems as and when required.
5.	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with VFD panels at each floors, FCU, CCU, 134 Tr Split AC's, 350 Kw Hot generator, Cold room, water cooled Cassette AC's, Air curtains, scrubbers, kitchen deep freezers, cold room , water cooler, desert water cooler.
6.	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15 meter height.
7.	Comprehensive maintenance of Water treatment plant, 1000LPH capacity RO Plant, 30 KLD Sewage treatment plant, water Coolers, UV filters and maintaining the plumbing system.
8.	Cleaning of glass, ACP sheet and glass Skywalk as per requirement.
9.	Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Diwali.
10.	Half Yearly service of Multi level car parking by OEM or OEM authorized agency. The works include checking calibration of system, Sensors functionality, movement of platform, greasing of chain, platform weight lifting test, lubrication and adjustment, including renewal of chains/ropes and repair or replacement of electrical cables and wirings within the system

B) Old Building

Sl. No	Work
1.	Operation and comprehensive Maintenance of 500KVA X 3nos. of D.G. Sets including AMF panel, battery charger, cooling tower, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2.	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like OCB, Transformers, bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of entire building lighting system, power points, touch controls etc. for a total floor area more than 1, 62,000 sq. ft. Lighting decoration of building as mentioned in RFP
3.	Operation and comprehensive maintenance of 30 KVA (02 nos.) & 120 KVA (02 nos.) and 10 KVA (02 nos.) UPS along with associated distribution panel and battery bank.
4.	Operation and comprehensive maintenance of 128 CCTV cameras including all associated NVR, Rack, Workstation PC, cabling etc.
5.	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with control panels at each floors, FCU, CCU, 100 Tr Split AC's, 350*2 Kw Hot generator, Air curtains, scrubbers, kitchen deep freezers, water cooler, desert water cooler..
6.	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15

	meter height
7.	Comprehensive maintenance of Water treatment plant, RO Plant, water Coolers, UV filters and maintaining the plumbing system
8.	Cleaning of facade glass as per requirement.
9.	Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Diwali.

To participate in the e-bid, it is mandatory for the applicants to get themselves registered with the NHAI e-Tendering Portal (<http://etenders.gov.in>) free of cost.

The authorized signatory holding Power of Attorney shall only be the Digital Signatory. In the case of authorized signatory holding Power of Attorney and Digital Signatory are not the same, the bid shall be considered non-responsive.

Detailed tender document can be viewed from e-tender portal of NHAI [www.nhai.gov.in](http://etenders.gov.in) or <http://etenders.gov.in> from **09.07.2026 to 24.08.2026 (11:00 hrs)**.

The complete bid Document can be downloaded from the NHAI E-tendering portal free of cost. To participate for bidding, bidders have to pay a non-refundable document fee to National Highway Authority of India. The Bidders shall also make online payment towards cost of tender document for Rs. 10,000/- (Rupees Ten Thousand only) in Authority's designated bank account and also upload online payment receipt of the same. Details of designated bank account are as under:

S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

A pre bid meeting will be convened at Training Room, Ground Floor, NHAI HQ, G-5 & 6, Sector-10, Dwarka, New Delhi on **31.07.2026 at 15:30 Hrs**. The interested bidders may attend the pre bid meeting.

Bidders are advised to visit site prior to Pre-bid meeting to make themselves conversant with all details of the subject work with prior intimation to Estate Officer.

The amendments / clarifications to the bid document if any will be hosted on the above website.

The bid should be submitted online in the prescribed format given in the website. No other mode of submission is acceptable.

The last date for online submission of the Bid is **24.08.2026 up to 11:00 Hrs** (as mentioned on the e- portal only) ("**Bid Due Date**").

The technical bids would be opened on **25.08.2026 at 11:30 Hrs** at NHAI HQ, G- 5 & 6, Sector-10, Dwarka, New Delhi. However, such representatives shall be allowed to attend the opening of the bids only if they produce letter of authority on the letterhead of the bidder, at the time of opening of bids as mentioned above.

For any clarification, the office of the undersigned may be contacted.

GM (Estate)
National Highway Authority of
India G-5 & 6, Sector-10, Dwarka
New Delhi-110075
Tele: 25074100 Extn 1132/2468
E-mail:- ajaygupta@nhai.org;

SECTION-II
PROCEDURE FOR E -TENDERING

SECTION-II

PROCEDURE FOR E-TENDERING

I. Accessing / Purchasing of bid documents

- (i) It is mandatory for all the bidders to have class-III Digital Signature Certificate (**With Both DSC Components, i.e. Signing & Encryption in the name of authorized Signatory (who will sign the Bid)**) from any of the licensed Certifying Agency (Bidders can see the list of licensed CA's from the link (www.cca.gov.in) to Participate in E-tendering of NHAI.
- (ii) To participate in the e-bid, it is mandatory for the Applicants to get themselves registered with the NHAI E-tendering Portal (<http://etenders.gov.in>) free of cost. All profile activations will be done only during NHAI working days.
- (iii) The tender can be viewed / downloaded from NHAI E-tendering portal free of cost up-to 11:00 Hrs on online Bid due date.
- (iv) To participate for bidding, bidders shall make online payment towards cost of tender document for Rs. 10,000/- (Rupees Ten Thousand only) in Authority's designated bank account and also upload online payment receipt of the same.
- (v) **Following may be noted:-**
 - a. The amendments/ clarifications to the tender, if any, will be posted on the NHAI website (www.nhai.org and www.nhai.gov.in) & NHAI e Tendering Portal (<http://etenders.gov.in>);
 - b. For any clarification on the above, may contact 0120-4200462, 0120-4001002 or email: support-eproc@nic.in

2. Preparation & Submission of bids:

- (i) Detailed RFP may be downloaded from website (<http://etenders.gov.in>) and the Application may be submitted online following the instructions appearing on the screen. A Vendor manual containing the detailed guidelines for e-tendering system is also available on e- portal.
- (ii) The documents as per clause 4.2 of ITB, Section-II shall be prepared and scanned in different files (in PDF / RAR Format such that each file size is not more than 30 MB) and uploaded during the on-line Submission of bid. Though the scanned copies of following documents is required to be uploaded during submission of e bids, however, following **Original Documents** in physical form shall be submitted in the Technical Bid on or before the bid due date as specified in NIT:-
 - (a) Earnest money /Bid Security as indicated in NIT in favor of "National Highway Authority of India".
 - (b) Written Power of Attorney of the signatory (whose digital signature certificate is used during e-tender submission) of the bidder to commit the bid
 - (c) Affidavit duly notarized
- (iii) The bid (Price bid) should be submitted **online only** in the prescribed format given in the website. No other mode of submission is accepted.
- (iv) Other than documents mentioned at **Sl. (ii) above** of Bid, shall be digitally signed by the Authorized Signatory of the bidder & submitted "online" only. No hard copy is required to be submitted.
- (v) The Documents as specified in para 2 (ii) above shall be placed in a sealed envelope. The envelop should bear the following identifications: "enclosure to Bid for Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi.

ATTN. OF
ADDRESS

GM (E&BM Section)
National Highways Authority of
India G-5 & 6, Sector-10, Dwarka
New Delhi-110075

Phone No:

25074100 Ext.: 1132/2468

E-MAIL ADDRESS:

ajaygupta@nhai.org;

3. Modification / Substitution / Withdrawal of bids:

- (i) The Bidder may modify, substitute or withdraw its e-bid after submission prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.
- (ii) Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by the Authority, shall be disregarded.
- (iii) For modification of e-bid, bidder has to detach its old bid from e-tendering portal and upload / resubmit digitally signed modified bid.
- (iv) For withdrawal of bid, bidder has to click on withdrawal icon at e-tendering portal and can withdraw its e-bid.

4. Opening & Evaluation of bids.

- (i) Opening and evaluation of bids will be done through online process.
- (ii) The authority shall open online received Bids on physical submission Date and Time, in the presence of the Bidders who choose to attend. The Authority will subsequently examine and evaluate the Bids in accordance with the provisions set out.
- (iii) Prior to evaluation of Bids, the Authority shall determine whether each Bid is responsive to the requirements of this Bid.
- (iv) 'Financial Bid' of non-responsive bidders shall not be opened.
- (v) The bid shall be opened of those bidders only who submit such in original. The bid submitted on-line shall not be opened and rejected, if it contains additional documents other than those mentioned above.

SECTION-III
INSTRUCTIONS TO BIDDERS (ITB)

Section III: Instructions to Bidders

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SECTION-III INSTRUCTIONS

TO BIDDERS (ITB)

A. General

1. Scope of Bid

1.1 The National Highways Authority of India (NHAI) hereinafter called "the Employer" invites bids through the process of E-tendering for the works **"Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi"** (as defined in these documents, hereinafter referred to as "the Works") details given in the ITB.

1.2 The work consists of: **"Operation & Comprehensive Maintenance** as detailed in the Technical Specifications, Bill of Quantities and Scope of Work, which includes following works:-

A) New Building

Sl. No	Work
1.	Operation and comprehensive Maintenance 600KVA X 3nos of D.G. Sets including AMF panel, battery charger, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2.	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like VCB, Transformers, Servo, linking sandwich bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of entire building lighting system, automated curtains, power points, touch controls etc. for a total floor area more than 1, 90,000 sq. ft. Lighting decoration of building as mentioned in RFP.
3.	Operation and comprehensive maintenance of 120KVA *4 nos. of UPS along with associated transformer panel, distribution panel and battery bank.
4.	Operation and comprehensive maintenance of ELV system consisting of entire CCTV system, Access system, BMS system and integration with other system like fire, RO, DG, Ventilation, Server room AC as specified in BMS software. Comprehensive maintenance includes software up gradation of all systems as and when required.
5.	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with VFD panels at each floors, FCU, CCU, 134 Tr Split AC's, 350 Kw Hot generator, Cold room, water cooled Cassette AC's, Air curtains, scrubbers, kitchen deep freezers, cold room , water cooler, desert water cooler.
6.	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15 meter height.
7.	Comprehensive maintenance of Water treatment plant, 1000LPH capacity RO Plant, 30 KLD Sewage treatment plant, water Coolers, UV filters and maintaining the plumbing system.
8.	Cleaning of glass, ACP sheet and glass Skywalk as per requirement.
9.	Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Diwali.
10.	Half Yearly service of Multi level car parking by OEM or OEM authorized agency. The works include checking calibration of system, Sensors functionality, movement of platform, greasing of

	chain, platform weight lifting test, lubrication and adjustment, including renewal of chains/ropes and repair or replacement of electrical cables and wirings within the system
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B) Old Building

Sl. No	Work
1.	Operation and comprehensive Maintenance of 500KVA X 3nos. of D.G. Sets including AMF panel, battery charger, cooling tower, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2.	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like OCB, Transformers, bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of entire building lighting system, power points, touch controls etc. for a total floor area more than 1, 62,000 sq. ft. Lighting decoration of building as mentioned in RFP
3.	Operation and comprehensive maintenance of 30 KVA (02 nos.) & 120 KVA (02 nos.) and 10 KVA (02 nos.) UPS along with associated distribution panel and battery bank.
4.	Operation and comprehensive maintenance of 128 CCTV cameras including all associated NVR, Rack, Workstation PC, cabling etc.
5.	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with control panels at each floors, FCU, CCU, 100 Tr Split AC's, 350*2 Kw Hot generator, Air curtains, scrubbers, kitchen deep freezers, water cooler, desert water cooler..
6.	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15 meter height
7.	Comprehensive maintenance of Water treatment plant, RO Plant, water Coolers, UV filters and maintaining the plumbing system
8.	Cleaning of facade glass as per requirement.
9.	Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Diwali.

1.3 The works under this Contract shall be carried out in accordance with the bidding documents constituting the contract.

1.4 The successful bidder is required to commence the work within the period stipulated in Contract Conditions / Contract Data.

2. Source of Funds

The expenditure on these Works will be met by National Highways Authority of India.

3. Eligible Bidders

3.1 This Invitation for Bids is open to all bidders meeting the qualification requirements prescribed in this document in clause 4.

3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the Central or the State Government.

4. Qualification of the Bidder

4.1 Minimum Eligibility Requirement

To qualify for award of the contract, each bidder in its name should have adequate experience, financial capacity, adequate available bid capacity and technical capability to undertake the Contract as following minimum requirement.

- a. Proof of online Submission of Bid Document fee as indicated in NIT in favor of “National Highway Authority of India”.
- b. Submission of Earnest money as indicated in NIT in the form of DD/ Pay Order /BG/e-BG in favor of “National Highway Authority of India”.
- c. Minimum 3 years of work experience of similar nature of work in Central Govt. / State Govt./ PSUs / Govt. Hospitals.

Similar Nature of Work means: - Comprehensive Maintenance of similar nature of work performed (Completed) in the last Seven years (in ₹ lac) in Central Govt. / State Govt./ PSUs / Govt. Hospital.

- i) DG Sets,
- ii) Electrical Equipment's and Electrical Installation,
- iii) UPS system,
- iv) Extra Low Voltage System,
- v) Heating Ventilation and Air Conditioning (HVAC),
- vi) Fire Protection Works, RO Plant,
- vii) Water Treatment Plant/Systems/ Sewage Treatment Plant,
- viii) Cleaning of Glass Curtain (Facade),
- ix) Maintenance of Landscape / Horticulture Works

“ For the purpose of qualifying under the criterion of ‘similar nature of work’, the bidder shall have successfully executed and completed works covering at least Six (06) categories of the works specified above under a single contract. Such experience must be evidenced through a single completion certificate issued by the client. Experience gained through multiple completion certificates or separate contracts shall not be combined for meeting this requirement”.

- d. Average financial turnover equal to the amount indicated in NIT during last three years ending 31st March of the previous financial year duly certified by Chartered Accountant.
- e. Completed Work of similar nature equal to the amount as specified in NIT.
- f. Bids from joint ventures are not allowed.
- g. Bidder shall have valid certification of ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015. Company must be having ISO certification which should be in continuation from last 2 years. The ISO certificate issued must be valid in India or globally and must be issued by a recognized national bodies.
- h. Bidder shall have MAF certificate for DG, HVAC, CCTV and UPS certifying that the OEM would be giving back to back support for AMC. MAF of only the Make listed in scope of work/fitted inside the building will only be considered.

4.2 Bidders shall upload the scanned copies of following documents along with the submission of online technical bidding to qualify for the award.

a) Proof of online submission of Bid Document Fee

b) Earnest money /Bid Security

c) Proof of minimum 3 years of work experience of similar nature of work in Central Govt. /

State Govt./PSUs / Govt. Hospitals. Documentary evidence, award letter and satisfactory completion of work issued by previous employer. (Not below the rank of Assistant Engineer / Assistant General Manager or equivalent). Otherwise the experience will not be considered for evaluation.

d) Details of Similar nature of work

Total value of similar nature of work performed (Completed) in the last Seven years (in ₹ lac) in Central Govt. / State Govt./ PSUs / Govt. Hospital.

- i) DG Sets,
- ii) Electrical Equipment's and Electrical Installation,
- iii) UPS system,
- iv) Extra Low Voltage System,
- v) Heating Ventilation and Air Conditioning (HVAC),
- vi) Fire Protection Works, RO Plant,
- vii) Water Treatment Plant/Systems/ Sewage Treatment Plant,
- viii) Cleaning of Glass Curtain (Facade),
- ix) Maintenance of Landscape / Horticulture Works

Firm should have experience in at least 6 categories of work mentioned above "similar nature of work" in order to get the experience considered. A completion certificate having at least Six categories experience in one completion letter will only be considered.

Sl. No	Name/Nature of work	Name of client	Value of Contract	Time duration of contract.	Remarks

e) Certificate from Chartered Accountant for Average financial turnover (in all classes of maintenance works) during last three years ending 31st March of the previous financial year and statement as under

Financial Year	Financial Turnover (Rs in Lac)
2022-2023	-----
2023-2024	-----
2024-2025	-----
Total	-----
Average per year -----	

f) **Written power of attorney duly notarized by Notary on Stamp paper in original, as per enclosed format (Annex-I) authorizing the signatory of the bid to sign the bid. The authorised signatory holding Power of Attorney shall only be the Digital Signatory. In case authorized signatory holding Power of Attorney and Digital Signatory are not the same, the bid shall be considered non-responsive.**

g) Additional information regarding litigation, debarment, arbitration, etc. **(Annex V)**

h) CVs of professionals / employees of the Firm in each of the following fields:-

- i. Sr. HVAC Engineer, graduate in relevant field and relevant minimum 5 years' experience of similar work.
- iii. Sr. Electrical Engineer, graduate in relevant field and relevant minimum 5 years' experience of similar work.
- iiii. Sr. Fire Fighting Engineer, graduate in relevant field and relevant minimum 5 years' experience of similar work.

- iv. Sr. ELV technician, graduate in relevant field and relevant minimum 5 years' experience of similar work.
- v. Project Manager, BBA/ MBA and relevant minimum 5 years' experience of similar work.
- vi. Horticulturist, graduate in relevant field and relevant minimum 5 years' experience of similar work.
- i) Documents in support for Technical evaluation in terms of clause 26.1 of ITB.
- j) **Affidavit (Annexure-II) on Stamp Paper in original, as per enclosed format.**
- k) **ISO certificates**
- l) **MAF certificates as per Annexure VI**
- m) General Information on letter head of the firm/ company
 - (i) Year of Constitution
 - (ii) Legal status of Bidder (Proprietorship/ Partnership or Pvt. Ltd. firm)
[Upload scanned copy of original]
 - (iii) Place of registration:

 - (iv) Principal place of business:

4.3 Disqualification

Even though the Bidders may meet the above criteria, they are subject to be disqualified for any of the following reasons:

- a) Misleading or false representation in the forms, statements and attachments submitted and included in Bid application.
- b) Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non-performance of the Contractor, consistent history of litigation awarded against the applicant or financial failure due to bankruptcy has been identified by the Employer as poor performer in implementation of ongoing NHAI works.

4.4 Debarment / Black listing

Notwithstanding the above, the Employer may debar or blacklist any of the bidder(s) for their misleading or false representations in the forms statements etc. for the period to be decided by the Employer.

5. One Bid per Bidder

Each bidder shall submit only one bid. A bidder who submits or participates in more than one bid will be disqualified.

6. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of his bid and the Employer will in no case be responsible or liable for those costs.

7. Site Visit

- 7.1** The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for execution of the Works. The costs of visiting the Site shall be at the bidder's own expense.
- 7.2** The bidder and any of its personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such inspection, but only upon the express condition that the bidder, its personnel and agents, will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of the inspection.

B. Bidding Documents (Online)

8. Contents of Bidding Documents

- 8.1** The set of bidding documents comprises the documents listed below and should be read in conjunction with any Addenda issued in accordance with clause 10 of ITB and scan copies of documents in accordance with clause 4.2 of ITB.

Vol – I: Technical Bid

I	Notice Inviting Tender
II	Procedure for E-Tendering
III	Instructions to Bidders
IV	Conditions of Contract and Contract Data
V	Special Conditions of Contract
VI	Scope of work
VII	Technical Specifications
VIII	Staff Deployment and Equipments
IX	Forms of Application, PoA, Affidavit, Bank Guarantee, LoA and Agreement

Vol – II: Financial Bid

The BOQ/ Price Schedule shall comprise the Financial Bid. Bidders will be required to quote rate on appropriate format enclosed as part of tender document on e-tender portal of NHAI.

- 8.2** The bidder is expected to examine carefully the contents of all the above bid documents. Failure to comply with the requirements of bid documents will be at the bidder's own risk. Pursuant to Clause 26 and 28, bids which are not substantially responsive to the requirements of the bidding documents will be rejected.

9. Clarification of Bidding Documents

- 9.1** A prospective Bidder requiring any clarification on the bid document may notify the Employer in writing or by e-mail (scanned copy) at the Employer's address indicated in the Notice Inviting Tender. The Employer will respond to any request for clarification received earlier than 10 days prior to the deadline for submission of bids. Copies of the Employer's response will be hosted on website or which are required in the opinion of the Employer including a description of the enquiry, but without identifying its source.
- 9.2** The bidder is requested to submit any questions in writing or by email so as to reach the Employer not later than one week before the meeting.

- 9.3 Minutes of the meeting, including the text of the questions raised (without identifying the source of the enquiry) and the responses given will be transmitted without delay on website. Any modifications of the bid documents as per clause 10, which may become necessary as a result of the pre-bid meeting or which are required in the opinion of the Employer shall be made by the Employer exclusively through the issue of an Addendum/ corrigendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.

10. Amendment of Bidding Documents

- 10.1 At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective bidder, amend the bidding documents by issuing Addendum.
- 10.2 Any Addendum thus issued shall be part of the bidding documents pursuant to Sub Clause 10.1, and shall be communicated in writing or by Fax/Email to all purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by Fax/Email to the Employer.
- 10.3 To afford prospective bidders reasonable time in which to take an Addendum into account in preparing their bids, the Employer may extend as necessary the deadline for submission of bids, in accordance with Clause 20.

C. Preparation of Bids

11. Language of Bid

The bid, and all correspondence and documents related to the bid exchanged between the bidder and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language, in which case, for purposes of interpretation of the bid, the English translation shall prevail.

12. Documents comprising the Bid

- 12.1 The e-bid submitted by the bidder shall be in two separate parts.

Part-I This shall be named Technical Bid and shall comprise of documents / information as per clause 4.2 and 8.1 of ITB.

Part-II It shall be named Financial Bid and shall comprise of (i) Priced bill of quantities

- 12.2 Documents to be submitted in Physical Form in NHAI office on date and time as specified in NIT.

Though, the scanned copies of documents as required under clause 4.2 and 12.1 of ITB to be uploaded during submission of e-bid on the e-tendering portal, however, following **Original documents** in physical form shall be submitted in a sealed envelope by **due** date of submission of bid and addressed to the addressee given in the NIT duly subscribed "Name of Work, Bid due date and time". Name and address of the bidder should also be indicated on the envelope.

- a) Earnest money /Bid Security
- b) Proof of online submission of Bid Document Fee
- c) Written Power of Attorney of the signatory (whose digital signature certificate is used during e-tender submission) of the bidder to commit the bid
- d) Affidavit duly notarized

- 12.3** The following documents, which are not submitted with the bid, will be deemed to be part of the bid.

Section	Particulars
I	Notice Inviting Tender
II	Procedure for E-Tendering
III	Instructions to Bidders
IV	Conditions of Contract and Contract Data
V	Special Conditions of Contract
VI	Scope of work
VII	Technical Specifications
VIII	Staff Deployment and Equipments
IX	Forms of Application, PoA, Affidavit, Bank Guarantee, LoA and Agreement

13. Bid Prices

- 13.1** The Contract shall be for the whole Works, as described in Clause 1. 1 based on the priced Bill of Quantities submitted by the Bidder online only.
- 13.2** The bidder shall quote bid prices on appropriate format enclosed as part of tender document on e-tender portal of NHAI. The items for which no rate or price is entered by the Bidder will be required to be executed free of cost and shall be deemed covered under the other rates and prices in the Bill of Quantities quoted.
- 13.3** The rates quoted by the Contractor shall be deemed to be inclusive of all levies, duties, royalties and taxes including GST.
- 13.4** The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment.

14 Currencies of Bid and Payment

- 14.1** The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees

15. Bid Validity

- 15.1** Bids shall remain valid for a period of 120 days (One hundred Twenty days) after the deadline date for bid submission specified in Clause 20. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.
- 15.2** In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request the bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by e-mail. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his Bid Security for the period of the extension.

16. Bid Security / Earnest Money

- 16.1** The bidder shall furnish as part of its Bid, a Bid Security in the amount as stipulated in the NIT. The Bid Security shall be in the form of Demand Draft, pay

order, BG, e-BG in favour of National Highways Authority of India, New Delhi from following banks shall be accepted:-

- i. State Bank of India or its subsidiaries,
 - ii. Any Indian Nationalized Bank
 - iii. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than Rs. 500 Cr as per the latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a branch in India), the net worth in respect of the Indian operations shall only be taken into account.
 - iv. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalized Bank.
- 16.2** Any bid not accompanied by an acceptable bid security and not secured as indicated in Sub Clause 16.1 above shall be rejected by the Employer as non-responsive.
- 16.3** The Bid security (EMD) of the unsuccessful bidders will be returned as promptly as possible as but not later than 28 days after the expiration of the period of bid validity.
- 16.4** The Bid security (EMD) of the selected bidder shall be retained till it has provided a Performance Security under the Contract Agreement.
- 16.5** The Bid Security may be forfeited
- a) If the bidder withdraws his bid during the period of bid validity;
 - b) If the bidder does not accept the correction of his bid price, pursuant to Clause 27: Correction of Errors.
 - c) In the case of a successful bidder, if the bidder fails within the specified time limit to:-
 - i) Furnish the required Performance Security or
 - ii) Sign the Agreement.
- 16.6** In case of forfeiture of bid security, the bidder may also be debarred from participation in NHAI works for a period as decided by NHAI.
- 17. Alternative Proposals by Bidders**
- 17.1** Bidders shall submit offers, which comply with the requirements of the bidding documents, including the conditions of contract, basic technical design as indicated in the Drawings and Specifications. Conditional offer or alternative offers will not be considered further in the process of bid evaluation and the bid will be declared non-responsive.
- 18. Format and Signing of Bid**
- 18.1** The Bidder shall submit e-bid comprising of the documents as described in Clause 12 of the ITB.

D. Submission of Bids

19. Marking of Bids

- 19.1** The documents to be submitted in physical form as per clause 12.2 of ITB shall be submitted in a sealed Envelope super scribed as “Documents in Physical Form” at the top left corner.

20. Deadline for Submission of Bids

- 20.1** The Bidder shall ensure that the complete e-Bid is uploaded on NHAI e-tender portal on or before the Bid Due Date before the time specified in NIT/e-portal. The Bidder is further required to submit documents in Physical Form on or before the Bid Due Date and before the time of submission as specified in NIT, at the following address:

GM (E&BM Section)
National Highways Authority of India
G-5 & 6, Sector-10, Dwarka
New Delhi-110075

In the event of the specified date for the submission of documents in Physical form being declared a holiday for the Employer, the same will be received up to the specified time on the next working day.

- 20.2** NHAI assumes no responsibility for inability of a bidder to submit bids through NHAI's e-tendering portal on account of delay in submission at bidder's end. Bidder shall ensure that they submit the bid well before the "Due Date & Time of Bid-Submission". NHAI shall not be responsible if bidder is not able to submit the bid on account of failure in network/internet connection or any other technical reason.
- 20.3** The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.
- 21. Late Submission of Document in Physical Form:**
- 21.1** Any document in physical form if received by the Employer after the deadline prescribed in Clause 20 will be returned unopened to the Bidder and also the e-bid submitted by such bidder shall not be considered.
- 22. Modification and Withdrawal of Bids**
- 22.1** Bidders may modify or withdraw their e-bids as directed on the e-tendering portal, before the Bid Due Date and time as prescribed in Clause 20.
- 22.2** No bid may be modified after the deadline for online submission of bids.
- 22.3** Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 shall result in the forfeiture of the Bid security pursuant to Clause 16.
- 22.4** Bidders may modify the prices of their bids before deadline of online submission of bid.
- 22.5** No Late and delayed bids after Bid Due date/time shall be permitted in e tendering portal System. Time being displayed on our e-Tendering Portal shall be final and binding on bidder and bids have to be submitted by bidders considering this time only and not the time as per their location/country.

E. Bid Opening and Evaluation

23. Bid Opening

- Bid opening shall be carried out in two stages. Firstly, 'Technical Bid' of all the bids received (except those received late) shall be opened on the date and time mentioned. 'Financial Bid' of those bidders whose technical bid has been determined to be substantially responsible shall be opened on a subsequent date through online process of e-tendering, which will be notified to such bidders.
- 23.1** The Employer will open the "Technical Bid" of all the bids received (except those received late), in the presence of the bidders/bidders' representatives who choose to attend at the time, date and place specified in the **NIT**. In the event of the specified date for the submission of bids being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.
- 23.2** In all cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the Employer at the opening as the Employer may consider appropriate, will announce the bidders' names and such other details

- 23.3** The Employer will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 23.1.
- 23.4** (i) The bids accompanied with valid bid security, bid document fee/ Tender processing fee will be taken up for Technical Evaluation in accordance with clause 26 with respect to the Qualification Information and other information furnished in Part I of the bid pursuant to Clause 12.1.
- (ii) As soon as possible, the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration. However, to assist in the examination, evaluation of technical bids, the Employer may at his discretion, ask any bidder for clarification of his bid, however, no additional documents in support of clarification will be entertained.
- 23.5** The Employer shall inform the bidders, whose technical bids are found responsive, of the date, time and place of opening of the financial bids. The bidders so informed, or their representative, may attend the meeting of opening of financial bids.
- 23.6** At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 23.5 will be announced. The financial bids of only these bidders will be opened. The responsive bidders' names, the Bid prices, the total amount of each bid and such other details as the Employer may consider appropriate will be announced by the Employer at the time of bid opening. Any Bid price, which is not read out and recorded, will not be taken into account in Bid Evaluation.
- 23.7** The Employer shall prepare the minutes of the opening of the Financial Bids.
- 24. Process to be Confidential**
- 24.1** Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other person not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Employer's processing of bids or award decisions may result in the rejection of his Bid.
- 25. Clarification of Bids and Contacting the Employer**
- 25.1** To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his-Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 27.
- 25.2** Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.
- 25.3** Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.
- 26. Determination of Substantial Responsiveness, Technical Evaluation of Bids and opening of Financial Bids**
- 26.1 Technical Evaluation:** During the detailed evaluation of "Technical Bids", the Employer will determine whether each Bid
- meets the eligibility criteria defined in Clauses 3 and 4 of ITB;
 - the required documents in physical form submitted by the bidder as well as the documents uploaded by the bidder are in order; and

- c. is substantially responsive to the requirements of the bidding documents and provides any clarification for ascertaining the correctness of the information/details that the Employer may require pursuant to Clause 25.

26.2 The bidder who has qualified in the technical evaluation shall only be called for opening of financial bids.

26.3 Opening of Financial Bids

- (a) The Financial Bids of all the technically qualified Bidders at Stage- I evaluation Pursuant upon clause 26.2 shall be opened on the appointed date and time in presence of the qualified bidders / their authorized representatives, who choose to be present at the time of opening of the financial bids.
- (b) All the technically qualified bidders / their authorized representatives present at the time of opening of the Financial Bids shall be required to submit the Authorization letter from their Companies and shall be asked to sign the Tender Opening Register. Any bidder objecting to the same shall be disqualified.
- (c) Absence of bidders or their authorized representatives shall not impair the legality of the process.
- (d) Mere becoming the lowest bidder, prior to financial bid scrutiny will not give any right to the lowest bidder to claim that he is successful in the bidding process. The successful bidder shall be decided only after following due procedure as explained in Clause 27 and Clause 28.

27. Correction of Errors

27.1 Financial Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

- a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern

27.2 The amount stated in the Financial Bid will be corrected by the Employer in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Bid Security shall be forfeited in accordance with Sub-Clause 16.5

28. Evaluation and Comparison of Financial Bids

28.1 The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 26.

28.2 In evaluating the bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price after making any correction for errors pursuant to Clause 27;

29. Deleted

F. Award of Contract

30. Award Criteria

30.1 Subject to Clause 32, the Employer will award the Contract to the Bidder whose Bid has been determined pursuant to clause 28:

- i. To be substantially responsive to the bidding documents and
- ii. Who has offered the lowest evaluated Bid Price.

31 Employer's Right to accept any Bid and to reject any or all Bids

- 31.1 Notwithstanding Clause 30, the Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.

32. Notification of Award and Signing of Agreement

- 32.1 The bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by courier/ registered letter. This letter (hereinafter and in the Part I *General Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay to the Contractor in consideration of the execution, completion and maintenance of the Works, and of routine maintenance of roads by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 32.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 33.
- 32.3 The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and the successful Bidder after the performance security is furnished.
- 32.4 Upon furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

33. Performance Security

- 33.1 Within ten (10) days of receipt of the Letter of Acceptance, the selected bidder shall submit to the Employer an irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) or Fixed Deposit Receipts from a bank, in the form set forth in **Annexure IV** of the "Performance Security", for an amount equal to five percent (5%) of the Contract Price. The Performance Security shall remain valid for a period of 30 days beyond the expiry of the Defect Liability Period (06 months). The selected bidder shall also sign the contract within this period.
- 33.2 In case of Bids mentioned below, the selected Bidder, along with the Performance security shall also furnish to the Authority in the form of an irrevocable and Unconditional Bank Guarantee (including e-Bank Guarantee) only from a Bank in the same form given at Appendix VII towards an Additional Performance Security (the "Additional Performance Security ") for an amount calculated as under:
- i) If the bid price offered by the selected Bidder is lower than 15% of the estimated cost, the Successful bidder shall be required to furnish Additional Performance Security (APS) equivalent to the Percentage by which the Bid is below 15% of the estimated cost, i.e., $(\% \text{ below bid} - 15) \times \text{Quoted bid Price}$, in addition to the prescribed Performance Security.
 - ii) Additional Performance Security shall be treated as part of the Performance Security.

- 33.3 Failure of the successful bidder to comply with the requirement of sub-clause 33.1 shall constitute sufficient ground for cancellation of the award and forfeiture of the bid security and debarment for a period as specified in clause 16.6.

34. Advances

- 34.1 No Advance Payment on any account is payable to the Contractor by the employer.

35. Corrupt or Fraudulent Practices

The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a

stated period of time, to bid for any work with National Highways Authority of India, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or in its execution.

For the purpose of this clause, the following terms shall have the meaning hereinafter respectively assigned to them

(a) “ **Corrupt practice**” means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (For avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with Bidding Process, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);

(b) “**Fraudulent practice**” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

The Employer requires the bidders/Contractors to strictly observe the laws against fraud and corruption enforced in India, namely, Prevention of Corruption Act, 1988.

SECTION-IV
CONDITIONS OF CONTRACT AND CONTRACT DATA

Table of Clauses

A. General 1. Definitions 2. Interpretation 3. Language and Law 4. Engineer's Decisions 5. Delegation 6. Communications 7. Subcontracting 8. Other Contractors 9. Personnel 10. Employer's and Contractor's Risks 11. Employer's Risks 12. Contractor's Risks 13. Insurance 14. Site Investigation Reports 15. Queries about the Contract Data 16. Contractor to Execute the Works 17. The Works to Be Completed by the Intended Completion Date 18. Approval by the Engineer 19. Safety 20. Discoveries 21. Possession of the Site 22. Access to the Site 23. Instructions 24. Notices 25. Arbitration 26. Deleted B. Time Control 27. Programme 28. Extension of the Intended Completion Date 29. Delays Ordered by the Engineer 30. Management Meetings C. Quality Control 31. Identifying Defects 32. Tests	33. Correction of Defects noticed During the Defect Liability Period 34. Uncorrected Defects / Incomplete Works D. Cost Control 35. Bill of Quantities 36. Variations 37. Payments for Variations 38. Deleted 39. Payment Certificates 40. Payments 41. Compensation Events 42. Taxes and currencies for payment 43. Price adjustment 44. Security Deposit/ Retention Money 45. Liquidated Damages 46. Advance Payment 47. Securities 48. Cost of Repairs E. Finishing the Contract 49. Completion 50. Taking Over 51. Final Account 52. Operating and Maintenance Manual 53. Termination/Foreclosure 54. Payment upon Termination / Foreclosure 55. Property 56. Release from Performance F. Other Conditions of Contract 57. Labour 58. Compliance with Labour Regulations 59. Drawings and Photographs of the Works
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Conditions of Contract and Contract Data

A. General

1. Definition

1.1 Terms which are defined in the Contract Data are not defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

Compensation Events are those defined in Clause 41 hereunder.

The Completion Date is the date of completion of the Works as certified by the Engineer.

The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3.

The Contract Data defines the documents and other information, which comprise the Contract.

The Contractor is a person or corporate body who's Bid to carry out the Works has been accepted by the Employer.

The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer and includes technical and financial bids.

The Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The Defects Liability Certificate is the certificate issued by Engineer, after the Defect Liability Period has ended and upon correction of Defects by the Contractor.

The Defects Liability Period is the period named in contract data and calculated from the Completion Date.

Drawings include calculations and other information provided or approved by the Engineer for the execution of the Contract.

DSR Delhi Schedule of Rates 20225 published by Central Public Works Department (CPWD), Publication 2025.

The Employer is the party as defined in the Contract Data, who employs the Contractor to carry out the Works. The Employer may delegate any or all of its functions to a person or body nominated by him for specified functions.

The Engineer is the person named in the Contract Data (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Engineer) who is responsible for supervising the execution of the Works and administering the Contract.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time after the approval from Employer.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.

Plant is any integral part of the Works that shall have a mechanical, electrical, electronic, chemical, or biological function.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those that were included in the bidding documents and are factual interpretative reports about the surface and subsurface conditions at the Site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A **Sub-Contractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer after the approval from NHAI, which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, maintain, and handover to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about these Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority.

- (a) Agreement,
- (b) Letter of Acceptance
- (c) Contractor's Bid including Financial Bid Form,
- (d) Contract Data,
- (e) Conditions of Contract
- (f) Technical Specifications,
- (g) Drawings, if any
- (h) Implementation Manual and Maintenance Intervention Level
- (i) Scope of Work

- (j) Bill of Quantities, and
- (k) Any other document listed in the Contract Data.

3. Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Engineer's Decisions

4.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The Engineer, duly informing the Employer, may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.

7. Subcontracting

7.1 The Contractor may subcontract any portion of work, up to a limit specified in Contract Data, with the prior approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.

7.2 The Contractor shall not be required to obtain any consent from the Employer for:

- a. The sub-contracting of any part of the Works for which the Sub-Contractor is named in the Contract;
- b. The provision of labour or labour component.
- c. The purchase of Materials which are in accordance with the standards specified in the Contract.

7.3 Beyond what has been stated in clauses 7.1 and 7.2, if the Contractor proposes sub-contracting of any part of the work during execution of the Works, because of some unforeseen circumstances to enable him to complete the Works as per terms of the Contract, the Employer will consider the following before according approval:

- a) The Contractor shall not sub-contract the Works more than the limit specified in Contract Data.
- b) The Contractor shall not sub-contract any part of the Work without prior consent of the Employer. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any of his sub-Contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents and workmen.

7.4 The Engineer should satisfy himself before recommending to the Employer whether

- a) the circumstances warrant such sub-contracting; and
- b) the sub-Contractor so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to him in proportion to the quantum of Works to be sub-contracted.

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, and the Employer.

8.2 The Contractor should take up the works in convenient places/ locations as decided by the Engineer to ensure there is least hindrance to the smooth functioning of the establishment of the Employer and other Contractors till the completion of the Works.

9. Personnel

9.1 The Contractor shall employ the technical personnel named in the Contract Data. The Employer will approve any proposed replacement of technical personnel only if their relevant qualifications and experience are substantially equal to or better than those of the personnel stated in the Contract Data. If the personnel stated in the contract data are not deployed on site by the contractor, penalty as stipulated in Special conditions of Contract will be imposed.

9.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the Works in the Contract.

10. Employer's and Contractor's Risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's Risks

11.1 The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), natural calamities and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

12. Contractor's Risks

12.1 All risks of loss of or damage to physical property and of personal injury and death, which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

13.1 The Contractor at his cost shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of defect liability period for events (a) to (c) and up to the completion of contract for event (d), in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

- a) Loss of or damage to the Works, Plant and Materials;
- b) Loss of or damage to Equipment;
- c) Loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
- d) Personal injury or death (workmen compensation/ health insurance of up to 3 lac including family).

13.2 Insurance policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in Indian Rupees to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no

payment is due, the payment of the premiums shall be debt due.

13.4 Alterations to the terms of insurance shall not be made without the approval of the Engineer.

13.5 Both parties shall comply with any conditions of the insurance policies.

13.6 The contractor is to bear the cost of Health insurance and workmen compensation no cost is to be recovered from the employees.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Bid, may rely on any Site Investigation Reports referred to in the Contract Data, supplemented by any other information available to him, before submitting the bid.

15. Queries about the Contract Data

15.1 Estate Officer NHAI HQ will clarify queries on the Contract Data.

16. Contractor to Construct the Works & do maintenance

16.1 The Contractor shall construct, install and maintain the Works in accordance with the documents forming part of the contract.

17. The Works to Be Completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

18. Approval by the Engineer

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with specifications and drawings.

18.2 The Contractor shall be responsible for design of Temporary Works.

18.3 The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site

21.1 Limitation of space and facilities to be provided

Due to constricted nature of the project the following limitation are imposed

- a) Contractor should understand that this site is a functional office and may have to schedule the work to holidays or after office hours generally in a manner to avoid disturbance to office staff except in case of a special/written orders provided by the engineer of the employer or authorized representative of NHAI.
- b) Contractor shall deem to have allowed all costs and time associated with the manufacture and fabrication at off site location, its transportation to site and placement at final location.
- c) Prior to locating his storage facilities, Contractor shall obtain prior approval of the engineer for the location and extent of such facilities. Such approval shall not relieve contractor of any of his obligation under the contract.

21.2. Existing Services

Contractor shall be deemed to have allowed for any and all temporary services during the execution of his work such that no interruptions of permanent services occur. The contractor shall at all-time conform to the direction of the engineers with regard to integration, adequate protection, and uninterrupted use of these existing facilities during the execution of his work. Contractor shall be responsible for all risks of loss or damage to physical property and of personal injury and death, which arise during and in consequence of its performance of the contract. Any damage to the property of the Employer will be recovered from the contractor.

22. Access to the Site

22.1 The Contractor shall allow access to the Site and to any place where work in connection with the Contract is being carried out, or is intended to be carried out and to any place where material or plant are being manufactured /fabricated / assembled for the works to the engineer and any person/persons/agency authorized by:

- a. The Engineer
- b. The Employer

23. Instructions

23.1 The Contractor shall carry out all instructions of the Engineer, which comply with the applicable laws where the Site is located.

23.2 The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by Auditors appointed by the Employer if so required by the Employer.

24. Notices

All Notices to be given by the Employer/ the Engineer to the Contractor or by the Contractor to the Employer/ Engineer under the terms of contract shall be served by sending by registered post or delivering the same to the contractor's place of business or such other address, as the contractor shall nominate for this purpose. The date of delivery shall be considered the date of Notice. The copy of notice if delivered by e-mail/ Fax, the next working day shall be considered as the date of Notice.

25. ARBITRATION

25.1 Dispute Resolution

25.1.1 In the event of any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably.

25.1.2 The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

25.2 Escalation of Dispute

In the event of any Dispute(s) between the Parties remains unresolved within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to Arbitration or Conciliation in accordance with the provisions of Clause 25.3.

25.3 Arbitration, Conciliation and Adjudication of Dispute

25.3.1 Any Dispute between the Parties the sum of which is of value less than Rupees 10 Crores which remains unresolved between the Parties through the mechanisms available/ prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be referred either to SAROD, (a Society registered under Society's Act, 1860 vide Registration no. S/RS/SW1049/2013) duly represented by Government/ Authority and National Highways Builders Federation (NHBF) or to India International Arbitration Centre ("IIAC").

25.3.1.1 The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of SAROD/IIAC and the Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time or the India International Arbitration Centre Act 2019 and the regulations framed thereunder as amended from time to time. The rules of SAROD are placed at Appendix III.

25.3.1.2 Subject to the provisions of The Limitation Act, 1963, as amended from time to time, Arbitration may be commenced during or after the Concession Period, provided that the obligations of Authority and the Concessionaire shall not be altered by reason of the Arbitration being conducted during the Concession Period.

25.3.1.3 The venue of Arbitration shall be New Delhi or a place selected by governing body of SAROD or IIAC, as the case may be, and the language for all documents and communications between the Parties shall be English.

25.3.1.4 Each Party shall bear its own costs and expenses incurred in connection with the arbitral proceedings.

25.3.1.5 The arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Article / shall be final and binding on the Parties as from the date it is made, and the Concessionaire /Contractor and the Authority agree and undertake to carry out such Award without delay.

25.3.1.6 The Concessionaire/Contractor and the Authority agree that the Award may be enforced against the Concessionaire /Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

25.3.2 Any Dispute between the Parties, the sum of which is of value Rupees 10 Crores or above, which remains unresolved between the Parties through the mechanisms available or prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be resolved by Conciliation as per the Arbitration and Conciliation Act, 1996.

25.3.3 The Concessionaire/Contractor and the Authority agree that the Award or a settlement agreement may be enforced against the Concessionaire/Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

25.3.4 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any Arbitration hereunder. Further the Parties unconditionally acknowledge and agree that notwithstanding any Dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with this Article.

25.3.5 This provision relating to Conciliation under the Arbitration and Conciliation Act, 1996 shall cease to apply once the provisions relating to substitution of conciliation process by mediation are notified under Mediation Act, 2023. Thereafter "Conciliation" herein be referred to as Mediation as per the provisions of the Mediation Act 2023.

25.3.6 Notwithstanding anything to the contrary contained in the Agreement, it is agreed that any Dispute between the Parties the sum of which is of value equal to or above Rupees 10 Crores shall not be referred to Arbitration. It is further agreed that all declaratory disputes or non-monetary disputes shall not be referred to Arbitration. For the avoidance of doubt, it is clarified that nothing herein shall prevent the Parties from seeking resolution of such Disputes through civil courts.

26 Deleted

B. Time Control

27. Programme

27.1 The Contractor shall submit to the Engineer for approval a programme within the time stipulated in the Contract Data showing the general methods, arrangements, order, and timing for all the activities in the Works, along with monthly cash flow forecasts.

27.2 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

27.3 The Contractor shall submit to the Engineer for approval an updated Programme at intervals. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

27.4 The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer again at any time. A revised Programme shall show the effect of Variations and Compensation Events.

28. Extension of the Intended Completion Date

28.1 The Engineer shall extend the Intended Completion Date only after the approval of NHAI if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining Works, which would cause the Contractor to incur additional cost.

28.2 The Engineer shall decide whether and by how much time to extend the Intended

Completion Date within 30 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information.

29. Delays Ordered by the Engineer

29.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

30. Management Meetings

30.1 Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for the remaining Works and to deal with matters raised in accordance with the early warning procedure.

30.2 The Engineer shall record the business of management meetings and provide copies of the record to those attending the meeting. The responsibility of the parties for actions to be taken shall be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all those who attended the meeting.

C. Quality Control

31. Identifying Defects

31.1 The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are noticed. Such checking shall not absolve the contractor from its obligations and its responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work (existing work/work executed by the contractor) that the Engineer considers may have a Defect.

32. Tests

32.1 The contractor shall be solely responsible for:

- a. Carrying out the mandatory tests prescribed in the technical specifications forming part of contract.
- b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.
- c. The Authority may engage third party for testing of executed items. The payment for the same would be made by the Authority.

32.2 If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work (executed by the contractor) has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the cost of such tests shall be borne by the Authority otherwise by the Contractor.

32.3 Subject to further condition in contract data

33. Correction of Defects noticed during the Defect Liability Period.

33.1 The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

33.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the reasonable time specified by the Engineer's notice as per good industry practice. If any defect(s)/ fault(s) appear in the work within defect liability period, the Engineer shall give Notice

to the Contractor of such defects before end of defect liability period and shall extend the defect liability period as long as defects remain to be corrected.

34. Uncorrected Defects/ Incomplete Works

34.1 If the Contractor has not corrected the Defect, to the satisfaction of the Engineer, within the time specified in the Engineer's notice/indent, the Engineer will assess the cost of having the Defect corrected and get the defects rectified through some other agency and the Contractor will pay 1.2 times of this amount.

34.2 If the Contractor has not completed the work to the satisfaction of the Engineer, within the time specified in the Engineer's notice/indent, in no case exceeding 15 days, the Engineer will assess the cost of having the work completed and get the work completed through some other agency and the Contractor will pay this amount in addition to the damages specified as per clause 45.

D. Cost Control

35. Bill of Quantities

35.1 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning and maintaining works to be done by the Contractor.

35.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rates in the Bill of Quantities for each item for the work executed.

36. Variations

36.1 All variations shall be included in updated programmes produced by the Contractor. The Engineer shall, having regard to the scope of the Works and the sanctioned estimated cost, have power to order +/- 25% of original BOQ quantity of single BOQ item subject to maximum of +/- 5% of original Contract value.

37. Payments for Variations/ Extra Items

37.1 If rates for Variation items are specified in the Bill of Quantities, the Contractor shall carry out such work at the same rate.

37.2 If the rates for Variation are not specified in the Bill of Quantities, the Engineer shall derive the rate from similar items in the Bill of Quantities and if it cannot be derived from similar item in Bill of Quantities then the rate will be derived as per Clause 37.3.

37.3 The Contractor shall, within 14 days of the issue of order of Variation work, inform the Engineer the rate which he proposes to claim, supported by analysis of the rates. The Engineer shall assess the quotation and determine the rate based on prevailing market rates within one month of the submission of the claim by the Contractor and approval from NHAI will be taken. As far as possible, the rate analysis shall be based on the standard data book and the current schedule of rates of CPWD applicable to Delhi Region.

38. Cash Flow Forecasts

38.1 When the Program is updated, the Contractor shall provide the Engineer with an updated cash flow forecast.

39. Payment Certificates

39.1 The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously. The value of O&M work in the monthly statement will be monthly price stated in the Letter of Acceptance.

39.2 The Engineer shall check the Contractor's monthly statement within 7 days and certify the amount to be paid to the Contractor after taking into account any credit or debit for the month in question.

39.3 The value of work executed shall be determined by the Engineer.

39.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

39.5 The value of work executed shall also include the valuation of Variations and Compensation Events.

39.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information to rectify the mistakes with detail justification acceptable to Employer.

39.7 The final bill shall be submitted by the contractor within one month of the actual date of completion of the work; otherwise the Engineers certificate and of the total amount payable for work accordingly shall be final and payment made accordingly within a period of sixty days.

40. Payments

40.1 While submitting the bills for payments, the Contractor shall enclose supporting documents as directed by the Engineer.

40.2 Payments shall be adjusted for deductions for security deposit/ Retention Money, other recoveries in terms of the Contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts Engineer had certified within 21 days of the date of each certificate by the Engineer.

41. Compensation Events

41.1 The following shall be Compensation Events unless they are caused by the Contractor:

- a) The Employer modifies the Schedule of other contractors in a way which affects the work of the contractor under the Contract.
- b) The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works in reasonable time
- c) The Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no defects.
- d) The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
- e) Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- f) The effect on the Contractor of any of the Employer's Risks.

41.2 If a Compensation Event would prevent the Works being completed before the Intended Completion Date, the Intended Completion Date shall be extended. The Engineer shall decide whether and by how much the Intended Completion Date shall be extended after the approval of the employer.

41.3 The contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having

cooperated with the Engineer/Employer.

42. Taxes & Currencies for payments

42.1 The rates quoted by the Contractor shall be deemed to be inclusive of all levies, duties, royalties and taxes including GST.

42.2 All payments will be made in Indian Rupees.

43. Price Adjustment

43.1 No escalation shall be payable to the Contractor by the Employer (NHAI) on any account.

44. Security Deposit / Retention Money

44.1 The Employer shall retain security deposit of **five percent** of the amount from each payment due to the Contractor until Completion of the whole of the Works.

44.2 The security deposit/retention money and the performance security will be released to the Contractor when the Defect Liability period is over, and the Engineer has certified that the Defects, if any, notified by the Engineer to the Contractor before the end of this period have been corrected.

44.3 If the contractor so desires then the 50% of the total Security Deposit/ Retention Money may be released to the contractor after successful completion of contract. The remaining 50% amount of the total Security Deposit/ Retention Money shall be paid/ returned to the contractor upon expiry of the defect liability period and the Engineer has certified that the Defects, if any, notified by the Engineer to the Contractor before the end of this period have been corrected and provided there is no demand outstanding against the contractor. Any demand outstanding against the contractor may be deducted from the Security Deposit/ Retention Money and any other amount payable to the Contractor including Performance security.

45. Liquidated Damages

45.1 The Contractor shall pay liquidated damages to the Employer at the rate or part thereof stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor and/ or Performance Bank Guarantee. Payment of liquidated damages shall not affect the Contractor's other liabilities.

45.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting in the next payment certificate. The contractor shall not be paid interest on the over payment of liquidated damages.

46. Advance Payment

No Advance Payment on any account is payable to the Contractor by the Employer.

47. Securities

47.1 Within ten (10) days of receipt of the Letter of Acceptance, the selected bidder shall submit to the Employer an irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) or Fixed Deposit Receipts from a bank, in the form set forth in **Annexure IV** of the "Performance Security", for an amount equal to five percent (5%) of the Contract Price. The Performance Security shall remain valid for a period of 30 days beyond the expiry of the Defect Liability Period (06 months). The selected bidder shall

also sign the contract within this period.

47.2 In respect of the bids mentioned below, the Selected Bidder shall, in addition to the Performance Security, furnish to the Authority an Additional Performance Security in the form of an irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) or Fixed Deposit Receipts from a bank, in the same form as provided in **Annexure IV**, for an amount calculated as follows:

- a. If the Bid Price offered by the Selected Bidder is lower than 15% but upto 25% of the Estimated Project Cost, the Additional Performance Security shall be calculated @50% of the difference in the (a) Estimated Cost (as mentioned in Bid Document) - 15% of the Estimated Cost and (b) the Bid Price offered by the Selected Bidder.
- b. If the Bid Price offered by the Selected Bidder is lower than 25% of the Estimated Cost, the Additional Performance Security shall be calculated @5% of the Estimated Project Cost plus 100% of the difference in the (a) Estimated Cost - 25% of the Estimated Cost and (b) the Bid Price offered by the Selected Bidder.
- c. This Additional Performance Security shall be treated as part of the Performance Security.

48 Cost of Repairs

48.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Period shall be remedied/ rectified by the Contractor at their cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

49. Completion

49.1 When the whole of the works has been completed as per the provision of the Contract, the Contractor shall request the Engineer to issue a certificate of Completion of the Works. The Engineer shall, within 14 days of the date of receipt of such request, either issue to the Contractor, with a copy to the Employer, a completion certificate, stating the date on which, the works were completed in accordance with the contract, or give instructions in writing to the contractor specifying all the work which, in the Engineer's opinion, is required to be done by the Contractor before the issue of such certificate.

50. Taking Over

50.1 The Employer shall take over the Site and the Works within seven days of the Engineer's issuing a certificate of Completion.

51. Final Account

51.1 The Contractor shall supply to the Engineer with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Engineer shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 60 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 60 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate within 60 days of receiving the Contractor's revised account.

52. Operating and Maintenance Manual

52.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them within 30 days from date of issue of certificate of completion.

52.2 If the Contractor does not supply the Drawings and/or manuals by the stipulated date or they do not receive the Engineer's approval, the Engineer shall withhold the amount equal to 5% from payments due to the Contractor.

53. Termination

53.1 The Employer may terminate the Contract if the Contractor causes a fundamental breach of the Contract.

53.2 Fundamental breaches of Contract include, but shall not be limited to, the following:

- a) The Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer;
- b) The Contractor is declared as bankrupt or goes into liquidation other than for approved reconstitution or amalgamation;
- c) The Engineer/Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
- d) The Contractor does not maintain a Security, which is required;
- e) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in clause 45;
- f) The Contractor fails to provide insurance cover as required under clause 13;
- g) If the Contractor, in the judgement of the Employer, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract. For the purpose of this paragraph, "**Corrupt practice**" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (For avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with Bidding Process, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);
- h) "**Fraudulent practice**" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process; if the Contractor has not completed at least thirty percent of the value of Work required to be completed after half of the completion period has elapsed;
- i) Deleted
- j) Any other fundamental breach as specified in the Contract Data.

53.3 Without prejudice to any other right or remedies which the Employer may have under this

contract, upon occurrence of a Contractor's fundamental breach of contract, the Employer shall be entitled to terminate this contract by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Employer shall by a Notice inform the Contractor of its intention to issue such Termination Notice and grant 15 days to the Contractor to make a representation, and may after the expiry of such 15 days, whether or not it is in receipt of such representation, issue the Termination Notice.

53.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

53.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible but in no case later than 7 days.

54. Payment upon Termination

54.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

54.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the cost of balance material brought by the contractor and available at site, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

55. Property

55.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer for use for completing balance work if the Contract is terminated because of the Contractor's fundamental breach of contract.

56. Release from Performance

56.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of the Employer or the Contractor, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

F. Other Conditions of Contract

57. Labour

57.1 The Contractor shall, make arrangements of his own cost and expenses for the engagement of all staff and labour, local or others; for their payment, housing, feeding and transport; and for compliance with various labour laws/ regulations.

57.2 The Contractor shall, as asked by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the

Site and such other information as the Engineer may require.

58. COMPLIANCE WITH LABOUR REGULATIONS

58.1 During the currency of the Contract, the Contractor and his sub-Contractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be notified already or that may be notified under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including from his performance security/ retention money.

The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

58.2 SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK.

- a) **Workmen Compensation Act 1923:** - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) **Payment of Gratuity Act 1972:** - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days' (say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.
- c) **Employees P.F. and Miscellaneous Provision Act 1952:** The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:
 - i. Pension or family pension on retirement or death as the case may be.
 - ii. Deposit linked insurance on the death in harness of the worker.
 - iii. Payment of P.F. accumulation on retirement/death etc.
- d) **Maternity Benefit Act 1951:** - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) **Contract Labour (Regulation & Abolition) Act 1970:** - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.
- f) **Minimum Wages Act 1948:** - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways are scheduled employment.
- g) **Payment of Wages Act 1936:** - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

- h) **Equal Remuneration Act 1979:** - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.
- i) **Payment of Bonus Act 1965:** - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.
- j) **Industrial Disputes Act 1947:** - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- k) **Industrial Employment (Standing Orders) Act 1946:** - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get these certified by the designated Authority.
- l) **Trade Unions Act 1926:** - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- m) **Child Labour (Prohibition & Regulation) Act 1986:** - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.
- n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act 1979:** - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.
- o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996:** - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- p) **Factories Act 1948:** - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.
- q) **The Apprenticeship Act 1961:** - The Contractor shall duly comply with the provisions of the Apprenticeship Act 1961 (III of 1961), the rules made there under and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all liabilities

and penalties provided by the said Act and said Rules.

- r) **Labor Code 2025:-** All the benefits of labor code like Code on wages 2019, Code on Industrial relations, code on social security & code on OSH & WC to guarantee the staff to like social security, Bonus, gratuity, Health Checkup etc. to be given.

Contract Data

Items marked “N.A.” do not apply in this

1.1	CONTRACT			Ref Clause
	1.		The Employer is Chairman National Highways Authority of India (NHAI) Address: G-5 & 6, Sector-10, Dwarka, New Delhi Name of authorized Representative: (Will be intimated later)	[Cl.1.1]
	2.		The Engineer is: (Supervision Consultant Appointed by NHAI) Designation: Address:	[Cl.1.1]
	3.		The Intended Completion Date for the whole of the Works is 24 months from start date.	[Cl.1.1]
	4.		The Site is located at Dwarka New Delhi.	[Cl.1.1]
	5.		The Start Date shall be within 10 days from the signing of the agreement.	[Cl.1.1]
	6.		The name and identification number of the Contract:	[Cl.1.1]
			As stipulated in the NIT	
	7	(a)	The law which applies to the Contract is the law of Union of India.	[Cl.3.1]
		(b)	The language of the Contract documents is English	[Cl.3.1]
	8.1		NIL	[Cl.7.1]
	8.2		Schedule of Sub Contractor -NIL	[Cl.7.2]
	8.3		Schedule of Sub Contractor -NIL	[Cl.7.3]
	8.4		Schedule of Sub Contractor -NIL	[Cl.7.4]
	8.5		Schedule of Other Contractor – NIL	[Cl 8.1]
	9	(a)	The Technical Personnel: The firm shall have at least one Professional under each of the categories as stipulated in Clause 4.1 (f) of the ITB section III of RFP who will be required to extend services for the Work and also visit the site of work as required.	[Cl 9.1]
		(b)	The Staff deployment details are given in Section VIII of RFP.	
	10		Amount for insurance are: a +b) + c) Rupees equivalent to Contract price. d) Rupees 50 lac for multiple incidents. And deductible as per premium rate.	[Cl.13.1]
	11		Site Investigation Report - N.A.	[Cl.14.1]
	12		The period for submission of the programme for approval of Engineer shall be 7 days from the issue of Letter of Commencement.	[Cl.27.1]

13		Amount to be withheld for delays in submission of updated programme: 1% of value of work corresponding to the updated programme.	[Cl.27.3]
14		The Defect Liability Period will be 6 months from the Date of Completion.	[Cl.33.1]
15		(a) Amount of liquidated damages 0.1 percent of the Indented value rounded off to the nearest ten thousand per day, (b) Maximum limit of liquidated damages for 10 per cent of the Contract Price.	[Cl.45.1]
16		The standard form of Performance Security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as specified in the Bidding Documents.	[Cl.47.1]
17		Other fundamental breach is that the contractor - Failed to maintain the critical services like HVAC, DGs, Electric Installations such that interruption is more than 02 hours in a stretch. - Defaulted to keep the Firefighting system in unserviceable condition at any point of time.	[Cl 53.2 (j)]
18		The percentage to apply to the value of work not completed representing the Employer's additional cost for completing the work shall be 20%.	[Cl.54.1]

SECTION: V

SPECIAL CONDITIONS OF CONTRACT

SECTION: V

SPECIAL CONDITIONS OF CONTRACT

1. General

1.1 The Contractor shall make arrangement to issue **Plastic I-Cards** with Photographs to each of the Workmen, Supervisor and staff for entry into the premises mentioning the LOA no. These cards shall be validated by NHAI Authorities. Persons holding the ID cards will only be permitted inside the building. These cards shall be issued by the contractor at his own cost.

1.2 The Contractor shall also make arrangement to provide **uniforms** to each of the Workmen, supervisor and staff (costing included in manpower charges). **The contractor will provide two sets of summer uniform (set means one full sleeve shirt, one pant full with one pair of black leather non-skid shoes(safety shoe EN ISO 20345 standard) and two set of winter uniform (Pullover), to all staff each year of good quality. The shade and design of uniform will be decided in consultation with NHAI. Not providing the same will attract a penalty of Rs. 1000 per day per employee. The complete dress should be given within 15 days of signing the agreement and a copy of receiving by the employees is to be submitted along with the 1st bill.**

1.3 All statutory requirements will be the responsibility of the bidder like safety, labour laws and the wages act etc.

1.4 Security staff shall be at liberty to exercise check on any of the workers, supervisors while entering, search them in the premises during the work and while leaving from the premises.

2. Deployment of Staff

2.1 The contractor shall have to employ requisite strength of the various categories of technical staff for running the plant as per statutory /Industrial regulations, however, minimum strength of staff shall be deployed as stipulated in Section-VIII of bid document. The service provided will be on all the 7 days of the week, in case of week off the contractor has to provide reliever on its own cost. The minimum required attendance in each month would be: No. of manpower as per schedule * No. of days in a month.

2.2 The contractor shall deploy technically qualified persons for supervising the works.

2.3 In case it is felt by the Engineer or his authorized representative that any workman or supervisor of the contractor is not suitable for carrying out the job or for supervision inside the NHAI premises then the workmen or the supervisor is to be replaced immediately by the Contractor on receiving official communication from NHAI.

3. General Maintenance related Matters

3.1 All works under and in course of execution shall at all times be open to the inspection and supervision of the Engineer or his authorized subordinates. Orders given to the contractor's agent shall be considered to have the same force as if these have been given to the contractor himself.

3.2 All the replacement, repairs, rectification and any such work shall have to be carried out as per the directions of Engineer to his entire satisfaction within the schedule desired by him and nothing extra will be paid for any replacement, repairs, rectification of equipment, parts or components (like lamps, freon (R-22/32) gas, grease, belts, paint, gaskets, cleaning material etc.).

3.3 All the interconnection and their contacts of branch fuse units, assemblies of switches shall

be checked and defects if any is to be rectified periodically.

3.4 The tests like insulation and earth resistance shall have to be carried out periodically and the record duly signed by the representative of the Engineer, be maintained.

3.5 Any breakdown in air conditioning plant leading to disruption of air conditioning in the building shall be attended by the contractor and extra staff if required to be arranged by the contractor and nothing extra shall be payable to him on this account .

3.6 The contractor shall maintain a separate log-book for each of the Chillers in control room, as per sample to be got approved from Engineer-in-charge.

3.7 Internal electrical installation and connected fittings in plant room have to be maintained by the contractor for the benefit of the staff deployed in the AC plant.

3.8 All consumable materials on replacement basis (old waste material to be removed from site) such as HRC fuses cleaning agents like carbon tetra chloride, jute, cotton cloth, emery paper, tape, oil, grease, tools & tackles etc. whatsoever is required shall be supplied by the Contractor for maintenance of the services. If at any stage, the Contractor is required to increase the equipment, tools & tackles identified in the tender to cope up with the work -load, he shall provide the same at no extra cost.

3.9 The contractor shall have to give lists of spares required for maintaining the whole air conditioning system, DG and Electrical System, Firefighting, Water Treatment Plant etc. after complete study of the installations. Same spares is to be kept handy with him so that it can be used in case of emergency.

3.10 A similar list of spares, as above shall also have to be supplied for AHU, FCU split and cassette units. The consumables like oil, gas etc. shall be the responsibility of the contractor.

3.11 Competent service technicians shall be required to attend major break -down calls as and when intimated within the least possible time not exceeding more than 8 hours in any case including Saturdays, Sundays and other government holidays. There will be no limit to such break-down calls.

3.12 During the tenure of the contract the contractor has to coordinate his work with other agencies working inside or outside the building while attending to his jobs.

3.13 In case of non-compliance of contract obligations with regard to and also in case of any damages or breakages to the buildings and fittings attributable to contractor's labour, contractor will be responsible for repairing /replacing the same at his cost failing which cost with suitable penalty shall be imposed on the contractor by representative of Engineer of NHAI whose decision shall be final and binding on the contractor.

3.14 The contractor shall prepare a schedule of maintenance indicating the items to be checked daily/ weekly / monthly / quarterly / yearly in line with the recommendations of the manufacturers of the equipment as per O & M manuals and get the same approved from the Engineer and implement the same.

3.15 The contractor has to keep all records of replacements of defective worn-out fixtures by keeping his material stores tidy and up-to-date .This may be useful for both the parties, as accountability procedures becomes necessary even on the event of emergency.

3.16 Initial deficiency in the plants/ equipment's/ installations, if any, noticed by the Contractor shall be intimated to the Engineer within 15 days from the commencement of the work. Decision of Engineer in this regard shall prevail. NHAI shall pay the cost against replacement of deficient item if any as per the recommendations of Engineer.

3.17 Contractor should also keep adequate stores of items required for proper operation and maintenance of the system. Contractor should submit a list of store items present for proper operation to the Engineer in charge every month.

3.18 The contractor shall hand over the equipment in perfect working order to the NHAI / incoming contractor appointed by NHAI at the expiry of his contract period.

3.19 Contractor shall be allowed free use of water and electricity in the building for bona fide use

in performance of this contract.

3.20AMC cum specialized services for all specialized equipment, including DG sets, HVAC systems, UPS systems, HT installations, and CCTV systems, shall be executed exclusively by the OEM or its immediate authorized service provider holding a valid Manufacturer's Authorization Form (MAF) submitted with the bid. The contractor shall ensure continuity of such authorization throughout the contract period and shall furnish renewed authorization documents whenever required. Failure to comply shall be treated as a breach of contract.

4. Liquidated Damages and Penalties

The Contractor shall be liable for O&M of all the services/ installations/ equipments/ components etc. covered in the Scope of Work of this tender 24X7 (round the clock). However, in case of the defaults on part of the Contractor, Employer shall be at liberty to levy Liquidated Damages and Penalties without prejudice to the provisions of Clause 53 of the Conditions of Contract.

4.1 Liquidated Damages

4.1.1 The Engineer shall notify the defects/ defaults through a Indent, specifying the description of work, approx. financial implication and time for rectification.

4.1.2 The Contractor shall immediately attend to the Indent and complete with in stipulated time, failing which Liquidity Damages as stipulated in clause 45 of Conditions of Contract will be levied.

4.2 Penalties: The Contractor shall be liable for functioning of all the services/ installations/ equipment's/ components etc. covered in the Scope of Work of this tender 24X7 (round the clock). Contractor shall make all efforts to ensure that main faults / breakdowns are attended to immediately. Non- attendance or non- rectification of the major faults of HVAC, DG sets, Electrical Supply/ Installations/ Equipment's, Fire Fighting system and other critical installations resulting into complete break down for more than 2 hours shall attract a penalty of **Rs. 50,000.00** per hour of delay beyond 02 hours. In all such cases NHA reserves the right to take action in terms of clause 53 of the Conditions of Contract. Further, in case of delay in attending to the functioning of machines

/equipment's / Accessories / lighting fixtures etc. covered in the Scope of Work of this tender penalty may be levied as per the directions of the Engineer however, minimum penalties for the items included but not limited to the following will be levied:-

Sr. No.	Description of Item	Response Time	Penalty against failure within response time
4.2.1 HVAC Works			
(i)	Replacement / Repair of pressure gauge, siphon pipe , and V-belts	2 hrs	Rs. 50/- per hr of delay
(ii)	Replacement of Air filters	02 hrs	Rs. 100/- per hr of delay
(iii)	Replacement of Air diffuser	2 hrs	Rs. 100/- per hr of delay
(iv)	Replacement of MCCB, ELCB,RCCCB, SP MCB Fuses, thermometers, gaskets, Pipe insulation etc.	2 hrs	Rs.100/- per hr of delay
(v)	Major faults in Control panel / Compressor /AC Plant/ Pumps/AHUs and coolingtower, with standby arrangement but without complete breakdown.	24 hrs	Rs.5000/- per day of delay

(vi)	Providing standby equipment like Motor pump etc. in case of emergency.	4 hrs	Rs.1000/- per hr of delay
(vii)	Defect in any Split ACs/Cassette ACs/VRV/VRF system	1 day	Rs. 1000/- per day of delay
(viii)	Replacement / Repairs of defective / damaged pipes / cooling towers with standby arrangement without complete break down	2 days	Rs. 5000/- per day of delay
(ix)	Replacement of Fins	15 days	Rs. 1000/- per day of delay
4.2.2 DG Set & Electrical Works			
(i)	Replacement / Repair of Lamps with choke holder, transformer starter, switch, socket, Led Tube, SP MCB ,LED down light, Led Outdoor light, contactors , timers, relays etc.	2 hrs	Rs.50/- per hr of delay / per point
(ii)	Replacement of defective cables all sizes	24 hrs	Rs.500/- per hr of delay
(iii)	Replacement of MCCB, ELCB, RCCB	2 hrs	Rs. 100/- per hr of delay
(iv)	Major faults in transformer, DG sets, H.T. panel, Replacement of exhausted batteries etc. with standby Arrangement but without complete breakdown.	24 hrs	Rs.5000/- per day of delay
(v)	B-check maintenance all DG set and Fire engines	3 days	Rs.1000/- per day of delay
(vi)	C & D check of DG Sets	15 days	Rs.5000/- per day of delay
(vii)	Specialized maintenance of Vacuum Circuit breaker/ Oil circuit breaker, Transformers both oil and dry Type, Servo stabilizers, LT panel, Capacitor panels, Distribution panel, dimmer panels, rising mains.	3 days	Rs.5000/- per day of delay
(viii)	Replacement / repairs of defective / damaged Cooling Tower, pipes or any other electrical equipment with standby arrangement but without complete Breakdown.	2 days	Rs.5000/- per day of delay
(viii)	Service of servo stabilizer with Bypass panel	07 days	Rs.1000/- per day of delay
4.2.3 Fire Protection Works			
(i)	Replacement / Repair of defective Pump Leakages/ defects with standby arrangement but without complete breakdown.	24 hrs	Rs.500/- per hr of delay
(ii)	Replacement of defective cables/ pump parts	24 hrs	Rs.500/- per hr of delay
(iii)	Replacement of defective MCCB, contactors, timers, relays, I. C cards of panels, hooter, manual call box, heat detector sensor, smoke detector sensor, manual call point.	2 hrs	Rs. 100/- per hr of delay
(iv)	Major faults in pumps, Hydrant line, Electrical panel, Main fire alarm panel, local control panel or any other fire safety related item with standby arrangement but without complete breakdown.	2 days	Rs.5000/- per day of delay
4.2.4	RO, WTP & STP Works		

(i)	Replacement / Repair of Indicators/ HRC fuses/contractors	2 hrs	Rs. 100/- per hr of delay
(ii)	Pump leakages	4 hrs	Rs. 100/- per hr of delay
(iii)	Replacement of Defective pipes	2 hrs	Rs. 100/- per hr of delay
(iv)	Major faults in Control panel /plant with standby arrangement but without complete breakdown.	2 days	Rs.5000/- per day of delay
(v)	Quality as defined in scope of work and IS:10500:2012	1 hr	Rs. 5000/- per day of delay
(vi)	Changing Membrane	7 days	Rs.5000/- per day of delay
(vii)	Changing Media filter	7 days	Rs.5000/- per day of delay
(viii)	STP charging and cleaning	7 days	Rs.5000/- per day of delay
4.2.5	Cleaning of Glass Curtain (Facade)		
(i)	Cleaning of Glass Curtain (facade), murals & Glass Skywalk	2 days	Rs. 100/- per SQM per day of delay
4.2.6	Landscape and Horticulture Work		
(i)	Maintenance of greens in accordance with the specifications provided in the DSR 2020 of CPWD for horticulture works or as directed by the Engineer	2 days	Rs.1000/- per day of delay per 100 sqm
(ii)	Maintenance of plants in accordance with the specifications provided in the DSR 2020 of CPWD for horticulture works or as directed by the Engineer	24 hrs	Rs. 50/- per hr of delay per plant
4.2.7	UPS System		
(i)	Routine Maintenance of UPS	3 days	Rs.1000/- per day of delay
(ii)	Major faults in UPS with standby arrangement but without complete breakdown.	1 days	Rs.5000/- per day of delay
(iii)	Battery change	15 days	Rs.5000/- per day of delay
4.2.8	ELV System		
(i)	Routine maintenance of CCTV System	3 days	Rs.1000/- per day of delay
(ii)	Changing Damaged camera/ repairing un-operational camera	3 days	Rs.1000/- per day of delay
(iii)	Changing any damaged cable or related accessories	3 days	Rs.1000/- per day of delay
(iv)	Routine maintenance of Fire alarm system	3 days	Rs.1000/- per day of delay
(v)	Changing any defective parts, sensors, speakers	3 days	Rs.1000/- per day of delay
(vi)	Routine maintenance of Access Control system	1 day	Rs.1000/- per day of delay
(vii)	Changing any defective parts, sensors, locks etc	3 days	Rs.1000/- per day of delay
(viii)	Routine maintenance of BMS system	3 days	Rs.1000/- per day of delay
(ix)	Software related issues	2 days	Rs 10000/- per day of delay

4.2.9	MLCP System		
(i)	Routine maintenance of MLCP System	1 day	Rs.1000/- per day of delay
(ii)	Not providing key storage	2 days	Rs.1000/- per day of delay
(iii)	Mishandling of keys/loss of keys		Contractor to bear the cost of new key
4.2.10	Attendance		
	Attendance less than total number of man month required. Calculation to be done as: 31(No. of manpower) * No. of days in a month.		Deduction = (No. of manpower shortfall) × (Applicable daily wage rate) × (No. of days of short deployment)

Note: (i) The above list is indicative only, penalties for any other delay in efficient O&M shall be as per the directions of the Engineer.

(ii) Contractor shall maintain sufficient inventory of spares required for quick replacements at site of work and minimize the response time. A details list of inventory duly checked and signed by the authority engineer is to be maintained and attached along with every month progress report.

(iii) All the consumable items required for maintaining the various services as mentioned in the Scope of Work shall be replaced and provided by the Contractor (Nothing extra shall be paid on this account). If the Contractor fails to provide consumable items as per the stipulated time, NHAI reserves the right to get the work done through any other agency at the risk and cost of the contractor and the cost incurred by NHAI shall be deductible from any amount payable to the Contractor by NHAI in accordance with clause 34 of the Conditions of the Contract.

(iv) If the agency fails to attend the defects as per the stipulated time, NHAI reserves the right to get the work done through any other agency at the risk and cost of the contractor and the cost incurred by NHAI shall be deductible from any amount payable to the Contractor by NHAI in accordance with clause 34 of the Conditions of the Contract.

4.3 Manpower/ staff not in uniform, indiscipline will attract a penalty of Rs 500/ per day. In addition NHAI reserves the right to instruct to the Contractor to disengage such staff temporarily/ permanently without any cost to NHAI. Non provision of manpower may attract a penalty as per clause 4.2.10 on pro-rata deduction of full monthly wages (as per prevailing minimum wages) for absence from duty on each occurrence.

4.4 Absence of any worker for more than 30 min. may attract a penalty of Rs 500/- on each occurrence.

4.5 Under no circumstances the absence is permitted for the shift operators .In case the shift operator does not turn up for duty then the available shift operator has to continue till such time his reliever resumes charge. It will be mandatory for contractor to make arrangements to relieve the shift duty staff working for extra hours due to the absence of other shift duty staff. Under such cases the overtime will be at the contractors account. Contractor will provide one day weekly off to each of its employee, reliever will come for duty on the day for the staff who has been given the weekly off at the Cost of the contractor.

4.6 The performance of the contractor's work shall be reviewed by the Engineer and NHAI authorized representative once in every month wherein senior executive of the firm will have

to be present. Non-compliance of this, will attract a penalty of **Rs. 5,000/-** each month.

5. Extension of contract

5.1 The contract may be extended for a time period as agreed by both the Parties on mutually agreed terms and conditions before expiry of the contract. Not more than 06 months at a time & 2 years in total.

SECTION-VI
SCOPE OF WORK

SECTION VI

Scope of Work

Bidders are advised to read the Scope of work in conjunction with the Note mentioned at the end of this Clause. The Scope of Work includes but not limited to the following works at NHAI HQ, Buildings, Sector-10, Dwarka, New Delhi for a period of 24 months:-

A). Scope of Work of New Building

Sl. No .	System	Make	Work
1	DG Sets	Kirloskar (600KVA X 3nos.)	Operation and comprehensive Maintenance of D.G. Sets including AMF panel, battery charger, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2	Electrical	Siemens, Voltamp, Vinetech, Orange, wipro, Crompton.	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like VCB, Transformers, Servo, linking sandwich bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of entire building lighting system, automated curtains, power points, touch controls etc. for a total floor area more than 1, 90,000 sq. ft. Lighting decoration of building as mentioned in RFP.
3	UPS	Numeric (120KVA *4)	Operation and comprehensive maintenance of UPS along with associated transformer panel, distribution panel and battery bank.
4	Extra Low voltage system	Pelco, Samsung, Notifier, Honeywell, LG, Dell, Touch screen DOMINA plus, AVE Touch transmitter, touch smart control,	Operation and comprehensive maintenance of ELV system consisting of entire CCTV system, Access system, BMS system and integration with other system like fire, RO, DG, Ventilation, Server room AC as specified in BMS software. Comprehensive maintenance includes software up gradation of all systems as and when required.
5	HVAC	Daikin, Wave, KEMPL, Voltas,	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with VFD panels at each floors, FCU, CCU, 134 Tr Split AC's, 350 Kw Hot generator, Cold room, water cooled Cassette AC's, Air curtains, scrubbers, kitchen deep freezers, cold room , water cooler, desert water cooler.
6	Fire	Notifier Alarm and PA System	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15 meter height
7	WTP, STP, RO, Water Coolers, UV filter	ZeroB, USHA, RO 1000 LPH, 30 KLD STP	Comprehensive maintenance of Water treatment plant, RO Plant, Sewage treatment plant, water Coolers, UV filters and maintaining the plumbing system.

8	Glass Cleaning	Atrium glass and ACP sheet, Glass Skywalk	Cleaning of glass, ACP sheet and glass Skywalk as per requirement.
9	Horticulture		Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Deepwali.
10	MLCP	Tedra	Half Yearly service of Multi level car parking by OEM or OEM authorized agency. The works include checking calibration of system, Sensors functionality, movement of platform, greasing of chain, platform weight lifting test, lubrication and adjustment, including renewal of chains/ropes and repair or replacement of electrical cables and wirings within the system

1 DG Sets: Operation and Comprehensive Maintenance of DG Sets

1.1 The works includes but not limited to following:-

- (i) For stand by supply DG sets of make Kirloskar having rating of 600 KVA is installed at ground level. All the DG set can start on AMF system and is controlled through PLC
 - (ii) For starting of DG Sets, a 12V/24V, battery banks of 180*2 Ah is provided with each generator. Battery chargers too have been provided in respective generator panel for charging of battery. Contactor is to maintain the required Ah and change the battery once in two years with same rated battery. Battery is to be changed in the first three months of tender or as per the direction of authority engineer.
 - (iii) DG has an internal storage capacity of 990 ltrs. Sufficient fuel should be stored so that the building can run of full capacity for 8 hours in case of power failure. Fuel is provided by NHAI. A weekly report of fuel consumption is to be submitted to the authority engineer.
 - (iv) Operation and Maintenance of these diesel engines has to be undertaken by the Contractor as per instructions contained in the O&M manual of the manufacturers.
 - (v) Scope of work includes but not limited to all the condenser pumps, butterfly, non-return valves, and gate valves all kind of valves, pot strainer, pressure gauges, thermometers, flexible connection of D G sets and pumps. A monthly report is to be submitted to the authority engineer.
 - (vi) Generator panel is equipped with ACB. Siemens/L & T/ Schneider or equivalent make protection relays and AMF panel.
 - (vii) ACBs are rated to 800, 1000 and 1600 Amps. MCCBs are rated upto 800 A
 - (viii) ACB servicing to be done by OEM once in one years.
 - (ix) B check of DG to be done by OEM three times in two year & C & D Check to be done once in two years by OEM agency as per the direction of officer in charge.
- **Note: The O & M of DG Sets: Operation and Comprehensive Maintenance of DG Sets is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer.**

2. **Electrical Systems and Installations:** Operation and Comprehensive Maintenance of 11/0.433KV Substation Internal and External Electrical Installations of the complete

building.

2.1 The works includes but not limited to following:-

- i. HT panel board comprising of oil vacuum circuit breakers with in-comer from BSES outgoing to 11/0. 433 KV transformers. Contractor will check the proper functioning of energy meters, safety devices i.e. VCB and Others, alarm, C.T and P.T monthly. VCB of the breaker to be tested every year and proper servicing and relay testing to be done.
- ii. Battery charger completes with 2 Volt, 150 AH capacity batteries (2 Nos.) Day to day maintenance, checking battery voltage in every 3 months and replacement if voltage found not satisfactory or from two years of installation. As and when required is covered in the scope.
- iii. 2X1200 KVA Air cooled transformers of VOLTAMP make 11 KV supply directly converted in 433 Volt supply. Transformer supplied installed and commissioned with suitable protection through relays. Contractor will check relays and safety devices i.e. VCB and Others. Servicing, Insulation Resistance and Applied Voltage Test & checking all the related parameters to be done by OEM or OEM certified agencies during the month of JANUARY every year.
- iv. 2X1250 KVA Servo stabilizer with bypass panel. That transfers regulated voltage to the panels for further distribution. Contractor will check relays and safety devices, ACB etc. for proper functioning of the servo and bypass panel as per OEM guidelines.
- v. Servicing to be done every year by OEM or OEM authorized agencies during the month of January every year.

2.2 **MDB-Main Distribution Board panels.**

- i. Main panel (kiosk panel) - 1 no
- ii. Main Lt panel -1 no
- iii. Power panel - 1 no
- iv. Lighting Panel - 1 No.
- v. Ups Panel -1 No
- vi. MDB PANEL (Emergency Lighting) - 1 no
- vii. Lift Panel - 1 no
- viii. Ventilation Panel (Basement 1 & Basement 2) - 2 nos.
- ix. UTILITY PANEL - 1 no.
- x. Fire Fighting Panel (LOC:-PUMP ROOM) - 1 no
- xi. Plumbing Panel (LOC:-PUMP ROOM) - 1 no
- xii. Air Conditioning Panel (LOC:- AC PLANT ROOM) - 1 no
- xiii. MDB Panel:- Power Panel - 1 no.
- xiv. Pressurization Panel (Terrace) - 1 no

There are Air Circuit breakers cubical boards in two sections; to receive the power supply from respective power transformers; and to further connected load at various areas of the NHAI office complex through LT cables.

Necessary protection relays and interlocking system .Supply is well protected through over current short circuit under / over voltages and earth fault relays. ACB'S are rated up to 1600 Amps.

2.3 **AMF /EMDB panels**

These panels are of the same design as above. These are coupled in two sections exclusively to receive Generator Supply as well as normal supply from MDB panels through respective ACBs. These two sections of panels receive power from generating

panels and feed to all EMDB panels through respective tie- breakers.EMD-2 is manually controlled panel with a change over switch of 1250A for switching between normal and D.G. supply.

All these panels are electrically and mechanically interlocked .The system is equipped with relays.

2.4 Capacitor Control Panels

Automatic power factor correction for complete power distribution system is a set of section coupled to in-comer panels separately with cables. Total capacity being 2x350 KVAR i.e. 700 KVAR.

2.5 Sub- station earthing

There are various earth pits installed at north-east area of the complex. Two are for LT equipment 2 being for HV equipment body earthing and 6 for power transformers neutral earthing. Each earth pit is of copper electrode and copper earth strips interconnected with each of the risers.

2.6 Lift panel

Lift panel is installed at lift machine room at terrace to feed electricity supply to 5 nos. of lifts which has got one incomer of 160A MCCB and 5 nos. of outgoing feeders with 63 A MCCB and bus bars of appropriate size. Periodical maintenance and replacement of parts is in the scope of the Contractor.

2.7 Automation (lighting & curtain)

Automation lighting and curtain system include of 4000 mts. CAT 6 cable, SITC of Touch screen DOMINA plus 12 with, colour graphic LCD. Power supply: 12Vdc (1,5A) - 8 nos. , SITC of 7 channel AVE Touch transmitter, 7 module TOUCH SMART CONTROL - 80 nos.

2.8 Distribution System, internal & external light points

The distribution system consists of the following

Sr. No	Items	Quantity
1	2 x 2 LED Panel Light - 36 W	420
2	LED Down Lighter - 8 W	720
3	LED Down Lighter - 20 W	600
4	LED outdoor Light - 28 W	480
5	LED outdoor Light - 70 W	8
6	Street pole light/flood light - LED 90 W	12
7	Bollard light 8W	60
8	Aviation light	01
9	2 x 20 W LED Tube Light	700
10	1 x 20 W LED Tube Light	900
11	LED Bulb for 5 lights - 7 W	30
12	Bulk head light	60
13	Paper Shredder	5
14	Board room strip light	1000 mtr
15	D.B with MCBs of 6-32 A and E-100 of 40 A	As per site

Note: The above mentioned light fittings or any other luminaries fittings not covered in the above list shall be maintained and replaced by the contractor against fused LED bulbs and lights.

2.9 Cables from 1.5 sq.mm to 630 sq.mm as installed in the building (regular maintenance and replacement of defective cables as required will be in the Contractors scope)

2.10 Range of temperature to be maintained throughout the year: 22 ± 2°C.

2.11. Decoration of NHAI Building by lighting and flag from all the sides and boundary wall on the eve of 15th Aug, 26th Jan & by lighting on NHAI Day & Diwali will be under the scope of the contractor. As per the direction of authority engineer. On 15th Aug, 26th Jan tricolor lighting theme is to be used and building is to be decorated from 3 side's i.e. front and adjacent 2 sides along with lights on entry side including guard room and adjacent green area. On NHAI day and Diwali golden colour lights is to be decorated from 3 side's i.e. front and adjacent 2 sides along with multicolor lights at entry and adjacent green area. Lights with good lumens is to be used.

2.12. Proper power supply to the Access control, boom barrier and baggage inspection and other security system to be maintained by the contractor. In case of any fault in the system the same is to be repaired by the contractor.

2.13. Automatic light and curtain system to be operated and maintained by the contractor.

2.14 Servicing of panels to be done every year by OEM or OEM authorized agency.

- **Note:** The O & M of Electrical Systems and Installations is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

3. **UPS SYSTEM Work:** Operation and Maintenance of UPS system.

3.1 The works includes but not limited to following:-

3.2 **UPS Details**

S. No.	Make/ Brand Name	Rating (KVA)	Qty
I	Numeric Legrand	120	4

There is 4*120KVA UPS system situated at basement 2 of the building. Each UPS is connected to a battery bank having 120 nos. of 120 ah battery. Separate Isolation transformer is also provided along with the UPS. The contractor shall provide maintenance service to keep the UPS in good and efficient working condition covered under this contract, the contractor should provide preventive and corrective maintenance of UPS and should get verified from authorized official of the concerned group. He should also carry out necessary repairs and provide SUITABLE replacement of (equivalent or higher configuration) of defective part(s) / equipment's as required.

Maintenance work includes noting down Battery parameters, Online ups parameters, checking tightness of clamps every month, checking isolation transformer and submitting the report along with the bill quarterly. Thermal testing of batteries to be done once in a year. All the parameters of UPS as specified by the OEM (to be tested monthly) is to be tested and submitted to the engineer in charge monthly. Maintenance of UPS is to be done by OEM or OEM authorized agencies only.

The contractor is to change the SMF batteries of all the battery bank within the first 6 months of the tender. Preferred make of the batteries will be Exide and quanta. No complete shutdown of the system will be allowed, batteries are to be changed in systematic manner one bank at a time and can only be done during weekends.

In case of any fault in the UPS agency has to provide a standby UPS till the time the existing UPS gets repaired. If in any case the UPS is declared as dead the same has to be replaced by the agency undertaking maintenance.

Agency/Firm should provide 1 no. 2 TR Split AC to be kept as Standby as a preventive measure in order to maintain the temperature of the UPS room within 15 days of award of Contract.

- **Note:** The O & M of **UPS system** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

4. Extra Low Voltage System

4.1 Operation and Comprehensive Maintenance of ELV system will include:

4.2 CCTV System: The entire operation and maintenance of CCTV will be under the scope of the contractor. The CCTV system consists of:

- 4.2.1 Dome Cameras - Nos 94
- 4.2.2 Bullet Cameras - Nos 60
- 4.2.3 PTZ Cameras - Nos 4
- 4.2.4 NVR Nos 3
- 4.2.5 Displays 55" Nos 12
- 4.2.6 Display 25" Nos 01
- 4.2.7 Computer Nos 6

Maintenance of rack, workstation, cables and all related accessories, software up gradation from time to time will be under the scope of the contractor. All software up gradation and necessary hardware will be under the scope of comprehensive maintenance. License and complete change of machinery when required due to compatibility issue will be provided by NHAJ.

4.3 Fire Alarm System: The entire operation and maintenance of Fire Alarm System will be under the scope of the contractor. The Fire Alarm System consists of:

- 4.3.1 Smoke Detector Nos 1002
- 4.3.2 Heat Detector Nos 251
- 4.3.3 Response Indicator Nos 502
- 4.3.4 MCP Nos 44
- 4.3.5 Fault Isolator Nos 55
- 4.3.6 Monitor Modules Nos 20
- 4.3.7 Control Modules Nos 134
- 4.3.8 Analog detector Nos 20
- 4.3.9 Hooter Nos 43
- 4.3.10 FAS Panel- 10 Loop Nos 1
- 4.3.11 Repeater panel Nos 1
- 4.3.12 Fire Fighting telephone Nos 20
- 4.3.13 Fire Fighter handset Nos 10
- 4.3.14 GUI Software Nos 1
- 4.3.15 Speaker- Wall Nos 448
- 4.3.16 Speaker- Ceiling Nos 170
- 4.3.17 PA Controller Nos 2
- 4.3.18 Volume Controller Nos 111
- 4.3.18 Amplifiers Nos 10
- 4.3.19 Paging Stations Nos 1
- 4.3.20 42 U racks Nos 2

Maintenance of rack, cables and all related accessories will be under the scope of the contractor.

4.4 Access Control System: The entire operation and maintenance of Access Control System will be under the scope of the contractor. The Access Control System consists of:

- 4.4.1 2 Door 2 Reader Access Controller Nos 11
- 4.4.2 Smart Card Reader Nos 22
- 4.4.3 Smart Card Writer Nos 1
- 4.4.4 EM locks 1200lbs Nos 1
- 4.4.5 Clamps Nos 22
- 4.4.6 12V SMPS Supply Nos 11
- 4.4.7 EM Lock 600lbs Nos 21
- 4.4.8 Push Button Nos 22

4.4.9 Computer Nos 1

Maintenance of rack, cables and all related accessories will be under the scope of the contractor.

4.5 BMS system: The entire operation and maintenance of BMS will be under the scope of the contractor. The BMS consists of:

4.5.1 Central Control Stations consisting of

4.5.1.1 3rd Gen Intel Core i3-3220 Processor (Dual Core, 3.30GHz, 3MB, w/ HD2500 Graphics), minimum of 8 GB RAM, Intel Integrated Graphics w/DP/DVI, OPTI (320-3778), 8X Slim Line, DVD+/-RW, & 120GB HDD, optical Mouse, 106 keys keyboard, 10/100 Mbps Ethernet card, USB connection & internal modem

4.5.1.2 132 Column 240 CPS Printer (Alarm & Report)

4.5.1.3 32 " colour Professional LED monitor

4.5.2 Software for BMS: Building Automation/Management Software Operating on Windows platform. Front End GUI / BMS Software and Energy Dashboard Preparation Software.

4.5.3 Hardware Communication: Commissioning of the necessary Hardware communication Unit/ Integrator for interface with different third party equipment's

4.5.3.1 Chiller -3 Nos. to be on BACnet/IP -1 set

4.5.3.2 VFD for Cooling Tower - 3 Nos. -1 set

4.5.3.3 VFD for AHUs - 43 Nos -1 set

4.5.3.4 DG - 3 Nos -1 set

4.5.3.5 Energy Meter -1 set

4.5.4 CONTROLLERS: Building Automation Controllers in accordance with required input/output Point requirement

4.5.4.1 DDC for HVAC Chiller Plant Room - 1 Set

4.5.4.2 DDC for AHUs (1 AHU per DDC controller) - 16 Set

4.5.4.3 DDC for TFA (ITFA per DDC) - 16 set

4.5.4.4 DDC for Ventilation Fans (For basement) - 8 set

4.5.4.5 DDC for Ventilation Fans in case of fire -4 set

4.5.4.6 DDC for Air Washer (1 Airwasher per DDC) - 2 set

4.5.4.7 DDC for DG sets -1 set

4.5.4.8 DDC for HT/LT & Transformer - 1 set

4.5.4.9 DDC for fire Fighting system - 1 set

4.5.4.10 Water Supply System & Tanks - 1 set

4.5.5 SENSORS & FIELD DEVICES

4.5.5.1 Immersion type temperature sensors -25 nos.

4.5.5.2 Duct type temperature sensors - 88 nos.

4.5.5.3 Single Level Switch for indicating low level status of CT & Water Tanks- 6 Nos.

4.5.5.4 Pressure switch across the AHU & Fans for indicating Status - 106 Nos

4.5.5.5 Pressure switch across the water pumps for indicating pump run Status- 21 Nos

4.5.5.6 Outside Temperature + Rh Sensors - 1 nos.

4.5.5.7 Flame proof level switch for indication fuel low level status in DG day oil tank-6 nos

4.5.5.8 Flame proof level Transmitter - 3 nos.

4.5.5.9 DC Voltage Transducer- 4 nos.

4.5.5.10 Electromagnetic Flow meter for Chilled water line- 3 nos.

4.5.5.11 Water Hardness Analyser- 1 nos.

- 4.5.5.12 Water TDS Analyser - 1 nos.
- 4.5.5.13 Water Pressure Transmitter - 6 nos.
- 4.5.5.14 Outdoor Lux Level Sensor-2

BMS system has 2 x 1.0 Sq. mm copper conductor PVC Flexible cable of length around 17000 mtrs and cat 6 of 6000 mtrs. The maintenance and changing of cable if required will be under the scope of the contractor.

Contractor is to get the system checked by OEM or OEM authorized company every quarter and submit the report along with bill. In no case system shutdown for more than 4 hours will be allowed.

- **Note:** The O & M of **ELV system** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

5. HVAC Work: Operation and Comprehensive Maintenance of HVAC system.

5.1. The works includes but not limited to following:-

- i. 3*250 TR each screw type, water chilling machines of make Daikin.
- ii. Three Nos. Chilled water re-circulation pump sets.
- iii. Three Nos. Condenser water re-circulation pump sets.
- iv. Three Nos. forced draft Cooling Towers of 260 TR each and related pipes & valves.
- v. Hot water generator 350KW- 1 Nos. Make-KEPL
- vi. Air Handling Units (8875 CMF to 23601 CMF) - 16 Nos.
- vii. Air Quality Monitoring unit - 1 Nos. Make Magneto
- viii. Ventilation System
 - a) Axial Flow Fan: Fire rated 250 Deg for 2 hrs. - 13000 cfm 14 Nos.
 - b) Fresh Air fan axial flow Non fire rated - 13000 cfm 14 Nos.
- ix. Air washer unit 60000 CFM - 1 Nos
- x. Air Scrubber Unit 60000 CFM - 1 Nos.
- xi. Fan Coil Units - 47 Nos
- xii. Piping and valves
 - a) Balancing valve with built in measuring facility - 25mm Dia - 39 Nos.
 - b) Ball valve manual - 25 mm Dia - 39 Nos.
 - c) 2-way motorized valve - 25 mm Dia - 39 Nos
 - d) Pressure gauge - 72 Nos
 - e) Mercury Glass thermometer - 72 Nos
 - f) Drain pipe - 25 mm UPVC- 450 Mtr. And 32 mm UPVC- 250 mtr.
- xiii. Lobby Pressurization Fans - 1 Nos.
- xiv. Electrical Panel for Main equipment, AHUs, ventilation fans and Cooling Towers
- xv. Exhaust fans, Three Phase - 14 Nos., Single Phase - 5 Nos.
- xvi. Air Curtains - 2 No.
- xvii. Volume control damper - 105 sqm
- xviii. Air Grills- 130 sqm
- xix. Fresh air grill - 130 sqm
- xx. Ducting: 7400 sqm
- xxi. Ducting insulation - 3000 sqm
- xxii. Split units Voltas make 2.0 TR X 8 Nos. and 4 TR X 3 Nos. installed in NHAI HQ having R22 and R32 gases.
- xxiii. Carrier make Cassette type water cooled 2.0 TR(FF) X 3 Nos, 2.5 TR (TF) X 6 Nos, 2.5TR (4F)X 6 Nos, 2.5 TR (5F) X 6 Nos, 1.0 TR (6F) X 18 Nos, 1.0 TR (7F) X 8 Nos, Installed in NHAI HQ. Gas cooled cassette AC 2.5 TR 8 Nos, 2.0 TR 7 Nos. Ceiling Suspended unit 5.0 TR 4 Nos

5.2 The preventive maintenance of Chiller Plant, AHU, Hot Water Generators, Split & Cassette ACs, includes but not limited to following:

- i. Cleaning up of unit & Air filter of AC's and AHU.
- ii. Replacing/changing Air Filters of AHU if damaged or choked as per the direction of Authority Engineer.
- iii. Cleaning of cooling coil & condenser coil.
- iv. Checking of driver belt & replace if necessary.
- v. Lubrication of bearings if necessary.
- vi. Checking up of operating of unit, controller & condenser.
- vii. Combing of fins of condenser & evaporate coil if necessary.
- viii. Changing fins of cooling towers once in two year or as per the direction of Authority Engineer.
- ix. Measurement of current of all individual equipment's monthly and maintaining a record of the same and getting it certified from the authority engineer.
- x. Checking of all overload relay settings.
- xi. Checking of all electrical components for loose connections & tighten if necessary.
- xii. Checking of refrigeration piping of gas leakage.
- xiii. Checking of pulleys, motor mounts, and condenser fan mounts etc.
- xiv. Checking of panel insulation, chilled water pipeline insulation and replacing the same if found damaged as per the direction of Authority Engineer.
- xv. Checking the Chiller plant pipe line, Balancing valve, Butterfly valve, cooling towers nozzles etc at regular intervals and replacing the same when found damaged as per the direction of authority engineer.
- xvi. De-scaling of chiller plant, panel synchronization of chiller and Hot water generators of HVAC system by OEM or OEM certified agencies during the month of JANUARY every year.
- xvii. Changing of Split and Cassette ac coil if required.
- xviii. Providing AC remote when required as per the direction of Authority Engineer.

- **Note:** The O & M of HVAC plant is in the scope of the contractor and will be liable for replacement of any other parts not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

6 Fire protection Work: Operation and Comprehensive Maintenance of Fire protection Work.

6.1 Description of Work The works includes but not limited to following:-

- (a) This is a seven-story building having two basements. Lower basement is utilized for building services, parking and upper basement is used as parking.
- (b) B check of Fire engine By OEM or OEM certified agencies once in a year.
- (c) Checking Heat, Smoke detectors & AFD Panels every week and replacing the same if found damaged/nonfunctional.
- (d) Front portion of ground floor is utilized for reception
- (e) The building is a fine example of western architecture with white / Red Sand stone cladding on the exterior face of the building with matching colour glass curtain wall. The finishes are of high standard as described in the following sections.
- (f) Contractor shall be required to operate and maintain the firefighting equipment's provided in NHA corporate building through routine and periodic operation and maintenance.
- (g) Contractor shall incorporate and adopt latest and efficient technology for operation and maintenance of the premises as required for any modern intelligent office buildings.
- (h) In this comprehensive nature of operation and maintenance work contractor would be

required to take all such actions and do all such things like providing qualified staff, structured organization, adopting measures and standards, proper documentation, monitoring and execution procedures comprising of regular inspections.

6.2 The works includes but not limited to following:-

(i) Hydrant System

- a)** Servicing, Repairing, replacing of defective item and operation of a main electric pump of 2850 LPM at 70 m Head and 100 HP with pressure gauge, safety release valve, drain, on - return valve ,sluice valve on both suction and delivery side of the pump.
- b)** Servicing Repairing,(replacing of defective item) and operation of Standby diesel pump of 2850LPM at 70 m head and 90 HP. with pressure gauge, safety release valve, drain valve, on -return valve ,sluice valve on both suction and delivery side of the pump and 2 nos. of 12V 150Ah Batteries for starting of Diesel pump.
- c)** Servicing, Repairing, replacing of defective item and operation of 2nos.of pressurization (jockey) pump of 250LPM at 70 m head and 15 HP. with pressure gauge, safety release valve, drain, on -return valve ,sluice valve on both suction and delivery side of the pump.
- d)** Servicing, Repairing, replacing of defective item and operation of sprinkler pump of 1800 LPM at 70 m head and 100 HP. with pressure gauge, safety release valve, drain, on - return valve ,sluice valve on both suction and delivery side of the pump.
- e)** Servicing Repairing replacing of defective item and operation of cubical type floor mounted power cum Control panel with 400 A TPN MCCB, relays, contactors, bus bar, indicating lamps, battery charger with provision for trickle and boost chargers. Fuses, etc required for starting of hydrant pump, diesel pump, sprinkler and jockey pumps.
- f)** Pressure switches - **6nos.**
- g)** 250 mm dia. 1.5 high air vessel and air release valve - **4nos.**
- h)** 600 x 600 x 6 mm copper plate earthing-**2nos.**
- i)** 3x70 sq. mm and 3x 10sq.mm Al .conductor-**75 m**

(ii) Pipes and Accessories

- 1. Upkeep of hydrant and sprinkler pipes with its accessories flanges, tees, nuts, bolts, rubber gasket, clamps, supports etc.
- 2. Painting of pipes with two coats of post office red enamel paint is to be done once in a year or as per requirement.
- 3. Refilling of fire cylinders every year with proper testing report.
- 4. Sizes of different pipes with their approximate length, accessories are given below:-
 - 3
 - 4
 - 4.1 250 mm dia - 12 m
 - 4.2 200mm dia - 12 m
 - 4.3 150 mm dia - 600 m
 - 4.4 100 mm dia - 300 m
 - 4.5 80 mm dia - 200 m
 - 4.6 65 mm dia - 50 m
 - 4.7 50mm dia - 210 m
 - 4.8 40 mm dia - 300m
 - 4.9 32 mm dia - 130m
 - 4.10 25mm dia - 1059 m

5. 63 mm gun metal hydrant valves for risers and yard hydrant.-30 nos.
6. RRL hose pipe with coupling.-59nos.
7. Gun metal branch pipe-30
8. Fire hose reel 20
9. Fire brigade inlet 3-way -2no.
10. Fire brigade inlet 4-way for underground tank-1no.
11. Fire brigade suction coupling-1no
12. sluice valve 250mm dia = 2nos
13. sluice valve 200mm dia = 1nos
14. sluice valve 150mm dia = 8nos
15. sluice valve 100mm dia = 1nos
16. non-return valve 150mm dia = 2nos
17. non-return valve 100mm dia = 1no
18. butter fly valve 150mm =7 nos.
19. butter fly valve 100mm dia = 8nos
20. Weather Proof hose cabinet =30Nos.
21. Sprinkler head in lower basement, upper basement, Office area:-
 - 21.1 Pendent type = 85 Nos
 - 21.2 Upright type = 360 Nos
 - 21.1 Side wall type = 30 Nos
 - 21.1 Curtain spray nozzle = 53 Nos
 - 21.1 Flow switch for sprinkler=6 nos.
22. Motorized valve =1 set
23. Smoke cum Heat detector optical type with blinking LED & standard base
 - 23.1 Below False Ceiling = 700 nos.
 - 23.2 Above False Ceiling = 700 nos.
24. Response Indicator = 485 nos.
25. Rate of rise heat detector = 10 nos.
26. Manual call box = 49 nos.
27. Hooter with LMT = 49 nos.
28. Duct casting unit detector for AHUs = 20 nos.
29. Addressable fault isolator module = 57 Nos.
30. Fire alarm main control panel 10 loop each = 1 set
(With relay, batteries rectifier etc. - PCD fire alarm panel)
31. Repeater panel with LCD Display complete with accessories= 1 set
32. SPEAKERS
 - 32.1 Ceiling Mounted Speakers = 456
 - 32.2 Wall Mount Speakers
33. Digital Amplifier = 5 nos.
34. Paging Station = 1 nos.
35. 2 way communication Fire Fighter's Telephone Jack = 20 nos.
36. 2 way communication Fire Fighter's Handset = 5
37. GUI based main network Fire Detection, Digital PAVA and 2 way communication common software = 1 nos.
38. Fire Survival Armored cable = 15500 mts
39. 42U rack = 2 nos.
40. Armored speaker cable= 3550 mts.
41. Local control panel on each floor = 8 nos (All relays etc. - PCD fire alarm panel)
42. CO2 flooding system panel = 1 set.
43. CO2 flooding system unit = 4 set (Battery of 2 cylinders each)
44. Public address system = 1 set
45. VOLUME CONTROLLER = 210 nos.
46. Music system panel for lifts with 4 speakers at lift roof top = 1 set.
47. Talk back hand set = 8 nos.

48. Talk back EPABX = 4 set
 49. Exit Signage = 83
 50. Water type CO2 = 75 nos.
 51. Dry chemical powder fire extinguisher = 50 nos.
 52. CO2 4.5 kg Fire extinguisher = 50 nos.
 53. ABC fire extinguisher 5 kg = 50 nos.
 54. Addressable monitor module with hooter circuit = 49
 55. Addressable control module with Sprinkler flow switches = 50
- **Note:** The O & M of Fire Protection System is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

7. Water Treatment Plant, RO, STP & plumbing system: Operation and Comprehensive Maintenance of water treatment plant, RO, STP and plumbing with all related pumps and associated Work.

7.1 WTP and RO: Operation and Comprehensive Maintenance works includes but not limited to following:-

- (i) Reverse osmosis-based water treatment plant 1000 LPH capacity with its control and electrical panel. 1 unit
- (ii) 3 HP HVAC make up water supply pumps (Lubi make 52M head, 225LPM) with electrical panel 2Nos.
- (iii) 3 HP drinking make up water supply pumps (CRK make 52M head, 180LPM) with electrical panel 2 Nos.
- (iv) Drainage pump/ submersible pump installed inside Sump in basement 2HP (Lubi make) with its electrical panel 8 Nos.
- (vi) Cleaning and disinfections of Overhead tanks as per the direction of officer in charge
 - a) 20000L 3 Nos.
 - b) 10000L 3 Nos.
 - c) 5000L 4 Nos.
- (vii) Cleaning and disinfections of underground tanks after per the direction of officer in charge
 - a) Fire tank 75000 L 1 No.
 - b) Domestic and soft water tank 50000 L 1 Nos.
 - c) Raw water tank 50000L 2 Nos.
- (viii) Cleaning of sump well every three months 8 Nos.
- (ix) At all times the RO water shall meet the requirement of IS: 10500:2012. The testing of water quality from NABL accredited laboratory will be as directed by Engineer but at least once in a month by the bidder.
- (x) The contractor need to change the membrane once in a year and micro filter in every quarter of RO and replace the media filter of WTP once in 2 year. Replacement of Media filter includes changing sand media, granular, Resin of softener.
- (xi) In order to keep the system normal the contractor will supply from time to time consumables such as indicating lamps chemicals, filters etc.
- (xii) Any breakdown in RO Plant leading to disruption of water supply to the building be attended by the contractor promptly an extra staff if require to arranged by the contractor and nothing extra shall be payable to him on this account.
- (xiii) The contractor shall maintain as separate log book for the vital running parameters of the

plant as per sample approved by the EIC.

- (xiv) Cleaning and comprehensive maintenance of water coolers along with UV filters fitted on each floor. The filters of UV filter to be changed in each quarter.

7.2 Sewage Treatment Plant: Operation and comprehensive maintenance of Sewage treatment plant features:

7.2.1 The works includes but not limited to following:-

- i) Sewage plant is of capacity of 30 KLD with associated drain line and separate water line for treated water.
- ii) Maintenance work will include Cleaning of all the tanks and filters associated with STP once in 2 months and disposing the sludge that comes out. In no circumstances draining the sludge in main sump line will be allowed.
- iii) Charging the STP with necessary micro bacteria and chemicals so that the quality of water coming out of STP should maintain the parameters mentioned below
- iv) It should be cleaned by specialized agency and following parameters should be obtained after cleaning
 - a) pH: 6.5 - 8.5
 - b) BOD: < 20mg/l
 - c) COD: < 250mg/l
 - d) O & G: < 5
 - e) Suspended Solid: < 100mg/lTest report from authorized vendors should be submitted along with the bill.
- v) It will be under the scope of the contractor to submit the reports required by Delhi Jal board regarding the STP and get all the certifications from Delhi Jal Board.

7.3 The contractors need to clean the Rain water harvesting tank once in a year and the clearance from Delhi Jal board. Building has 2 Nos of RWH tank one is conventional and the other one is modular.

7.4 It will be under the scope of the contractor to get the sewer line cleaned if it gets choked inside the building. Also if in any repair work some parts like bend, elbow, union, adhesive, seal, pipe up to the length of 5 meter in short the materials required for repairing work is required it is to be provided by the contractor. If some replacement is of item is to be done NHAI will provide the same.

- **Note:** The O & M of Water Treatment Plant, RO, Water Cooler, UV Filter & STP is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

8 Glass and Sky Walk cleaning:

The works includes but not limited to following: -

- i) Cleaning of Atrium glasses from outside area approx. 1695 SQM.
- ii) Cleaning of ACP sheet along with glasses
- iii) Cleaning of Atrium, ramp and entrance glass Sky approx. area 700 SQM.
- iv) Fire exit stairs approx. area 200 SQM

Cleaning schedule

- i) Atrium glasses of 7th and 6th floor to be cleaned each month approx. 452 SQM area
- ii) Atrium glasses of each floor quarterly.
- iii) ACP sheet as per glass occurrences
- iv) Glass Skywalk every month.

v) Fire stairs quarterly

Upon completion of work all the areas should be cleaned. All floors, surface, getting dirty due to the contractors work shall be cleaned down in a manner which will render the work acceptable to the employer. All rubbish/ Malba due to any reasons shall be removed daily from the site and be disposed outside the building.

Contractor shall arrange all types of machinery, hanging arrangement trolley, spider system, safety rope and other items required for execution of work without any extra cost to NHAI.

9. Maintenance of landscape/ Horticulture Works: Operation and Maintenance of landscape/ horticulture features.

9.1. The works includes but not limited to following:-

- (i) The scope of work of the contract covers all landscape maintenance work in respect of existing garden features which includes, potted plants, lawns, topiary and perennial beds, rockers, creepers and climbers, shrubs, trees, plantation and then maintenance of ornamental plants and removal of rank vegetation and bushes etc. within a planted area.
- (i) Contractor is to Provide 100 nos. flower plants (seasonal) of height minimum 30 cm, 30 no. of ornamental and 50 nos. of indoor plants in each month. The provided plants are to be kept in the reception area and entrance gate of the building. Decoration of entrance by flower inside mud pots is in the scope of the bidder. Season flowers like Allyssum, Antirrhinium hybrid, Aster hybrid, Bigonia, Calendula, Cineraria, Dahlia, Daisy, Marigold jafri, Nastrutium , Pansy, Petunia, Salvia, Verbena, Gazania hybrid, poppy double, Gladiolus, Celosia, Cladium Hybrid, Cosmos hybrid, Gomphrena, Kochia, Vinca Hybrid, Zinnia, Motia, Mogra, Canna dwarf, Oleander Dwarf, Mini chandani, madhu kanini, champa, Adenium, Euphorbia Milli, Mandevil. Ornamental plants like Silver Nerve Plant, Fibre Optic Grass Plant, Snake Plant, String Of Pearls, Peace Lily, Chinese Money Plant, Air Plant, Water Bamboo, Bonsai. Indoor plants like synogonium, Philodendron, scindapsus, croton, araucaria, areca palm, asparagus, fern, phoenix rbilini, raphis, excelsa, ficus buish king, aralia, nolina, dracaena, cycas, dieffenbachia, furcrea, scheffla.
- (ii) Contractor is to Provide 50 nos. of Poinsettia plant in each winter season and the premises should be filled with such plants during winter.
- (iii) Contractor should maintain the reception area, atrium area, lift lobby well decorated with flowers, Indoor potted plants of different colour.
- (iv) Contactor is also to maintain the Terrace Garden located on the Top of the building. Terrace garden is a fine example of modern garden with green wall, Natural grass, Pergola, Potted plants, Flowers and ambience lighting. Contractor is to maintain Terrace garden in proper condition and change the plants and lights when required as per the direction of Engineer in charge.
- (v) Contractor should posses all the tools for proper maintenance of horticulture like mower machine, Petrol/Electric operated grass cutting machine, Garden Hand Tools, Axe, Dab, Chopping Knife, Pruning Secateurs, Hedge Shear, water can etc. as directed by the engineer in charge.
- (vi) It will be under the scope of the contractor to decorate the building with flower and petals, rangoli and other decorative items on the eve of New year, Republic day, Independence Day and Diwali. Decoration will include spreading of petals in reception & lift lobby area, making rangoli, decoration of entrance gate by marigold and ashok leaves garland.
- (vii) Maintenance / replacement of seasonal / ornamental indoor and outdoor plants: The

agency shall be responsible for upkeep of quality seasonal / ornamental indoor and outdoor potted fresh and healthy plants, cleaning, watering, stacking, spraying, staging, and display, manuring etc. as required / instructed by the Engineer.

Indoor potted plants of height 3 ft. to 4 ft.	Monstera, money plant with broad leaf (epipremnum aureum), synogonium, Philodendron, scindapsus, croton, araucaria, areca palm, asparagus, fern, phoenix rbilini, raphis, excelsa, ficus buish king, aralia, nolina, dracaena, cycas, dieffenbachia, furcrea, scheffla etc. with moss-stick as per requirement.	574 nos.	Any short fall of existing inventory shall be made up by supply and providing fresh potted plants
Outdoor potted plants of height 1.5 ft. to 3 ft.	Well grown annuals flowers petunia hybrid, myosotis alpestris, marigold, rose, hibiscus, jasminum, celosia, cristata etc. in different seasons with stick as per requirement.	1250 nos.	

10. Multi-level car parking: Maintenance of MLCP features.

- 8.1 Maintenance of 84 Nos. of Mechanical stack parking system through OEM.
- 8.2 Necessary periodic examination, lubrication and adjustment, including renewal of chain/ropes and repair or replacement of electrical cables, sensors, motors, platform, supporting angle and wiring within the system.
- 8.3 Necessary repairs or replacement of parts if required.
- 8.4 OEM should attend breakdown calls at all time, no barrier on number of visits being done.
- 8.5 Replacement of cylinder, replacement of oil in power pack and power pack.
- 8.6 Half Yearly service of Multi level car parking by OEM or OEM authorized agency. The works include checking calibration of system, Sensors functionality, movement of platform, greasing of chain, platform weight lifting test, lubrication and adjustment, including renewal of chains/ropes and repair or replacement of electrical cables and wirings within the system and all other test as per OEM guideline.

10. General Maintenance:-

10.1 DG Sets operation, sub-station & connected equipment's

10.1.1 DG Sets need the following precautions for taking idle machine into operation:-

- i. The alignment of the set as a whole may be made as per manufacturer's manual.
- ii. Check the intake air and oil circuit continuity.
- iii. Ensure none of the moving part is rusty and proper greasing is done.
- iv. Check Heat exchanger as also the water circulation is proper before start.
- v. Check circulating fan movement.
- vi. Proper battery voltage and necessary amperage for start.
- vii. To set throttle in idle position.
- viii. The position of pre heater for engine warm up.
- ix. Finally the engine exhaust (out let path is OK)

- x. Health check of DG sets to determine its efficiency, Performance, fuel consumption.
- xi. The following needs contractor's attention while the engine is in operation:-
 - Mobile Oil grading / viscosity minimum limit: The manual recommends viscosity value 1.4-5.8 @ 100 F as also the use of multi grade oil.
 - Charge hydraulic governor oil of the same grade as engine oil
 - Corrosion checking: Check coolant with kit specified in manufacturer's manual check chromate concentration test, thus adjusting coolant to specifications. (Chromate concentration is 3500 ppm, ph value 8.5 to 10.5
 - Change zinc heat exchanger plug if found eroded due to raw water circulated through heat exchanger.
 - Clean complete oil bath air cleaner.

10.1.2 Likely faults which have to be checked daily

- i. Low lubricating oil pressure.
- ii. Low power / (check exciter, speed of engine etc.)
- iii. Abnormal water or oil temperature.
- iv. Unusual engine noise.
- v. Excessive smoke.
- vi. Excessive use of coolant, fuel or lubricating oil.
- vii. Any leaks, like fuel, coolant or lubricating oil.

10.1.3 The schedule of maintenance of sub-station & connected equipment's

- i. The contractor shall maintain the 11 KV switch-gears as per manufacturer's maintenance manual.
- ii. The Contractor shall check the performance of protection system at regular intervals periodically.
- iii. The Contractor shall maintain the batteries, battery charger, and electrolytes and check its specific gravity and hydrometer fixed all the time in the solution. Contractor to replace defective or weak batteries of DG Sets and HT panel.
- iv. A similar maintenance is required for transformer maintenance with respect to manufacturer's manual.
- v. While cleaning the bus-ducts and going through LT cable distribution system, he shall check the bus -bar, cable, and termination and earth connections as well.
- vi. There are more than 25 pits for earthing system the contractor shall check once after 6 months the earth results with respect to its resistance value and its continuity etc.
- vii. Air filters are to be replaced every alternate B-check i.e. once in a year Failure to do this will attract penalty, as per the provisions contained in Clause 4.2 of Section V: Special Conditions of Contract.

11.1.4. Maintenance of bus-ducts, generator control panels and distribution system

- i. Cleaning the bus -ducts with blower pressure and painting the same if required at regular intervals.
- ii. Checking the feeders switches for preventive maintenance as per the manufacturer's instructions.
- iii. Checking the control circuit wirings at interval of six months.
- iv. Checking the relays and adjustment if required as per the loading of the feeders at intervals of six months.
- v. ACB contacts, MCB contacts and switch contact are to be checked and cleaned of carbon at regular intervals.
- vi. Checking the interlocking system and demonstrating the same to staff.
- vii. All external lighting has to be maintained in respect of replacement of fused lamps cleaning of lighting fixtures, and painting of poles etc. including earthing maintenance, cable maintenance and distribution pillar boxes.
- viii. Regarding internal power distribution system the contractor shall maintain the rising mains, adopter boxes and sub-distribution boards located in each case.
- ix. He has to check at regular intervals the bus-bar connections, cable connections, MCB connections and tighten the same.
- x. Cleaning the distribution boards, lighting fixtures fans, at regular intervals.
- xi. Replacing the burnt-out fuses / (MCB) switches of appropriate capacity within a short notice.
- xii. Replacing the burnt -out fluorescent lamps, bulbs, switches, sockets, plug tops etc. as & when required.

- xiii. Small additions and alterations wherever required to be done.
- xiv. Painting of SDB's rising mains, FDB's at regular intervals.
- xv. Keeping the electric rooms neat and clean.
- xvi. keeping the electric cable trays in order and tighten the hangers as required.
- xvii. Painting the cable trays once a year.
- xviii. Checking the ELCB operation once a month especially in rainy season months.
- xix. Occasional checking of CT's with respect to primary secondary winding results.
- xx. Checking the operation of electrically operated rolling shutters installed in basement and greasing the guide rails/channel every 15 days, check its switch motor, spring and attached spring and its accessories at regular interval of time and replace the defective part, if any.
- xxi. Servicing of cooling tower, its motor, cleaning of its nozzle, checking of sprinkling of water whether it is uniform or not, every six months. Replacement of parts as may be necessary.
- xxii. Painting of cooling tower and entire cooling water pipes every six months.
- xxiii. Checking of valves, pressure gauges, thermometers, strainers and replacing the same whenever found defective.
- xxiv. Changing the capacitors of capacitor bank once in 2 year.

10.2 **UPS SYSTEM Work:** Operation and Maintenance of UPS system.

10.2.1 The works includes but not limited to following:-

The contractor shall provide maintenance service to keep the UPS in good and efficient working condition covered under this contract, the contractor should provide preventive and corrective maintenance of UPS and should get verified from authorized official of the concerned group. He should also carry out necessary repairs and provide SUITABLE replacement of (equivalent or higher configuration) of defective part(s) / equipments as required.

Maintenance work includes noting down Battery parameters, Online ups parameters, checking tightness of clamps every month and changing batteries if batteries are damaged or not giving the desired volt

10.2.2 **UPS Details**

S. No.	Make/ Brand Name	Rating (KVA)	
I	Numeric Legrand	120	

All Batteries are to be tested for its individual voltage during each Preventive Maintenance once in 6 months by competitive agency.

All Battery banks are to be tested for its full Load capacity.

10.2.3 The preventive maintenance of UPS System includes but not limited to the following:-

- (a) Checking of tightness of all power & control connections
- (b) Charger Settings

- (c) Inverter Settings
- (d) Rectifier settings
- (e) Battery bank health check including impedance check once in 6 months.
- (f) Mode operation check
- (g) Check of all indications & cooling fans
- (h) Calibration/Settings of UPS parameters whenever required
- (i) Check all the indicators and Fuse.
- (j) Submission of Call sheets & reports
- (k) Changing of capacitors of UPS.

10.2.4 Regular equipment testing should be part of a facility's UPS maintenance schedule. Such a schedule might include the following elements:-

- (i) **Quarterly:** Visually inspect equipment for loose connections, burned insulation or any other signs of wear.
- (ii) **Semiannually:** Visually check for liquid contamination from batteries and capacitors.
 - Clean and vacuum UPS equipment enclosures.
 - Check HVAC equipment and performance related to temperature and humidity. UPS transfer switches, circuit breakers and maintenance bypasses.
- (i) **Annually:** Conduct thermal scans on electrical connections to ensure all are tight and not generating heat, which is the first and sometimes only indication of a problem. A non-invasive diagnostic tool helps technicians identify hot spots invisible to the human eye. Technicians should re-torque if thermal scan provides evidence of a loose connection.
 - Provide a complete operational test of the system, including a monitored battery-rundown test to determine if any battery strings or cells are near the end of their useful lives.

10.2.5 Regular Test

- (i) A generator is part of the building's emergency-power system and feeds the UPS, it also will need to be tested monthly or OEM schedule whichever is earlier.
- (ii) A UPS typically is sized to carry the load for a short period of time. Longer outages require backup-power generation to maintain critical services. Each facility is unique, and Contractor shall develop a maintenance schedule to suit site's specific needs.
- (iii) Any other test as required/ directed by the Engineer Shall be carried out by the Contractor it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI

11.3. ELV system

The preventive maintenance of ELV System includes but not limited to the following:-

- (a) Checking of tightness of all power & control connections
- (b) Mode operation check
- (c) Check all the Transmitter & Sensor (274 nos.), Controllers (51 nos.) and Fuse.
- (d) Proper Functioning of 164 CCTV Cameras installed.
- (e) Proper functioning of all the access doors and related equipment's.
- (f) Maintenance and checking of around 37,000 mts.

11.4. HVAC system & connected equipment's

11.4.1 The Contractor shall maintain the air conditioning plant as per manufacturer's maintenance manual. (Chiller machine, chiller pump, condenser pump and related equipment and accessories).

11.4.2 The Contractor shall check the performance of protection system at regular intervals. BMS system should be checked at regular intervals.

11.4.3 The Contractor shall maintain the log books and keep all the records of faults and alarms. The contractor will also maintain a register for recording Temperatures at various places and floors.

11.4.4 A similar maintenance is required for all split units with respect to manufacturer's manual.

11.4.5 While cleaning the filters regularly, contractor should check differential pressure switch and connections to switches as well.

11.4.6 Cleaning the bus ducts with blower pressure and painting the same if required at regular intervals.

11.4.7 Checking the feeder switches for preventive maintenance as per the manufacturer's instructions.

11.4.8 Checking the control circuit wirings at regular intervals.

11.4.9 Checking the relays and adjustment if required as per the loading of the feeders at regular intervals.

11.4.10 MCCB contacts, MCB contacts, Relays and Switch contacts are to be checked and cleaned of carbon at regular intervals (once in six months)

11.4.11 Checking the interlocking and safety system and demonstrating the same to staff (once in a six months).

11.4.12 checking at regular intervals the bus-bar connections, cable connections, MCB connections and tighten the same (Every Quarterly)

11.4.13 Replacing the burnt-out fuses / (MCB) switches of appropriate capacity within a short notice (as and when required)

11.4.14. Cleaning / Painting of pipes and cooling towers etc. at regular intervals (once in a year or earlier if required for proper maintenance). Cleaning / servicing of all valves and strainers once a year.

11.4.15 Keeping the plant rooms neat and clean.

11.4.16. Cleaning and greasing of all motors, at regular intervals.

11.4.17. Servicing of all the split and window A/Cs once in every quarter is mandatory. A record is to be maintained for the same for all the units.

11.4.18. Regular visit of Sr. Engineer as per schedule is necessary. A record is to be maintained to this effect.

11.5 Fire Protection Equipment's

11.5.1. The contractor shall maintain all the pumps as per manufacture's maintenance manual.

11.5.2 He shall check the performance of protection system daily.

11.5.3 He shall maintain the log books and keep all the records of fault and alarm.

11.5.4 Cleaning the feeder's switches for preventive maintenance as per manufacturer's

instructions:

11.5.5 Checking the control wiring and wiring of detectors at local control panel at each floor daily.

11.5.6 Checking the operation of main fire alarm panel at ground floor.

11.5.7 Checking the relays and adjustment if required.

11.5.8 Checking of hydrant line /sprinkler line pressure. Hydrant pressure is to be maintained constant at 7 kg/cm².

11.5.9 Contractor shall check the smooth functioning of all type of detectors, response indicators, manual call box, and hooter cum speaker, duct casting unit, PA panel and lift music panel, CO2 panel daily.

11.5.10 Contractor shall check the smooth functioning of all type of valves i.e. ball valves, butterfly valves, pressure relief valves, non-return valves, gun metal valves at regular interval of time and change the same if found faulty as per the decision of authority Engineer.

11.5.11 Contractor shall check the smooth functioning of motorized valve, flow switch and cleaning of curtain spray nozzle quarterly (at every 3 months interval) and change the same if found faulty as per the decision of authority Engineer..

11.5.12 Contractor shall check the functioning of CO2 flooding system its control panel and all the portable fire extinguisher regularly and refill the CO2 Cylinder once in 2 years.

11.5.13 Contractor shall check the functioning of entire yard hydrant system weekly.

11.5.14 Carpentry and plumbing Work: Basic items for plumbing and carpentry work like nails, screw, pasting adhesive, masking tape, thread seal tape, fasteners, to be provided by the contractor.

11.6 WTP STP and RO:

Contractor shall check the functioning of entire WTP, STP and RO system. Changing of membrane. Micron filter, sand media, removal of sludge, refilling of bacteria, maintenance of all the related pumps and piping, tank cleaning etc. is to be understood to be covered in the scope of work and maintenance is to be carried out as per schedule.

11.7 Horticulture

The maintenance shall include watering, manuring, fertilizing plant protection for pests and diseases, sweeping, weeding, mowing and disposal of garden refuse, cultivation and cutting of edges, pruning and clipping of hedges, etc and stacking, preparation and planting of seasonal flowers, minor repair works and all other landscape operations necessary for the proper growth for garden features and maintaining them in proper standard of maintenance as per specification stipulated in CPWD DSR 2016 for horticulture works. This includes but is not limited to the following:-

(a) Cultivation:-

Regular weeding, cutting edges of lawn and flower beds, ground covers, making basins of tree pits and hoeing to be done periodically.

(b) Seasonal and Ornamental Flower:-

The existing flower beds to be maintained with minor alternation (if required) by planting summer and winter seasonal flower.

(c) New plantation:-

Supply and planting of ornamental plants in pots and in the campus. The liability of the contractor for the plantation will be for the complete duration of the contract and any mortality will have to be replaced by the contractor at this cost immediately on its occurrence.

(d) Repair and replacement:-

The contractor shall carry out all minor repairs to garden features damaged due to digging in the area, natural calamity or any other reason.

(e) Irrigation:-

Daily adequate watering (except Sunday) of all garden features with hose pipe or sprinkler system in different areas should be done regularly. Contractor will make his own arrangement of hose pipe and sprinkler in adequate quantities. All the lawns and garden area should be irrigated by sprinkler as directed by the officer in-charge. The contractor must ensure that unnecessary wastage of water does not occur at any time and must protect the irrigation fitting/hydrant etc. Any damage to existing irrigation system due to negligence of his staff will have to be made good by the contractor at his own cost. However water shall be made available free of cost by NHAI.

(f) Fertilizer:-

Manure and Fertilizers specified shall be applied by the contractor as required and under the direction of the officer-in-charge. Manure & fertilizer shall be provided by the contractor at his own cost.

(g) Plant Protection:-

Periodic checks to be carried out for the pests and diseases. In the event of infestation prompt spraying of appropriate pesticides, insecticides and fungicides will be required for eradication of the same. Pesticides, insecticides and fungicides will be supplied by the contractor.

(h) Sweeping:-

No grass or refuse or garbage to be left overnight in the garden areas and the campus.

(i) Mowing:-

Lawn mowing to take place at regular interval of 10-15 days in a month or as per direction of officer-in-charge to given neat, clean, tidy and even look.

(j) Pruning:-

Clipping and training of hedges and edges, trimming of shrub plants, trees, creepers and bougainvillea's etc at regular intervals, stacking of plants whenever and wherever required.

(k) Precautionary Measure:-

The contractor must take all necessary precautions for carrying out the above operations in the event of any injury/accident to any person (s) the responsibility and liability will be entirely on the contractor.

Note:

- i. The above details of scope of work are indicative only, it includes operation and maintenance of all the services/ installations/ equipments/ components etc. against the sub heads brought out above in clause 1. Any other item/ equipment/ tool/ testing/ replacement/ accessory/ components/ fitting/ fixture/ service/ overhauling/ valves/ piping/ fittings/ wires/ cables/ choke/ starter/ holder/ any other electrical fittings etc. not mentioned above will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.

- ii. Contractor will remove all the old/ used/waste/consumable from site within 01 day and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- iii. All the scheduled maintenance routines falling due, during the contract period are to be carried out by the Contractor as recommended by the manufacturer/ its authorized service representative to the satisfaction of the Engineer and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- iv. C-check and D-Check of DG Sets and alternators and Fire Engine and special maintenance as per requirement will be carried out by the Contractor within the 15 days period from date of commencement and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- v. Refilling of all portable fire extinguishers and cylinders shall be done as per requirement/ specification or once in a year whichever is earlier and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI..
- vi. Contractor will arrange fire drills and training program for NHAI employees and to brief regarding evacuation plan in case of fire, teach regarding necessary precaution to be taken in case fire, operation of fire extinguisher etc. at least once every three (03) months and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- vii. Providing sufficient tools for plumbing and carpentry maintenance work like wrenches, Pliers, screw drivers, Allen Key, hammer-drill machine, chiesel, shaw or any other item that may be required for proper O&M of the Building.
- viii. AMC cum specialized services for all specialized equipment, including DG sets, HVAC systems, UPS systems, HT installations, and CCTV systems, shall be executed exclusively by the OEM or its immediate authorized service provider holding a valid Manufacturer's Authorization Form (MAF) submitted with the bid. The contractor shall ensure continuity of such authorization throughout the contract period and shall furnish renewed authorization documents whenever required. Failure to comply shall be treated as a breach of contract

11.8. For avoidance of doubt it is made clear that all the details of O&M of existing plants/equipments/installations are clear and well understood by the Contractor. The work includes supply/installation/replacement of every defective part/component at no extra cost for smooth functioning of all the systems.

B) Scope of work of Old Building

Sl. No.	System	Make	Work
1	DG Sets	Cummins (500KVA X 3nos.)	Operation and comprehensive Maintenance of D.G. Sets including AMF panel, battery charger, cooling tower, exhaust line and other parts associated with DG. The work also includes routine service checks as per schedule.
2	Electrical	Kirloskar, Beacon, ASPL, Sudhir,	Operation and comprehensive maintenance of HV equipment's for 11/ 0.433 KV Sub-station like OCB, Transformers, bus bar and LT equipment's like LT panel, Capacitor panels, distribution panel, lighting, HVAC, Lift and all other panels. Maintenance of entire building lighting system, power points, touch controls etc. for a total floor area more than 1, 62,000 sq. ft. Lighting decoration of building as mentioned in RFP.
3	UPS	30 KVA (02 nos) & 120 KVA (02 nos.) of make Eaton and 10 KVA (02 no.) make BPE	Operation and comprehensive maintenance of UPS along with associated distribution panel and battery bank.
4	CCTV	BOSCH, Samsung, Dlink	Operation and comprehensive maintenance of 128 CCTV cameras including all associated NVR, Rack, Workstation PC, cabling etc.
5	HVAC	Dunham Bush 200 Tr* 2 and Kirloskar 250 TR *I.	Operation and comprehensive Maintenance of Air-conditioning system (HVAC work) having screw type chillers 3*250TR chiller with cooling tower and AHU with control panels at each floors, FCU, CCU, 100 Tr Split AC's, 350*2 Kw Hot generator, Air curtains, scrubbers, kitchen deep freezers, water cooler, desert water cooler.
6	Fire	Agni	Operation and comprehensive maintenance of Fire Protection System comprising of wet riser sprinkler system including main water pipe line , ring line, pressure gauge, hose reel, coupling, electric motor, fire pumps, diesel driven fire engine, firefighting accessories, fire alarm, detector, MCP, hooter in Office Building / Commercial Building having more than 15 meter height
7	WTP, RO, Water Coolers, UV filter	ZeroB, USHA, RO 9000 LPH,	Comprehensive maintenance of Water treatment plant, RO Plant, water Coolers, UV filters and maintaining the plumbing system.
8	Glass Cleaning	Façade Glass	Cleaning of facade glass as per requirement.
9	Horticulture		Comprehensive Day to Day Maintenance of Landscape and Horticulture Work in and outside of Office Building, supply of indoor and outdoor plants, decorative plants and flower decoration on New year, Republic day, Independence day and Diwali.

I. DG Sets: Operation and Comprehensive Maintenance of DG Sets

1.1. The works includes but not limited to following:-

- (i) For stand by supply DG Sets Cummins in the lower basement have been installed and consist of three 500 KVA. All DG set can start on AMF system.
 - (ii) For starting of DG Sets, a 12V/24V batteries of 180*2 Ah is provided with each generator. Battery chargers too have been provided in respective generator panel for charging of battery. Contactor is to maintain the required Ah and change the battery in two years or as per the direction of authority engineer.
 - (iii) 3 Nos. 990 ltrs. Capacity Day tanks for fuel storage of 8 hours of running capacity on full load have been provided near to the DG sets. Diesel for Dg sets will be provided by NHAI after scrutiny of Diesel log book running hours.
 - (iv) Two separate cooling towers have been provided for cooling the circulating water of diesel engines. The maintenance of cooling towers along with changing the fins of cooling tower once in 2 year is within the scope of the contract
 - (v) Operation and Maintenance of these diesel engines has to be undertaken by the Contractor as per instructions contained in the O&M manual of the manufacturers.
 - (vi) Scope of work includes but not limited to all the condenser pumps, butterfly, non-return valves, gate valves all kind of valves, pot strainer, pressure gauges, thermometers, flexible connection of D G sets and pumps. Painting of cooling towers, pipes of cooling tower up to Heat exchanger in the DG room and servicing, cleaning of cooling tower and its motor and cables etc.
 - (vii) Generator panel is equipped with ACB. Siemens/L & T/ Schneider or equivalent make, protection relays and AMF panel.
 - (viii) ACBs are rated to 800, 1000 and 1600 Amps.
MCCBs are rated upto 800 A
 - (ix) ACB servicing to be done by OEM once in 2 years.
 - (x) B check of DG to be done by OEM or OEM authorized agencies three times in two year. C & D Check to be done once in two years by OEM or OEM authorized agencies.
- **Note: The O & M of DG Sets: Operation and Comprehensive Maintenance of DG Sets is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer**

2. **Electrical Systems and Installations:** Operation and Comprehensive Maintenance of 11/0.433KV Substation Internal and External Electrical Installations of the complete building.

2.1 The works includes but not limited to following:-

- i. 2X1200 KVA Air cooled transformers of Kirloskar make 11 KV supply directly converted in 433 Volt supply. Transformer supplied installed and commissioned with suitable protection through relays. Contractor will check relays and safety devices i.e. OCB and Others. Check the properties of oil of OCB and get tested from a reputed lab every year. Painting of transformer in every 2 years.
- ii. HT panel board comprising of oil cooled circuit breakers with in-comer from BSES outgoing to 11/0. 433 KV transformers. Contractor will check the proper functioning of energy meters, safety devices i.e. OCB and Others, alarm, C.T and P.T monthly. Oil of the breaker to be tested as stated above.
- iii. Battery charger completes with 2 Volt, 150 AH capacity batteries (2 Nos.) Day to day maintenance, checking battery voltage in every 3 months and replacement if

voltage found not satisfactory or from two years of installation. As and when required is covered in the scope.

- iv. Insulation Resistance and Applied Voltage Test & checking all the related parameters to be done by OEM or OEM certified agencies during the month of JANUARY every year.

2.2 MDB-Main Distribution Board panels.

- v. Main panel (kiosk panel) - 1 no
- vi. Main Lt panel -1 no
- vii. Power panel - 1 no
- viii. Lighting Panel - 1 No.
- ix. Ups Panel -1 No
- x. MDB PANEL (Emergency Lighting) - 1 no
- xi. Lift Panel - 1 no
- xii. Ventilation Panel (Basement 1 & Basement 2) - 2 nos.
- xiii. UTILITY PANEL - 1 no.
- xiv. Fire Fighting Panel (LOC:-PUMP ROOM) - 1 no
- xv. Plumbing Panel (LOC:-PUMP ROOM) - 1 no
- xvi. Air Conditioning Panel (LOC:- AC PLANT ROOM) - 1 no
- xvii. MDB PanelL :- Power Panel - 1 no.
- xviii. Pressurization Panel (Terrace) - 1 no

There are Air Circuit breakers cubical boards in two sections; to receive the power supply from respective power transformers; and to further connected load at various areas of the NHAI office complex through LT cables.

Necessary protection relays and interlocking system .Supply is well protected through over current short circuit under / over voltages and earth fault relays. ACB'S are rated upto 1600 Amps.

2.3 AMF /EMDB panels

These panels are of the same design as above. These are coupled in two sections exclusively to receive Generator Supply as well as normal supply from MDB panels through respective ACBs. These two sections of panels receive power from generating panels and feed to all EMDB panels through respective tie- breakers.EMD-2 is manually controlled panel with a change over switch of 1250A for switching between normal and D.G. supply.

All these panels are electrically and mechanically interlocked .The system is equipped with relays.

2.5 Capacitor Control Panels

Automatic power factor correction for complete power distribution system is a set of section coupled to in-comer panels separately with cables.Total capacity being 2x350 KVAR i.e. 700 KVAR.

2.5 Sub- station earthing

There are various earth pits installed at north-east area of the complex .Two are for LT equipment 2 being for HV equipment body earthing and 6 for power transformers neutral earthing. Each earth pit is of copper electrode and copper earth strips interconnected with each of the risers.

2.6 Lift panel

Lift panel is installed at lift machine room at terrace to feed electricity supply to 5 nos. of lifts which has got one incomer of 160A MCCB and 5 nos. of outgoing feeders with 63 A

MCCB and bus bars of appropriate size. Periodical maintenance and replacement of parts is in the scope of the Contractor. Changing the lift batteries whenever required as per the direction of Authority engineer.

2.7 Distribution System, internal & external light points

The distribution system consists of the following

Sr. No	Items	Quantity
1	2 x 2 LED Panel Light - 36 W	850
2	2 x 2 LED Panel Light - 45 W	123
3	LED Down Lighter - 10 W	1400
4	LED Down Lighter - 18 W	400
5	LED outdoor Light - 35 W	12
6	LED Downen Lighter 4x3w-6k LED Combo	20
7	10 Watt LED round	81
8	2 X 2 -36 Watt LED	13
9	LED outdoor Light - 35 W	26
10	Street pole light/flood light - LED 110 W	35
11	Bollard light	10
12	Mirror light - LED Bulb - 5 W	54
13	Room Heater (Blower and OFR)	20
14	Hot Case	06
15	Enura Flat Panel LED 9w 6k	20
16	Auditorium Stage LED light - 190 W	32
17	Auditorium Chair light - LED Bulb - 9 W	66
18	Dimmer panel for stage lighting	01
19	Drum light and Ramp light - LED Bulb - 5 W	392
20	Aviation light	02
21	2 x 20 W LED Tube Light	400
22	1 x 20 W LED Tube Light	500
23	LED Bulb for 5 Ligts - 7 W	30
24	Table lamps	15
25	Exhaust Fans (single phase)	58
26	Pedestal fans	50
27	Ceiling Fans	11
38	Bulk head light	60
29	Paper Shredder	5
30	Board room strip light	1
31	D.B with MCBs of 6-32 A and E-100 of 40 A	As per site
32	Extension Board 5A/15A Iron type	100

Note: The above mentioned light fittings or any other luminaries' fittings that are not covered in the above list shall be maintained and replaced by the contractor against fused LED bulbs and lights.

2.8 Cables from 1.5 sq.mm to 630 sq.mm as installed in the building (regular maintenance and replacement of defective cables as required will be in the Contractors scope)

2.9 Decoration of NHAI Building by lighting and flag from all the sides and boundary wall on the eve of 15th Aug, 26th Jan & by lighting on NHAI Day & Diwali will be under the scope of the contractor. As per the direction of authority engineer. On 15th Aug, 26th Jan tricolor lighting theme is to be used and building is to be decorated from 3 side's i.e. front and adjacent 2 sides along with lights on entry side including guard room and adjacent green area. On NHAI day and Diwali golden colour lights is to be decorated from 3 side's i.e. front and adjacent 2 sides along with multicolor lights at entry and adjacent green area. Lights with good lumens is to be used.

2.10. Proper power supply to the boom barrier and baggage inspection system to be maintained by the contractor. In case of any fault in the system the same is to be repaired by the contractor.

2.11 Servicing of panel to be done by OEM or OEM authorized agency once in a year.

- **Note:** The O & M of **Electrical Systems and Installations** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

3. **UPS SYSTEM Work:**

Operation and Maintenance of UPS system.

The works includes but not limited to following:-

3.1 **UPS Details**

S. No.	Make/ Brand Name	Rating (KVA)	Qty
1	Eaton	120	2
2	Eaton	30	2
3	BPEE	10	2

There is 2*120KVA, 2*30KVA UPS system situated at basement 2 of the building and 2* KVA UPS situated in Basement 1. Each UPS is connected to a battery bank having 32*200 ah Battery each in 120KVA ups 40*150aH battery in each 30 KVA UPS and 20*42aH battery in 10KVA UPS. The contractor shall provide maintenance service to keep the UPS in good and efficient working condition covered under this contract, the contractor should provide preventive and corrective maintenance of UPS and should get verified from authorized official of the concerned group. He should also carry out necessary repairs and provide SUITABLE replacement of (equivalent or higher configuration) of defective part(s) / equipment's as required.

Maintenance work includes noting down Battery parameters, Online ups parameters, checking tightness of clamps every month and submitting the report along with the bill quarterly. Thermal testing of batteries to be done once in a year. All the parameters of UPS as specified by the OEM (to be tested monthly) is to be tested and submitted to the engineer in charge monthly. Maintenance of UPS is to be done by OEM or OEM authorized agencies only.

The contractor is to change the SMF batteries of all the battery bank within the first 6 months of the tender. Preferred make of the batteries will be Exide and quanta. No complete shutdown of the system will be allowed, batteries are to be changed in systematic manner one bank at a time and can only be done during weekends.

In case of any fault in the UPS agency has to provide a standby UPS till the time the existing UPS gets repaired. If in any case the UPS is declared as dead the same has to be replaced by the agency undertaking maintenance.

Agency/Firm should provide 1 no. 2 TR Split AC to be kept as Standby as a preventive measure in order to maintain the temperature of the UPS room within 15 days of award of Contract.

- **Note:** The O & M of **UPS system** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

4. **CCTV System:** The entire operation and maintenance of CCTV will be under the scope of the contractor. The CCTV system consists of:

- i) 2.0 MP Indoor/outdoor IR IP Dome Camera - 103 Nos.
- ii) 2.0 MP Indoor/outdoor IR IP Bullet Camera - 22 Nos.
- iii) 2.0 MP 360 Degree PTZ IR Camera - 2 Nos.

iv)	Network recorder to a maximum of 32 IP cameras	- 4 Nos.
v)	6 TB Surveillance Hard Disk make Seagate	- 16 Nos.
vi)	Layer 2 Access with POE 24 port + 4 SFP	- 12 Nos.
vii)	Cat 6 24 AWG Cable (Approx.)	- 6000 Mtr.
viii)	Fibre Cable 12 core single mode (approx.)	- 1000 Mtr.
ix)	SFP Transceiver module	- 20 Nos.
x)	Network rack fully loaded 9U X 550mm depth	- 10 Nos.
xi)	Network Rack Fully loaded 24U X 1000mm depth	- 1 Nos.
xii)	3 Core 2.5sqmm Power Cord-Flexible Electric Cable for PTZ	- 1000 Mtr
xiii)	Optical fibre patch chord SCSM duplex	- 40 Nos.
xiv)	Fibre Optic patch panel 12 port SCSM	- 10 Nos.
xv)	Cat6 patch panel 24 port	- 10 Nos.
xvi)	Pigtail	- 60 Nos.
xvii)	10th Generation Intel® Core™ i7 processor GB DDR4-2933 MHz RAM (1X 16 GB) 1 TB 7200 rpm SATA HDDIntel® UHD Graphics 630 with 20 Inch screen, keyboard and mouse for local client Server with workstation.	- 5 Nos.
xviii)	Display	- 10 Nos.

Maintenance of rack, workstation, cables and all related accessories will be under the scope of the contractor. Contractor is to get the system checked by OEM or OEM authorized agencies quarterly and submit the report along with bill. In no case shutdown of system for more than 4 hours will be allowed. All software up gradation and necessary hardware will be under the scope of comprehensive maintenance. License and complete change of machinery when required due to compatibility issue will be provided by NHAI.

- **Note:** The O & M of **CCTV system** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

5. HVAC Work: Operation and Comprehensive Maintenance of HVAC system.

5.1.1 The works includes but not limited to following:-

- 2*200 TR each screw type, water chilling machines of Dunham-Bush make.
- 1*250 TR Screw type, water chilling machines of Kirloskar make.
- Three Nos. Chilled water re-circulation pump sets.
- Three Nos. Condenser water re-circulation pump sets.
- Three Nos. forced draft Cooling Towers of 200 TR each and related pipes & valves.
- Hot water generator - 2 Nos. (Boiler) Make-Vaistino (solid state buzzer).
- Air Handling Units - 24 Nos.
- Fan Coil Units - 10 Nos.
- Basement Ventilation Fans - 2 Nos.
- Lobby Pressurization Fans - 2 Nos.

- xi. Electrical Panel for Main equipment, AHUs, ventilation fans and Cooling Towers
- xii. Exhaust fans, Three Phase - 5 Nos., Single Phase - 5 Nos.
- xiii. Ventilation fans - 4 Nos. and Air Curtains - 1 No.
- xiv. Water coolers unit - 9 nos
- xv. All pipe line non insulated & insulate and valves in the condenser and chiller line (repair and replacement)
- xvi. Split units Voltas make 2.0 TR X 15 Nos and 1.5 TR X 9 Nos installed in NHAI HQ.
- xvii. Toshiba make Cassette type 4.0 TR X 3 Nos, 3.5 TR X 2 Nos, 3.0 TR X 2 Nos, installed in NHAI HQ.
- xviii. LG make Cassette type 4.0 TR X 2 Nos and 2.5 TR X 1 Nos, installed in NHAI HQ
- xix. Hitachi Make cassette type 4.0 TR x 2 Nos. installed in Server Room at 3rd Floor, NHAI, HQ.

5.1.2 The preventive maintenance of Chiller Plant, AHU, Hot Water Generators, Split & Cassette ACs, includes but not limited to following:

- i. Cleaning up of unit & Air filter of AC's and AHU.
- ii. Replacing/changing Air Filters of AHU if damaged or choked as per the direction of Authority Engineer.
- iii. Cleaning of cooling coil & condenser coil and changing of AHU coil when required.
- iv. Checking of driver belt & replace if necessary.
- v. Lubrication of bearings if necessary.
- vi. Checking up of operating of unit, controller & condenser.
- vii. Combing of fins of condenser & evaporate coil if necessary.
- viii. Replacing fins of cooling tower once in two year.
- ix. Measurement of current of all individual equipment's monthly and maintaining a record of the same and getting it certified from the authority engineer.
- x. Checking of all overload relay settings.
- xi. Checking of all electrical components for loose connections & tighten if necessary.
- xii. Checking of refrigeration piping of gas leakage.
- xiii. Checking of pulleys, motor mounts, and condenser fan mounts etc.
- xiv. Checking of panel insulation, chilled water pipeline insulation and replacing the same if found damaged as per the direction of Authority Engineer.
- xv. Checking the Chiller plant pipe line, Balancing valve, Butterfly valve, cooling towers nozzles etc. at regular intervals and replacing the same when found damaged as per the direction of authority engineer.
- xvi. De-scaling of chiller plant, panel synchronization of chiller and Hot water generators of HVAC system by OEM or OEM certified agencies during the month of JANUARY every year.
- xvii. Servicing of all Split and cassette AC's every month.
- xviii. Changing of Split and Cassette ac coil if required.
- xix. Providing AC remote when required as per the direction of Authority Engineer.

- **Note:** The O & M of HVAC plant is in the scope of the contractor and will be liable for replacement of any other parts not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

6. Fire protection Work: Operation and Comprehensive Maintenance of Fire protection Work.

6.1 Description of Work: The works includes but not limited to following:-

- (i) This is a six-story building having two basements. Lower basement is utilized for building services, parking and upper basement is used as parking.
- (j) B check of Fire engine By OEM or OEM certified agencies once in a year.

- (k) Checking Heat, Smoke detectors & AFD Panels every week and replacing the same if found damaged/ nonfunctional.
- (l) Front portion of ground floor is utilized for reception with right side wing as training room and Guesthouse.
- (m) The building is a fine example of western architecture with white / Red Sand stone cladding on the exterior face of the building with matching colour glass curtain wall. The finishes are of high standard as described in the following sections.
- (n) Contractor shall be required to operate and maintain the firefighting equipment's provided in NHAI corporate building through routine and periodic operation and maintenance.
- (o) Contractor shall incorporate and adopt latest and efficient technology for operation and maintenance of the premises as required for any modern intelligent office buildings.
- (p) In this comprehensive nature of operation and maintenance work contractor would be required to take all such actions and do all such things like providing qualified staff, structured organization, adopting measures and standards, proper documentation, monitoring and execution procedures comprising of regular inspections.

6.2 The works includes but not limited to following:-

(iii) Hydrant System

- a)** Servicing, Repairing, replacing of defective item and operation of a main electric pump of 2850 LPM at 70 m Head and 75 HP with pressure gauge, safety release valve, drain, on - return valve, sluice valve on both suction and delivery side of the pump.
- b)** Servicing Repairing,(replacing of defective item) and operation of Standby diesel pump of 2850LPM at 70 m head and 90 HP. with pressure gauge, safety release valve, drain valve, on -return valve ,sluice valve on both suction and delivery side of the pump and 2 nos. of 12V 150Ah Batteries for starting of Diesel pump.
- c)** Servicing, Repairing, replacing of defective item and operation of 2nos.of pressurization (jockey) pump of 250LPM at 70 m head and 15 HP. with pressure gauge, safety release valve, drain, on -return valve ,sluice valve on both suction and delivery side of the pump.
- d)** Servicing, Repairing, replacing of defective item and operation of sprinkler pump of 1800 LPM at 70 m head and 50 HP. with pressure gauge, safety release valve, drain, on - return valve ,sluice valve on both suction and delivery side of the pump.
- e)** Servicing Repairing replacing of defective item and operation of cubical type floor mounted power cum Control panel with 400 A TPN MCCB, relays, contactors, bus bar, indicating lamps, battery charger with provision for trickle and boost chargers. Fuses, etc. required for starting of hydrant pump, diesel pump, sprinkler and jockey pumps.
- f)** Pressure switches - **6nos.**
- g)** 250 mm dia. 1.5 high air vessel and air release valve- **4nos.**
- h)** 600 x 600 x 6 mm copper plate earthing-**2nos.**
- i)** 3x70 sq. mm and 3x 10sq.mm Al .conductor-**75 m**

(iv) Pipes and Accessories

Contractor is to maintain the hydrant system, upkeep of hydrant and sprinkler pipes with its accessories flanges, tees, nuts, bolts, rubber gasket, clamps, supports etc. Painting of pipes with two coats of post office red enamel paint is to be done once in a year or as per requirement.

Below are the sizes of different pipes their approximate length and accessories:-

I. Pipes

- i. 250 mm dia - 12 m
- ii. 200mm dia - 12 m
- iii. 3.3 150 mm dia - 600 m
- iv. 3.4 100 mm dia - 300 m
- v. 3.5 80 mm dia - 200 m
- vi. 3.6 65 mm dia - 50 m
- vii. 3.7 50mm dia - 210 m
- viii. 3.8 40 mm dia - 300m
- ix. 3.9 32 mm dia - 130m
- x. 3.10 25mm dia - 1059 m
2. 63 mm gun metal hydrant valves for risers and yard hydrant.-30 nos.
3. RRL hose pipe with coupling.-59nos.
4. Gun metal branch pipe-30
5. Fire hose reel 20
6. Fire brigade inlet 3-way -2no.
7. Fire brigade inlet 4-way for underground tank-1no.
8. Fire brigade suction coupling-1no
9. sluice valve 250mm dia = 2nos
10. sluice valve 200mm dia = 1nos
11. sluice valve 150mm dia = 8nos
12. sluice valve 100mm dia = 1nos
13. non-return valve 150mm dia = 2nos
14. non-return valve 100mm dia = 1no
15. butter fly valve 150mm =7 nos.
16. butter fly valve 100mm dia = 8nos
17. Weather Proof hose cabinet =30Nos.
18. Sprinkler head in lower basement, upper basement, canteen and auditorium:-
- 18.1 pendent type=85 nos
- 18.2 upright type=360 nos
- 18.3 side wall type=30 nos
- 18.4 curtain spray nozzle=53 nos
- 18.5 Flow switch for sprinkler=6 nos.
19. Motorized valve =1 set
20. Smoke detector ionization type=471 nos
21. Smoke detector photo electrical= 8nos.
22. Rate of rise heat detector = 390 nos.
23. Manual call box = 53 nos.
24. Hooter with LMT = 54 nos.
25. Duct casting unit detector for AHUs = 24 nos.
26. Response indicator with double LED = 506 Nos.
27. Fire alarm main control panel = 1 set
(With relay, batteries rectifier etc. - PCD fire alarm panel)
28. Local control panel on each floor = 6
nos (All relays etc. - PCD fire alarm panel)
29. CO2 flooding system panel = 1 set.
30. CO2 flooding system unit = 2
set (Battery of 2 cylinders each)

- 31. Public address system = 1 set
- 32. Music system panel for lifts with 4 speakers at lift roof top = 1 set.
- 33. Exit Signage = 83
- 34. Water type CO2 = 60 nos.
- 35. Dry chemical powder fire extinguisher = 25 nos.
- 36. CO2 4.5 kg Fire extinguisher = 30 nos.
- 37. ABC fire extinguisher 5 kg = 10
- Note: The O & M of Fire Protection System is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer

7. Water Treatment Plant: Operation and Comprehensive Maintenance of water treatment plant, pumps and associated Work.

7.1. The works includes but not limited to following:-

- (i) Reverse osmosis based water treatment plant 9000 LPH capacity
With its control and electrical panel. 1 unit
- (ii) 10 HP HVAC make up water supply pumps (Lubi make 52M head
, 225LPM) with electrical panel 2 Nos.
- (iii) 7.5 HP drinking make up water supply pumps (CRK make 52M
head, 180LPM) with electrical panel 2 Nos.
- (iv) Drainage pump/ submersible pump installed inside Sump in
basement 2HP (Lubi make) with its electrical panel 8 Nos.
- (v) Cleaning and disinfections of Overhead
tanks after
Every three months
 - a) 20000L 3 Nos.
 - b) 10000L 4 Nos.
 - c) 500L 1 Nos.
 - d) 5000L in upper basement 1 No.
- (vii) Cleaning and disinfections of underground tanks every three months
 - a) Fire tank 150000 L 1 No.
 - b) Domestic and soft water tank 45000 L 3 Nos.
- (viii) Cleaning of sump well every three months 6 Nos.
- (ix) At all times the RO water shall meet the requirement of IS:10500:2012. The testing of water quality from NABL accredited laboratory will be as directed by Engineer but at least once in a month by the bidder.
- (x) In order to keep the system normal the contractor will supply from time to time consumables such as indicating lamps, chemicals, filters etc.
- (xi) Any breakdown in RO Plant leading to disruption of water supply to the building be attended by the contractor promptly an extra staff if require to arranged by the contractor and nothing extra shall be payable to him on this account.
- (xii) The contractor shall maintain as separate log book for the vital running parameters of the plant as per sample approved by the EIC.
- (xiii) The contractor need to change the membrane once in two year and micro filter in every quarter of RO and replace the media filter of WTP once in 2 year. Replacement of Media filter includes changing sand media, granular, Resin of softener.

- (xiv) Cleaning and comprehensive maintenance of water coolers along with UV filters fitted on each floor. The filters of UV filter to be changed in each quarter.

*Note: The O & M of **Water Treatment Plant, RO, Water Coolers and UV Filters** is in the scope of the contractor and will be liable for replacement of any other parts/work not listed above on his cost for the smooth functioning of the system. As per the direction of Authority Engineer.*

8. Cleaning of Glass Curtain (Facade)

8.1. Approx. area of glass curtain cleaning for whole building is 2210.96 SQM.

(a) Cleaning of Glass Curtain glazing at four side of building once in a quarter of area approx. 2210.96 SQM.

8.2 Upon completion of work all the areas should be cleaned. All floors, surface, getting dirty due to the contractors work shall be cleaned down in a manner which will render the work acceptable to the employer. All rubbish/ Malba due to any reasons shall be removed daily from the site and be disposed outside the building.

8.3 Contractor shall arrange all types of machinery, hanging arrangement trolley, spider system, safety rope and other items required for execution of work without any extra cost to NHAI.

8.4 Contractor shall ensure the safety of workers deployed for the curtain cleaning work to avoid injury to workers and occupant of the building at its own cost.

9. Maintenance of landscape/ Horticulture Works: Operation and Maintenance of landscape/ horticulture features.

9.1. The works includes but not limited to following:-

- (i) The scope of work of the contract covers all landscape maintenance work in respect of existing garden features which includes, potted plants, lawns, topiary and perennial beds, rockers, creepers and climbers, shrubs, trees, plantation and then maintenance of ornamental plants and removal of rank vegetation and bushes etc. within a planted area.
- (ii) Contractor is to Provide 100 nos. flower plants (seasonal) of height minimum 30 cm in each month. The provided plants are to be kept in the reception area and entrance gate of the building. Decoration of entrance by flower inside mud pots is in the scope of the bidder.
- (iii) Contractor is to Provide 50 nos. of Poinsettia plant in each winter season and the premises should be filled with such plants during winter.
- (iv) Contractor should maintain the reception area, atrium area, lift lobby well decorated with flowers, Indoor potted plants of different colour. Contractor is to provide 50 Nos. of such plant every month.
- (v) Contractor should possess all the tools for proper maintenance of horticulture like mower machine, Petrol/Electric operated grass cutting machine, Garden Hand Tools, Axe, Dab, Chopping Knife, Pruning Secateurs, Hedge Shear, water can etc. as directed by the engineer in charge.
- (vi) It will be under the scope of the contractor to decorate the building with flower and petals, rangoli and other decorative items on the eve of Republic day, Independence Day

and Diwali.

- (vii) Maintenance / replacement of seasonal / ornamental indoor and outdoor plants: The agency shall be responsible for upkeep of quality seasonal / ornamental indoor and outdoor potted fresh and healthy plants, cleaning, watering, stacking, spraying, staging, and display, manuring etc. as required / instructed by the Engineer.

Indoor potted plants of height 3 ft. to 4 ft.	Monstera, money plant with broad leaf (epipremnum aureum), synogonium, Philodendron, scindapsus, croton, araucaria, areca palm, asparagus, fern, phoenix rbilini, raphis, excelsa, ficus buish king, aralia, nolina, dracaena, cycas, dieffenbachia, furcrea, scheffla etc. with, moss-stick as per requirement.	574 nos.	Any short fall of existing inventory shall be
Outdoor potted plants of height 1.5 ft. to 3 ft.	Well grown annuals flowers petunia hybrid, myosotis alpestris, marigold, rose, hibiscus, jasminum, celosia, cristata etc. in different seasons with stick as per requirement.	1250 nos.	supply and providing fresh potted plants

10. Schedule of General Maintenance

10.1 DG Sets operation

10.1.1 DG Sets need the following precautions for taking idle machine into operation:-

- i. The alignment of the set as a whole may be made as per manufacturer's manual.
- ii. Check the intake air and oil circuit continuity.
- iii. Ensure none of the moving part is rusty and proper greasing is done.
- iv. Check Heat exchanger as also the water circulation is proper before start.
- v. Check circulating fan movement.
- vi. Proper battery voltage and necessary amperage for start. To set throttle in idle position.
- vii. The position of pre heater for engine warm up.
- viii. Finally the engine exhaust (out let path is OK)
- ix. Health check of DG sets to determine its efficiency, Performance, fuel consumption.
- x. The following needs contractor's attention while the engine is in operation:-
 - Mobile Oil grading / viscosity minimum limit: The manual recommends viscosity value 1.4-5.8 @ 100 F as also the use of multi grade oil.
 - Charge hydraulic governor oil of the same grade as engine oil

- Corrosion checking: Check coolant with kit specified in manufacturer's manual check chromate concentration test, thus adjusting coolant to specifications. (Chromate concentration is 3500 ppm, ph value 8.5 to 10.5)
- Change zinc heat exchanger plug if found eroded due to raw water circulated through heat exchanger.
- Clean complete oil bath air cleaner.

10.1.2 Likely faults which have to be checked daily

- Low lubricating oil pressure.
- Low power / (check exciter, speed of engine etc.)
- Abnormal water or oil temperature.
- Unusual engine noise.
- Excessive smoke.
- Excessive use of coolant, fuel or lubricating oil.

Any leaks, like fuel, coolant or lubricating oil.

10.2 Internal and External electrical system including Sub station

10.2.1 The schedule of maintenance of sub-station & connected equipment's

- The contractor shall maintain the 11 KV switch-gears as per manufacturer's maintenance manual.
- The Contractor shall check the performance of protection system at regular intervals periodically.
- The Contractor shall maintain the batteries, battery charger, and electrolytes and check its specific gravity and hydrometer fixed all the time in the solution. Contractor to replace defective or weak batteries of DG Sets and HT panel.
- A similar maintenance is required for transformer maintenance with respect to manufacturer's manual.
- While cleaning the bus-ducts and going through LT cable distribution system, he shall check the bus -bar, cable, and termination and earth connections as well.
- There are more than 25 pits for earthing system the contractor shall check once after 6 months the earth results with respect to its resistance value and its continuity etc.
- Air filters are to be replaced every alternate B-check i.e. once in a year Failure to do this will attract penalty, as per the provisions contained in Clause 4.2 of Section V: Special Conditions of Contract.

10.2.2 Maintenance of bus-ducts, generator control panels and distribution system

- Cleaning the bus -ducts with blower pressure and painting the same if required at regular intervals.

- ii. Checking the feeders switches for preventive maintenance as per the manufacturer's instructions.
- iii. Checking the control circuit wirings at interval of six months.
- iv. Checking the relays and adjustment if required as per the loading of the feeders at intervals of six months.
- v. ACB contacts, MCB contacts and switch contact are to be checked and cleaned of carbon at regular intervals.
- vi. Checking the interlocking system and demonstrating the same to staff.
- vii. All external lighting has to be maintained in respect of replacement of fused lamps cleaning of lighting fixtures, and painting of poles etc. including earthing maintenance, cable maintenance and distribution pillar boxes.
- viii. Regarding internal power distribution system the contractor shall maintain the rising mains, adopter boxes and sub-distribution boards located in each case.
- ix. He has to check at regular intervals the bus-bar connections, cable connections, MCB connections and tighten the same.
- x. Cleaning the distribution boards, lighting fixtures fans, at regular intervals.
- xi. Replacing the burnt-out fuses / (MCB) switches of appropriate capacity within a short notice.
- xii. Replacing the burnt -out fluorescent lamps, bulbs, switches, sockets, plug tops etc. as & when required.
- xiii. Small additions and alterations wherever required to be
- xiv. Painting of SDB's rising mains, FDB's at regular intervals.
- xv. Keeping the electric rooms neat and clean.
- xvi. keeping the electric cable trays in order and tighten the hangers as required.
- xvii. Painting the cable trays once a year.
- xviii. Checking the ELCB operation once a month especially in rainy season months.
- xix. Occasional checking of CT's with respect to primary secondary winding results.
Checking the operation of electrically operated rolling shutters installed in basement and greasing the guide rails/channel every 15 days, check its switch motor, spring and attached spring and its accessories at regular interval of time and replace the defective part, if any.
- xx. Servicing of cooling tower, its motor, cleaning of its nozzle, checking of sprinkling of water whether it is uniform or not, every six months. Replacement of parts as may be necessary.
- xxi. Changing of capacitor of capacitor bank.

10.3 **UPS SYSTEM Work:** Operation and Maintenance of UPS system.

10.3.1 The works includes but not limited to following:-

The contractor shall provide maintenance service to keep the UPS in good and efficient working condition covered under this contract, the contractor should provide preventive and corrective maintenance of UPS and should get verified from authorized official of the concerned group. He should also carry out necessary repairs and provide SUITABLE replacement of (equivalent or higher configuration) of defective part(s) / equipments as required.

Maintenance work includes noting down Battery parameters, Online ups parameters, checking tightness of clamps every month and changing batteries if batteries are damaged or not giving the desired volt

UPS Details

S. No.	Make/ Brand Name	Rating (KVA)	
1	Eaton	120	
2	Eaton	30	
3	BPEE	20	

All Batteries are to be tested for its individual voltage during each Preventive Maintenance once in 6 months by competitive agency.

All Battery banks are to be tested for its full Load capacity.

10.3.2 The preventive maintenance of UPS System includes but not limited to the following:-

- (a) Checking of tightness of all power & control connections
- (b) Charger Settings
- (c) Inverter Settings
- (d) Rectifier settings
- (e) Battery bank health check including impedance check once in 6 months.
- (f) Mode operation check
- (g) Check of all indications & cooling fans
- (h) Calibration/Settings of UPS parameters whenever required
- (i) Check all the indicators and Fuse.
- (j) Submission of Call sheets & reports
- (k) Changing capacitor of UPS

10.3.3 Regular equipment testing should be part of a facility's UPS maintenance schedule. Such a schedule might include the following elements:-

- (i) **Quarterly:** Visually inspect equipment for loose connections, burned insulation or any other signs of wear.
- (ii) **Semiannually:** Visually check for liquid contamination from batteries and capacitors.
 - Clean and vacuum UPS equipment enclosures.
 - Check HVAC equipment and performance related to temperature and humidity. UPS transfer switches, circuit breakers and maintenance bypasses
- (ii) **Annually:** Conduct thermal scans on electrical connections to ensure all are tight and not generating heat, which is the first and sometimes only indication of a problem. A non-evasive diagnostic tool helps technicians identify hot spots invisible to the human eye.

Technicians should re-torque if thermal scan provides evidence of a loose connection.

- Provide a complete operational test of the system, including a monitored battery-rundown test to determine if any battery strings or cells are near the end of their useful lives

10.3.4 Regular Test

(i) A generator is part of the building's emergency-power system and feeds the UPS, it also will need to be tested monthly or OEM schedule whichever is earlier.

(ii) A UPS typically is sized to carry the load for a short period of time. Longer outages require backup-power generation to maintain critical services. Each facility is unique, and Contractor shall develop a maintenance schedule to suit site's specific needs.

(iii) Any other test as required/ directed by the Engineer Shall be carried out by the Contractor it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHA

10.4 CCTV system

The preventive maintenance of CCTV System includes but not limited to the following:-

- (a) Checking of tightness of all power & control connections
- (b) Mode operation check
- (c) Check all the Racks, Controllers and power units.
- (d) Proper Functioning of 128 CCTV Cameras installed.
- (e) Maintenance and checking of around 8,000 mts. Cable
- (f) Monthly visit of CCTV technician and checking the health of the system.

10.5 HVAC system & connected equipment's

10.5.1 The Contractor shall maintain the air conditioning plant as per manufacturer's maintenance manual. (Chiller machine, chiller pump, condenser pump and related equipment and accessories).

10.5.2 The Contractor shall check the performance of protection system at regular intervals. BMS system should be checked at regular intervals.

10.5.3 The Contractor shall maintain the log books and keep all the records of faults and alarms. The contractor will also maintain a register for recording Temperatures at various places and floors.

10.5.4 A similar maintenance is required for all split units with respect to manufacturer's manual.

10.5.5 While cleaning the filters regularly, contractor should check differential pressure switch and connections to switches as well.

10.5.6 Cleaning the bus ducts with blower pressure and painting the same if required at regular intervals.

10.5.7 Checking the feeder switches for preventive maintenance as per the manufacturer's instructions.

10.5.8 Checking the control circuit wirings at regular intervals.

10.5.9 Checking the relays and adjustment if required as per the loading of the feeders at regular intervals.

- 10.5.10 MCCB contacts, MCB contacts, Relays and Switch contacts are to be checked and cleaned of carbon at regular intervals (once in six months)
- 10.5.11 Checking the interlocking and safety system and demonstrating the same to staff (once in a six months).
- 10.5.12 Checking at regular intervals the bus-bar connections, cable connections, MCB connections and tighten the same (Every Quarterly)
- 10.5.13 Replacing the burnt-out fuses / (MCB) switches of appropriate capacity within a short notice (as and when required)
- 10.5.14 Cleaning / Painting of pipes and cooling towers etc. at regular intervals (once in a year or earlier if required for proper maintenance). Cleaning / servicing of all valves and strainers once a year.
- 10.5.15 Keeping the plant rooms neat and clean.
- 10.5.16 Cleaning and greasing of all motors, at regular intervals.
- 10.5.17 Servicing of all the split and window A/Cs once in every quarter is mandatory. A record is to be maintained for the same for all the units.
- 10.5.18 Regular visit of Sr. Engineer as per schedule is necessary. A record is to be maintained to this effect.

10.6 Fire Protection Equipments

- 10.6.1 The contractor shall maintain all the pumps as per manufacture's maintenance manual.
- 10.6.2 He shall check the performance of protection system daily.
- 10.6.3 He shall maintain the log books and keep all the records of fault and alarm.
- 10.6.4 Cleaning the feeder's switches for preventive maintenance as per manufacturer's instructions
- 10.6.5 Checking the control wiring and wiring of detectors at local control panel at each floor daily.
- 10.6.6 Checking the operation of main fire alarm panel at ground floor.
- 10.6.7 Checking the relays and adjustment if required.
- 10.6.8 Checking of hydrant line /sprinkler line pressure. Hydrant pressure is to be maintained constant at 7 kg/cm².
- 10.6.9 Contractor shall check the smooth functioning of all type of detectors, response indicators, manual call box, and hooter cum speaker, duct casting unit, PA panel and lift music panel, CO2panel daily.
- 10.6.10 Contractor shall check the smooth functioning of all type of valves i.e. ball valves, butter fly valves, pressure relief valves, non-return valves, gun metal valves at regular interval of time and change the same if found faulty as per the decision of authority Engineer.
- 10.6.11 Contractor shall check the smooth functioning of motorized valve, flow switch and cleaning of curtain spray nozzle quarterly (at every 3 months interval) and change the same if

found faulty as per the decision of authority Engineer..

10.6.12 Contractor shall check the functioning of CO2 flooding system its control panel and all the portable fire extinguisher regularly and refill the CO2 Cylinder once in 2 years.

10.6.13 Contractor shall check the functioning of entire yard hydrant system weekly.

10.7 WTP and RO:

Contractor shall check the functioning of entire WTP and RO system. Changing of membrane. Micron filter, sand media, maintenance of all the related pumps and piping, tank cleaning etc. is to be understood to be covered in the scope of work and maintenance is to be carried out as per schedule.

10.8 Horticulture

The maintenance shall include watering, manuring, fertilizing plant protection for pests and diseases, sweeping, weeding, mowing and disposal of garden refuse, cultivation and cutting of edges, pruning and clipping of hedges, etc and stacking, preparation and planting of seasonal flowers, minor repair works and all other landscape operations necessary for the proper growth for garden features and maintaining them in proper standard of maintenance as per specification stipulated in CPWD DSR 2016 for horticulture works. This includes but is not limited to the following:-

(a) Cultivation:-

Regular weeding, cutting edges of lawn and flower beds, ground covers, making basins of tree pits and hoeing to be done periodically.

(b) Seasonal and Ornamental Flower:-

The existing flower beds to be maintained with minor alternation (if required) by planting summer and winter seasonal flower.

(c) New plantation:-

Supply and planting of ornamental plants in pots and in the campus. The liability of the contractor for the plantation will be for the complete duration of the contract and any mortality will have to be replaced by the contractor at this cost immediately on its occurrence.

(d) Repair and replacement:-

The contractor shall carry out all minor repairs to garden features damaged due to digging in the area, natural calamity or any other reason.

(e) Irrigation:-

Daily adequate watering (except Sunday) of all garden features with hose pipe or sprinkler system in different areas should be done regularly. Contractor will make his own arrangement of hose pipe and sprinkler in adequate quantities. All the lawns and garden area should be irrigated by sprinkler as directed by the officer in-charge. The contractor must ensure that unnecessary wastage of water does not occur at any time and must protect the irrigation fitting/hydrant etc. Any damage to existing irrigation system due to negligence of his staff will have to be made good by the contractor at his own cost. However water shall be made available free of cost by NHAI.

(f) Fertilizer:-

Manure and Fertilizers specified shall be applied by the contractor as required and under the

direction of the officer-in-charge. Manure & fertilizer shall be provided by the contractor at his own cost.

(g) Plant Protection:-

Periodic checks to be carried out for the pests and diseases. In the event of infestation prompt spraying of appropriate pesticides, insecticides and fungicides will be required for eradication of the same. Pesticides, insecticides and fungicides will be supplied by the contractor.

(h) Sweeping:-

No grass or refuse or garbage to be left overnight in the garden areas and the campus.

(i) Mowing:-

Lawn mowing to take place at regular interval of 10-15 days in a month or as per direction of officer- in-charge to given neat, clean, tidy and even look.

(j) Pruning:-

Clipping and training of hedges and edges, trimming of shrub plants, trees, creepers and bougainvillea's etc at regular intervals, stacking of plants whenever and wherever required.

(k) Precautionary Measure:-

The contractor must take all necessary precautions for carrying out the above operations in the event of any injury/accident to any person (s) the responsibility and liability will be entirely on the contractor.

Note:

- i. The above details of scope of work are indicative only, it includes operation and maintenance of all the services/ installations/ equipments/ components etc. against the sub heads brought out above in clause 1. Any other item/ equipment/ tool/ testing/ replacement/ accessory/ components/ fitting/ fixture/ service/ overhauling/ valves/ piping/ fittings/ wires/ cables/ choke/ starter/ holder/ any other electrical fittings etc. not mentioned above will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- ii. Contractor will remove all the old/ used/waste/consumable from site within 01 day and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- iii. All the scheduled maintenance routines falling due, during the contract period are to be carried out by the Contractor as recommended by the manufacturer/ its authorized service representative to the satisfaction of the Engineer and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- iv. C-check and D-Check of DG Sets and alternators and Fire Engine and special maintenance as per requirement will be carried out by the Contractor within the 15 days period from date of commencement and and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- v. Refilling of all portable fire extinguishers and cylinders shall be done as per requirement/ specification or once in a year whichever is earlier and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI..

- vi. Contractor will arrange fire drills and training program for NHAI employees and to brief regarding evacuation plan in case of fire, teach regarding necessary precaution to be taken in case fire, operation of fire extinguisher etc. at least once every three (03) months and it will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- vii. Providing sufficient tools for plumbing and carpentry maintenance work like wrenches, Pliers, screw drivers, Allen Key, hammer-drill machine, chiesel, shaw or any other item that may be required for proper O&M of the Building. Also consumables like adhesive, tape, union, joints, pipe up to 5 mtr (PVC, UPVC), tap phase, tap washer, urinal battery, urinal battery box, WC connector, washer, Screw, Gitti, fastner, nails, is to be provide. Stock of the same is to be maintained at site.
- viii. Stock register of material as indicated in RFP and due to which operation may be hampered including Electrical, Plumbing, Carpentry, horticulture is to be maintained and verified by the authority engineer. In no case any system is to be closed without the consent of authority engineer in case of un-availability of material.
- ix. Stationary items with computer with printer at each building is to be provided for smooth work culture.
- x. AMC cum specialized services for all specialized equipment, including DG sets, HVAC systems, UPS systems, HT installations, and CCTV systems, shall be executed exclusively by the OEM or its immediate authorized service provider holding a valid Manufacturer's Authorization Form (MAF) submitted with the bid. The contractor shall ensure continuity of such authorization throughout the contract period and shall furnish renewed authorization documents whenever required. Failure to comply shall be treated as a breach of contract.
- xi. Any OEM service or visit is to be intimated to Authority engineer and should be done under his guidance. OEM reports are to be signed by authority engineer or his deputed representative.

SECTION-VII TECHNICAL SPECIFICATIONS

SECTION-VII

Technical specifications

- 1.1** The Contractor shall carryout the O&M works in accordance with the documents forming part of the Contract. For avoidance of doubt it is made clear that repair/ replacement of items for the subject work will be of the same make, model, type and specification as being repaired/ replaced.
- 1.2** The O&M works shall be carried out in accordance with the manual and procedure provided by the manufacturer of the Equipment / Installation.
- 1.3** All spares/replacements in O&M shall be procured from the OEM/authorized vendors of the manufacturing firm/company.
- 1.4** All consumable items or material to be used for shall be delivered to the site in original unopened containers with the manufacturer brand and name clearly marked on it.
- 1.5** All the materials shall conform to latest rules regulation specification, BIS (Bureau of Indian standards), specifications as provided in relevant CPWD DSR and approved by the Engineer.
- 1.6** All consumable/replacements shall be got approved from the Engineer before its use in O&M.

SECTION-VIII
STAFF DEPLOYMENT AND EQUIPMENTS

SECTION: VIII

STAFF DEPLOYMENT AND EQUIPMENTS

A) Manpower to be deployed New Building)

1. Manpower at site of work

1.1 The contractor shall employ and deploy requisite strength of the various categories of technical staff for running the plant as per statutory /Industrial regulations of the land at its own cost within the Scope of work, however, minimum strength of staff shall be deployed as stipulated hereunder.

	Category	Minimum Nos required	Minimum Qualification	Minimum nos. of Years of experience in relevant field	Minimum relevant experience
I. Overall supervision of the work					
(i).	Supervisor	01	Diploma in Electrical/ Mechanical	05	O&M of HT/LT, Equipment's, sub-station, DG set, HVAC and other relevant Services.
2. Personnel covered in O&M 24X7					
(a) Heating Ventilation and Air Conditioning (HVAC)					
(ii)	Operator/ technician (Skilled)	03	ITI in air conditioning	03	O&M of Chiller Plant (minimum 200 TR) operation and day to day maintenance
(ii)	AC Technician (Skilled)	02	ITI in air conditioning	03	Handling experience of operation & Window, split AC and Cassette AC
(b) DG Sets and Electrical Works					
(iii)	D. G. Set cum substation operator /Technician (Skilled)	03	ITI	05	Handling of HT & LT , D.G. Operation & Maintenance etc
(iv)	Electrician (skilled)	04	ITI	03	Electrical Works
(iv)	Carpenter (skilled)	02	ITI	03	Carpentry Works
(vii)	Plumber (skilled)	02	ITI	03	Plumbing work
(viii)	Multi-tasking Staff (skilled)	02	12th	03	Store, Record keeping
(c) Fire Protection Works					
(ix)	Operator/ technician (Skilled)	03	ITI	03	O&M of fire protection works in a multi storied building.
(d) WTP/STP/RO					
(X)	Operator/ technician (skilled)	02	ITI	03	O&M of fire protection works in

					a multi storied building.
(e) Landscape Horticulture Work					
(xi)	Mali (Semi-skilled)	02	-	03	Relevant Experience
(xii)	Helpers (Un-skilled)	04	-	03	Relevant Experience
(f) ELV Operator					
(xiii)	Operator/ technician (Skilled)	01	-	03	Relevant Experience
Total Minimum Staff- 31 Nos.					

B) Manpower to be deployed OLD BUILDING

	Category	Minimum Nos required	Minimum Qualification	Minimum nos. of Years of experience in relevant field	Minimum relevant experience
1. Overall supervision of the work					
(i).	Supervisor	01	Diploma in Electrical/ Mechanical	05	O&M of HT/LT, Equipment's, sub-station, DG set, HVAC and other relevant Services.
2. Personnel covered in O&M 24X7					
(a) Heating Ventilation and Air Conditioning (HVAC)					
(ii)	Operator/ technician (Skilled)	03	ITI in air conditioning	03	O&M of Chiller Plant (minimum 200 TR) operation and day to day maintenance
(ii)	AC Technician (Skilled)	02	ITI in air conditioning	03	Handling experience of operation & Window, split AC and Cassette AC
(b) DG Sets and Electrical Works					
(iii)	D. G. Set cum substation operator /Technician (Skilled)	03	ITI	05	Handling of HT & LT , D.G. Operation & Maintenance etc
(iv)	Electrician (skilled)	04	ITI	03	Electrical Works
(iv)	Carpenter (skilled)	02	ITI	03	Carpentry Works
(vii)	Plumber (skilled)	02	ITI	03	Plumbing work
(viii)	Multi-tasking Staff (skilled)	02	12 th	03	Store, Record keeping
(c) Fire Protection Works					
(ix)	Operator/ technician (Skilled)	03	ITI	03	O&M of fire protection works in a multi storied building.
(d) WTP/STP/RO					
(X)	Operator/	02	ITI	03	O&M of fire

	technician (skilled)				protection works in a multi storied building.
(e) Landscape Horticulture Work					
(xi)	Mali (Semi-skilled)	02	-	03	Relevant Experience
(xii)	Helpers (Un-skilled)	04	-	03	Relevant Experience
(f) CCTV Operator					
(xiii)	Operator/ technician (Skilled)	01	-	03	Relevant Experience
Total Minimum Staff- 31 Nos.					

Note:

- (i) Reliever as required during holidays, leave etc. shall be provided by the firm without any extra cost.
- (ii) Helpers shall be considered under un-skilled worker category, all other workers are covered under skilled and semi-skilled worker category. Supervisor with relevant experience shall be considered against the category clerical and supervisory staff/ graduate.
- (iii) Staff shall work only 6 days a week and not more than 8 hours per day. If any worker is found working in a double shift without prior written approval/intimation to the Officer-in-Charge, the second shift will not be considered for attendance. In such cases, one day's salary of the worker shall be deducted and a penalty of ₹3,000 per occurrence shall be imposed on the agency.
- (iv) If a worker is required to work beyond 8 hours as a reliever for another worker, it shall be treated as overtime (OT) and payment shall be made accordingly. However, for attendance purposes, it will be counted as a single attendance only.
- (v) The Contractor shall ensure to pay the minimum wages as per the central govt. rate and revise it from time to time as per new rates issued by govt.
- (vi) The Contractor is to maintain the technical staff on all the 30 days of the month. Contractor has to deploy minimum 31 manpower in general without reliever as per Section VIII of RFP staff deployment and equipment.
- (vii) Contractor can keep relievers so as to maintain the required attendance.
- (viii) Contractor has to fix biometric attendance machine for his employees, the biometric attendance of there and of NHAI will be taken for reference. Minimum attendance required is 930 in each building. If in any case biometric is not operational attendance will be taken on register and verified by Authority Engineer. Building cannot be left vacant on National holidays and the minimum staff who are required for essential services should be present as per their duty schedule.
- (ix) In no case any technical staff should be of age more than the age specified by the labor department and labor law.
- (x) Staff shall be eligible for 12 Casual leave in a year.
- (xi) The quoted monthly lump-sum rate shall be inclusive of wages based on Central Government Minimum Wage Notification dated 30.03.2026 for 'A' Class Area, PF @ 12%, ESI @ 4.75%, Bonus @ 8.33%, Gratuity @ 4.16%, Health Insurance @ 1.80% of basic wages, uniform, washing allowance, all

statutory obligations under Labour Laws as amended up to 2025, contractor's overheads, profit, and GST..

(xii) Manpower Calculation:

One manpower shall be considered as 26 working days per month for calculation purposes.

Contractor must deploy relievers/substitutes for weekly offs, leave and absenteeism to ensure minimum attendance of 930 man-days per month. (31 nos. X 30 days)

(xiii) Reimbursement:

Wage escalation shall be reimbursed only for the actual difference between revised wage rates and base wage rates of central govt. as on 30.03.2026, along with applicable GST on the increased wage component.

Nothing extra shall be paid on this account.

(xiv) Penalty:

Short or non-deployment of manpower, noncompliance of Labor rule will lead to pro-rata deductions from the monthly bill.

Equipment's/ Instruments to be available at site of work

2.1 The equipment's/instruments as per the requirement of the work shall be provided by the Contractor at its own cost within the scope of the Contract. Different sets of equipment's is to be provided in each building. A mandatory list of equipment/instruments is given below:-

(i) Insulation tester: (*)

a) Motorized megger - 0 - 1000 - 2000 - 5000V, 0 - 25000 M ohms OR

b) Hand operated megger - 0.5 KV/1.0 KV/2.5 KV, 200 - 100 M ohm

(ii) Multimeter - (*)

Digital / Analogue: AC -V 2.5V - 1000V,

AC- A - 100 mA - 10A, 10A- 200A DC- V 25.V - 2500V,

DC- A - 50mA - 10A

Resistance - 0 - 200 M ohms

(iii) Vacuum cleaner (*)

(iv) Phase sequence meter - 110V - 450V - 25 to 65Hz. (*)

(v) Tong tester - 0 - 5A, 10A, 30A, 60A, 150A - 600A, 500A-1000A.

(vi) Infrared Heat Sensing Gun (*)

(vii) Air blower(*)

(viii) Tool box set (*)

(ix) Non-Contact Voltage Tester (NCVT) (*)

Tentative List of Instruments/ tools			
S.No.	INSTRUMENT / TOOL	RANGE	ACCURACY
1	Power Pack	0 to 50V DC, 3A	± 2%

2	Secondary Injection Kit	Upto 5A	± 0.5mA
3	Motor operated Megger	Upto 1000 Ohms	± 5% at Centre scale
4	Tongue tester	0 / 300 / 600A AC	± 5%
		0 to 300A DC	± 5%
5	Tachometer (Hand held)		± 5%
6	Phase Sequence Meter		N/A
7	Hand operated Megger 500V / 1000V	Upto 200 M Ohms	± 5% at Centre Scale ± 10% at end of Scale
8	Motorised Megger 2.5 kV	Upto 1000 M Ohms	± 5% at Centre Scale ± 10% at end of Scale
9	Earth Resistance tester (Megger)	0 to 1, 10, 100 Ohms	± 5% at Centre Scale Range
10	AC tongue Tester	0 to 300A AC	± 3%
11	DC tongue Tester	0 to 300A DC	± 5%
12	High Voltage test Kit	Upto 50 KV AC	± 10%
13		Upto 70 KV AC	± 10%
14	TachoGenerator (Mech)	0 to 4000 rpm	± 0.25%
15	DC Ammeter	0 to 300 A	± 10%
16	DC Voltmeter	0 to 500 V	± 10%
17	Micro ohm meter	10V to 100 V	
18	Motorised Megger 5kV	10000 M ohms	
19	Clip-on Ampere meter		
20	Pressure gauge, thermometer		
21	Portable Blower for Cleaning work		
22	HT Megger		
23	Hot pot/ Secondary injection testing kit (as and when required)		
24	Capacitor Tester		
25	Carpenter & Plumbers tools like wrenches, Pliers, screw drivers, Allen Key, hammer- drill machine, chisel, tap and die, planer .and all other tools required for day today Maintenance jobs.		
26	Crimping tool for cable up to 400sqmm		
27	20 ft aluminum ladder		

Note: (i) The above details are indicative only. Any other item/ equipment/ tool/ testing/ replacement/ accessory/ components/ fitting/ fixture/ service/ overhauling/ valves/ piping/ fittings/ wires/ cables/ choke/ starter/ holder/ any other electrical fittings etc. not mentioned above will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.

(ii) Contractor shall maintain sufficient inventory of equipment's/ tools at site of work required for quick repairs/ rectifications and minimize the response time.

3. Consumables/ Replacements

3.1 All the consumables, replacements required for the performance of O&M shall be provided by the Contractor at its own cost within the scope of the work and sufficient

stock of such items shall be maintained at site of work for diligence in O&M. A tentative list of such items is given below:-

Sr. No.	Items	Rating	Repairable	Replacement
1	HRC Power Fuses.	63 A to 400 A	-	Complete set
2	HRC control Fuses.	4 A to 32 A	-	Complete set
3	indication lamps. OCB, FSB	32 A to 100A	-	Complete set
4	ELCB	40A	-	Complete set
5	RCCB	32 A to 100 A	-	Complete set
6	ISOLATOR	32 A to 100 A	-	Complete set
7	MCB	Up to 63 A	-	Complete set
8	MCCB	63 to 800 A	Circuit breaker etc. such as any link, Liver, Bus- bar Contact point.	All protection relay.
9	ACBs	800 A ,1000A, 1600A	Circuit breaker etc. such as any link, Liver, Bus- bar Contact point.	All protection relay.
10	Neutral links		-	Complete set
11	Power switch, sockets /plug tops	6 A/16 A/32 A	-	Complete set
12	L&T/Siemens make power Contractors	-	-	Complete set
13	Contact Point (ML-1.5, 40, ML-3-110, ML-12, 30 A, ML-6-110 A etc. As per Requirement)	-	-	Complete set
14	Power Connector 433 V, 3 phase	-	-	
15	Cable lugs / thimble (Dowel Make)	1.5 sq. mm to 630 sq mm	-	Complete set
16	Reactive Power Control Relay	32 A to 100 A	-	Complete set
17	Switches Disconnecter Fuse	63 A to 400 A	-	Complete set
18	Timers (under voltage monitor timer)		-	-
19	Engine starting relay		-	Complete set
20	Current transformer		-	
21	Pressure switches		-	Complete set
22	Lighting fixtures from 5W to 140W		-	Ceiling light of 5W, 9W,14W, 32W, street light 35W, 70W, spot light 70W and 140W, led strip light.

22	DG Set	500 KVA	P.T. pump, Injector, Water pump, Actuator fuel pump, Charging alternator	Oil seal, Turbocharger, Electronic Fuel controller (EFC), Automatic Voltage regular (AVR),Electronic Control panel (ECP),Below (Flexible connection), Magnetic peak up, Charging alternator, Hose pipe, Safe control, Gasket, Muster coupling, Hump hose, safety control, Gasket, Muster coupling,
				Hump hose, Self-Starter, piston, Repair of piston, Head Gasket, Packing Kit, Connecting Rod push, Bearing, etc.
23	UPS & Battery charger.	2V, 60 AH	Any contact point, terminal point etc.	Electronic card, Safety device, MCB, Battery, Indicator light, cooling fan,
24	Fire System			Battery 150ah, 7ah, heat and smoke detector, ms pipe, NRV Valve, Butterfly valve, hose reel, hooter, pressure gauge, rewinding of motor ,servicing of DG engine, Servicing of motors, sprinkler, gun metal valve, extinguisher, etc.
25	HVAC			AHU filters, AHU coils, MCB, PCB card, Dampers, controller box, temperature sensor, filter and coil of Cassette and split AC, remote

26	Carpentry & Plumbing work			Basic items for plumbing and carpentry work like nails, screw, pasting adhesive, masking tape, thread seal tape, fasteners, CPVC /PPR pipe up to the length of 5 mtr. With all related joints, nipples, connectors, bend etc. to be provided by the contractor.
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Note:

(i) The above details are indicative only. Any other item/ equipment/ tool/ testing/ replacement/ accessory/ components/ fitting/ fixture/ service/ overhauling/ valves/ piping/ fittings/ wires/ cables/ choke/ starter/ holder/ any other electrical fittings etc not mentioned above will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.

(ii) Contractor shall maintain sufficient inventory of spares required for quick replacements at site of work and minimize the response time.

(iii) All the consumable items required for maintaining the various services shall be provided by the Agency/Contractor and nothing extra shall be paid on this account. If the Agency/Contractor fails to provide the consumable items with a specified time, NHAI shall carryout the same through another agency at the risk and cost of Contractor.

3.3 Contractor shall keep one No C.T. fan motor, one Nos. AHU motor or other items, as standby as stock (the cost to be included in AMC) which are essentially required to continuous operation of HVAC system and to cover emergency requirement.

SECTION-IX

FORMS OF APPLICATION, POA, AFFIDAVIT, BANK GUARANTEE, LOA & AGREEMENT

Bank Guarantee for BID Security

B.G. No.

Dated:

1. In consideration of you, National Highways Authority of India, having its office at G-5 & 6, Sector 10, Dwarka, New Delhi - 110075, (hereinafter referred to as the "Authority", which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the BID of and having its registered office at (hereinafter referred to as the "Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for the "Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi." (hereinafter referred to as "the Project") pursuant to the RFP Document dated issued in respect of the

Project and other related documents including without limitation the draft contract Agreement (hereinafter collectively referred to as "Bidding Documents"), we (Name of the Bank) having our registered office at..... and one of its branches at (hereinafter referred to as the "Bank"), at the request of the Bidder, do hereby in terms of Clause 1.2.4 read with Clause

2.20.1 of the RFP Document, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the RFP Document) by the said Bidder and unconditionally and irrevocably undertake to pay forthwith to the Authority an amount of (hereinafter referred to as the "Guarantee") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.

2. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.

3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the Authority by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Bidder to keep its BID open during the BID validity period as set forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding

4. This Guarantee shall be irrevocable and remain in full force for a period of 180 (one hundred and eighty) days from the BID Due Date inclusive of a claim period of 60 (sixty) days or for such extended period as may be mutually agreed between the Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

5. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its BID open during the BID validity period set forth in the said Bidding Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.

6. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.

7. In order to give full effect to this Guarantee, the Authority shall be entitled to treat the Bank as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the BIDs or the BID validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the Authority, and the Bank shall not be released from its liability under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the said Bidder or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Bidder or by any change in the constitution of the Authority or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.

8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.

9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Bank along with branch address] and delivered at our above branch which shall be deemed to have been duly authorized to receive the said notice of claim.

10. It shall not be necessary for the Authority to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealized.

11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.

12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Guarantee for and on behalf of the Bank.

16. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHA1, details of which is as under:

<u>S. No.</u>	<u>Particulars</u>	<u>Details</u>
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	IFSC Code	CNRB0008598

By the hand of Mr./Ms, its.....and authorised official.

(Signature of the Authorised Signatory) (Official-Seal)

Annexure-I

Power of Attorney for signing of Bid

[Refer Clause 4.2(f), of Section-III, ITB]

(To be given on Non-judicial stamp paper and duly notarized)

Know all men by these presents, We, (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr. / Ms (Name), son/daughter/wife of and presently residing at

....., who is presently employed with us/ the Lead Member of our Consortium and holding the position of, as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our bid for.....**name of work** Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, New Delhi - 2nd Call proposed or being developed by the National Highways Authority of India (the "Authority") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in bidders' and other conferences and providing information / responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the Concession Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our bid for the said Project and/or upon award thereof to us and/or till the entering into of the Concession Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,, THE ABOVE
NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS
..... DAY OF.....20..

For.....

(Signature, name, designation and address)

Witnesses:

- 1.
- 2.

Accepted Notarized

(Signature, name, designation and address of the Attorney)

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure. The Power of Attorney should be executed on a non-judicial stamp paper of Rs. 50 (fifty) and duly notarized by a notary public.

Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.

For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.

ANNEXURE-II

AFFIDAVIT

(To be given on a Non-judicial stamp paper and duly notarized) as per cl. 4.2. j of ITB

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm _____ nor any of its constituent partners have abandoned any work or works on National Highways of India nor any contract awarded to us for such works has been rescinded during last five years prior to the date of this bid.
3. The undersigned also furnish undertaking that we are not declared by any court of law as proclaimed offenders also that we are not convicted under any law for the offences punishable under Indian Penal Code, TADA, POTA, Negotiable Instruments Act or any Labour/employee beneficial legislation's.
4. The undersigned hereby authorise(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by NHAI to verify this statement or regarding my (our) competence and general reputation.
5. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the NHAI.

(Signed by an Authorised Officer of the Firm)

Title of Officer

Name of the Firm

ANNEXURE-III

FORM OF Undertaking of Work

To,
GM (Tech./Estate)
National Highways
Authority of India G 5 &
G6, Sector - 10, Dwarka
New Delhi - 110075

Sub:Name of the work.....

Dear Sir,

Having examined the Bid Document, Instruction to Bidders Qualification Information, Scope of works, etc. for the subject work. We, hereby submit our bid for the subject work.

It is certified that the information furnished in this document is true and correct. The proposal is unconditional and unqualified. We undersigned accept that NHAI reserves the right to reject any or all application without assigning any reason.

Thanking you.

Yours faithfully,

(Authorized Signatory) For and on behalf of M/s

ANNEXURE-IV

FORM OF BANK GUARANTEE FOR PERFORMANCE SECURITY

To

National Highways Authority of India
G5 & 6, Sector - 10
Dwarka
New Delhi - 110075

WHEREAS..... (Name and address of contractor) hereinafter called “the contractor” has undertaken, in pursuance of Letter of Acceptance No..... Dated to execute..... (Name of Contract and brief description of Works) (hereinafter called “the contract”).

AND WHEREAS it has been stipulated by you in the said contract that the Contractor shall furnish you with a Bank Guarantee for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREOF we hereby affirm that we are the guarantor and responsible to you on behalf of the Contractor, up to a total of Rs..... (Amount of guarantee) (Rupees..... (in words), , and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of (Amount of guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract or of the works to be performed there under or of any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 30 days from the date of expiry of the Defects Liability Period.

This guarantee shall also be operatable at our branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation

The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHAI as per the details below:

S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	IFSC Code	CNRB0008598

Notwithstanding anything contained herein before, our liability under this guarantee is restricted to Rs. _____ (Rs. _____ in words) and the guarantee shall remain valid till _____. Unless a claim or a demand in writing is

Served upon us on or before _____ all our liability under this guarantee shall

cease.

Signature and seal of the Guarantor with Name, Designation, Employee Code Number & Telephone Number.....

Name of the Issuing Bank/ BranchName of the Controlling Branch/Bank.....

Address & Telephone Number.....Address & Telephone Number.....

Date.....

In the presence of (if this is to be witnessed as per bank's policy)

.....

1.....
(Name, Address & Occupation)

2.....
(Name, Address & Occupation)

An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract including additional security for unbalance bids, if any and denominated in Indian Rupees.

Note:-

Suggested Methodology for Using SFMS Platform for Issuing Bank Guarantees.

1. Bank will continue to receive applications for Bank Guarantees as usual. However, along with the application, the banks will now obtain details of the Bank of the Beneficiary/ an Advising Bank for the Bank Guarantee.
2. Once it is decided that the BG is to be issued, the same shall be issued on the SFMS platform using Message Type IFN760. The message will be sent to the Beneficiary's Bank/ Advising Bank through SFMS.
3. A hard copy of the Bank Guarantee clearly indicating that it is a 'COPY ONLY' may be handed over to the Applicant for their use e.g for attaching it with any Bid Documents.
4. The Advising bank will print the Bank Guarantee on Stamp Paper of required value or pay the required Stamp Duty by other means and then deliver the Bank Guarantee to the Beneficiary.
5. The Advising Bank may then claim its cost and fees from the Issuing Bank. The Issuing Bank will reimburse the same to the Advising Bank through NEFT.
6. PSBs may have to amend their application cum counter guarantee form to incorporate a clause making the applicant liable for fees and Charges of the Advising Bank.

ANNEXURE-V

(Additional information regarding litigation, debarment, arbitration, etc. The bidder shall require to submit declaration as per enclosed format on letter head)

On company Letter Head

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.

2. The undersigned also hereby certifies that neither our firm

nor any of its constituent partners have abandoned any work or works on National Highway of India nor any contract awarded to us for such works has been rescinded during last five years prior to the date of this bid.

3. The undersigned also furnish undertaking that we are not declared by any court of law as proclaimed offenders also that we are not convicted under any law for the offences punishable under Indian Penal Code, TADA, POTA, Negotiable Instruments Act or any Labour/employee beneficial legislation's.

4. The undersigned hereby authorise(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by NHAI to verify this statement or regarding my (our) competence and general reputation.

5. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the NHAI.

(Signed by an Authorised Officer of the Firm)

Name of the Firm

Date

FORM OF LETTER OF APPLICATION OF BID

To,

Estate Officer (E&BM Section)
National Highways Authority of India
G5 & G6, Sector - 10
Dwarka
New Delhi -110075.

DESCRIPTION OF WORKS: name of work

Dear Sir,

Having examined the Bid Document, Instruction to Bidders Qualification Information, Scope of works, etc. for the subject work. We, hereby submit our bid for the subject work.

It is certified that the information furnished in this document is true and correct. The proposal is unconditional and unqualified. We undersigned accept that NHAI reserves the right to reject any or all application without assigning any reason.

Thanking you,

Yours faithfully,

(Authorized Signatory)
for and on behalf of M/s _____

FORM OF LETTER OF ACCEPTANCE

No.

Dated

To

M/s.....

Sub.: **Name of Work**

Sir,

Based on your bid submitted on.....in compliance of bidding document of NHAI for execution of the work of , it is hereby notified that your bid for a contract price of **Rs..... (Rupees in words.....)** has been accepted for and on behalf of NHAI

Within 10 (ten) days after receipt of the Letter of Acceptance, you shall deliver a Performance Security of five percent of the Contract Price, valid for the period of 30 days after the expiry of defect liability period and sign the contract. The performance security shall be either in the form of a Bank Guarantee or fixed deposit Receipts, in the name of the Employer, from any scheduled Indian Bank or a Foreign Bank located within India and approved by Reserve Bank of India.

You are hereby requested to sign the contract agreement, failing which the actions as stipulated in clause No. 33.3 of ITB may be taken by NHAI.

Thanking you.

Yours faithfully,

(.....)
Estate Officer

Accepted By

FORM OF AGREEMENT

AGREEMENT

This agreement made the _____ day of _____ 2023 _____ between the National Highways Authority of India, New Delhi (hereinafter called "the Employer" of the one part and _____ (here in after called "the Contractor") of the other part.

AND WHEREAS the Employer invited bids from eligible bidders for the execution of certain works, viz.....

AND WHEREAS pursuant to the bid submitted by the Contractor, vide _____ (here in after referred to as the "BID" or "OFFER") for the execution of works, the Employer by his letter of acceptance dated _____ accepted the offer submitted by the Contractor for the execution and completion of such works and remedying of any defects thereon, on terms and conditions in accordance with the documents listed in para 2 below.

AND WHEREAS the Contractor by a deed of undertaking dated _____ has agreed to abide by all the terms of the bid, including but not limited to the amount of Rs. _____ quoted for the execution of Contract, as stated in the bid, and also to comply with such terms and conditions as may be required from time to time.

AND WHEREAS the contractor has agreed to undertake such works and has furnished a performance security pursuant to clause 33 of the instructions to bidders (Section- III).

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the conditions of contract hereinafter referred to;
2. the following documents shall be deemed to form and be read and construed as part of this agreement viz.
 - (a) Agreement,
 - (b) Letter of Acceptance
 - (c) Contractor's Bid,
 - (d) Contract Data,
 - (e) Conditions of Contract
 - (f) Technical Specifications,
 - (g) Drawings, if any
 - (h) Scope of Work
 - (i) Bill of Quantities, and
 - (j) Any other document listed in the Contract Data.
3. The foregoing documents shall be construed as complementary and mutually explanatory one with another. Should any ambiguity or discrepancy be noted then the order of precedence of these documents shall be subject to the order as listed above and interpreted in the above order of priority.
4. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and remedy any defects therein in conformity in all respects with the provisions of the contract.
5. the employer hereby covenants to pay the contractor in consideration of the execution and completion of the works and remedying of defects therein, the contract price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS WHEREOF the parties here to have caused this agreement to be executed

the day and year above written. Signed, sealed and delivered by the said Employer through his Authorized Representative and the said Contractor through his Power of Attorney holder.

Binding Signature of Employer _____

For and on behalf of National Highways Authority of India, New Delhi - 110 075

Binding Signature of Contractor _____

For and on behalf of M/s. _____

In the presence of

1. Name :
Address:

2. Name :
Address:

In the Presence of

1. Name:
Address:

2. Name:
Address:



National Highways Authority of India
(Ministry of Road Transport and Highways)

Tender for

Operation & Comprehensive Maintenance of DG Sets, Electrical Equipment's and Electrical Installation, UPS system, Extra Low Voltage System, Heating Ventilation and Air Conditioning (HVAC), Fire Protection Works, RO Plant, Water Treatment Plant/Systems, Sewage Treatment Plant, Cleaning of Glass Curtain (Facade), Multi-level car parking System and Maintenance of Landscape / Horticulture Works at NHAI HQ Office Buildings at G-3 and G 5 & 6 Sector-10, Dwarka, Camp office at Patel Chowk New Delhi.

(Financial Bid)

Volume-II

Plot No. G-5 & 6, Sector – 10, Dwarka, New Delhi – 110075

1.0 Preamble

- 1.1 The financial bid shall be read in conjunction with Notice Inviting Tender, Conditions of Contract and Contract Data, Special Conditions of Contract, Scope of Work, Technical Specifications and Staff Deployment and Equipment's.
- 1.2 The Scope of Work stipulated in Section-VI of RFP is indicative only. Any other item/ equipment/ tool/ testing/ replacement/ accessory/ components/ fitting/ fixture/ service/ overhauling/ valves/ piping/ fittings/ wires/ cables/ choke/ starter/ holder/ any other electrical fittings etc. not mentioned therein will be understood to have been included in the Scope of Work on the cost of the Bidder and no extra payment on this account will be paid to the contractor by NHAI.
- 1.3 The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the contract, include all equipment, construction plant, labour, supervision, materials, erection, maintenance, testing of input material delivered, profit, all levies, duties, royalties and taxes including GST together with all general risks, liabilities and obligations set out and implied in the Contract.
- 1.4 The bidder shall quote bid price shall be deemed to be inclusive of all levies, duties, royalties and taxes including
- 1.5 The bidders shall submit their financial bid in Excel Sheet provided separately.