

Request for Empanelment (RFE)

Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand.

Corporate Office: 1st Floor, Asia Bhawan (Gate no 2), Road No 205, Sector – 9, Dwarka, New Delhi – 110075

Disclaimer

The information contained in this Request for Empanelment ("RFE") or subsequently provided to Bidder(s), in documentary or any other form by or on behalf of the Employer and SPVs under the Employer by persons authorised to do so, is provided to interested parties on the terms and conditions set out in this RFE and such other terms and conditions subject to which such information is provided.

This RFE is not an agreement and is neither an offer nor an invitation by the Employer to interested parties who submit their quote ("Bidders") in response to this RFE. The purpose of this RFE is to provide Bidders with information that may be useful to them in preparing and submitting their proposals ("Proposal") for **Implementation and Maintenance of Highway Lighting Works** for the Project(s) under SPVs of the Employer, as per notified norms.

The Employer makes no representation or warranty and shall have no liability to any person or Bidder under any law, statute, rule or regulation or tort, principles of restitution or unjust enrichment or otherwise, for any loss, damage, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFE or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFE and any assessment, assumption, statement or information contained herein or deemed to form part of this RFE, or arising in any way from this process.

A Bidder must warrant that all information provided by it to the Employer at the time of application and subsequently is true to the best of its knowledge and belief and specifically warrants that it has duly complied with the provisions of laws applicable to it. The Bidder indemnifies the Employer from any liabilities arising out of error, default, negligence or contravention of any applicable laws, including but not limited to submission of statutory forms and other such documents.

The issue of this RFE does not imply that the Employer is bound to select any Bidder(s) for any project. The Employer may accept or reject any proposal in its discretion and may ask for any additional information or vary its requirements, add to, or amend the terms, procedure and protocol set out in this RFE for bona fide reasons, which will be notified to all Bidders invited to tender. The Employer further reserves the right to annul the process at any time prior to issuance of the Letter of Award/Work Order/Purchase Order, without incurring any liability towards Bidders.

Bidders shall bear all costs associated with or relating to the preparation and submission of their Proposal, including but not limited to preparation, copying, postage, delivery fees, and expenses associated with any demonstrations or presentations which may be required by the Employer. All such costs and expenses shall remain with the Bidder, and the Employer shall not be liable in any manner for the same, regardless of the conduct or outcome of this RFE and the related process.

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1. Introduction

M/s **National Highways InvIT Project Managers Private Limited on behalf of NHIT Southern Projects Private Limited (NSPPL)** hereinafter referred to as **The Company**, pursuant to the terms of the Concession Agreement, invites Bids for Proposal from Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly-Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar-Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand.

Implementation & Maintenance of Highway Lighting System (hereinafter referred to as "Highway Lighting") of the Project Highway as described in the below sections.

The Company hereby invites bids from eligible Contractors/Agencies to carry out the Implementation & Maintenance of Highway Lighting System Works of desired specification as per the Terms and Conditions, Scope of Work and Technical Specifications and Standards mentioned in subsequent sections.

2. Bid timelines

1	Date of issue of Tender document.	18 th October 2026
2	Last date and time for submitting Technical & Financial Bid Documents	23 rd October 2026, 11:00 AM
3	Last Date for receiving the Pre-bid Queries	20 th October 2026
4	Portal/Email for Submission of Bids and Pre-bid Queries (Password Protected)	praneeth.sagar@chtech.in , vsaidulu@chtech.in .
5	Place of Submission of Physical Bid Documents	National Highways InvIT Project Managers Pvt. Ltd. 1st Floor, Asia Bhawan (Gate No. 2), Road No. 205, Sector-9, Dwarka, New Delhi – 110075

3. Terms & Conditions

S. No	Item Description	Responsibility & Scope of Work
1	Allotment of Work	The company reserves the right to award one/multiple sections to the contractor based on the financial bids submitted by the bidder. The Bidder shall be allotted only one section despite bidding for multiple sections. The bidder shall have no entitlement or right to execute any section of the Project Highway beyond the awarded section. The Employer's decision regarding the allocation of sections shall be final and binding upon the bidder.
2	Sections	The Project Stretch of Bareilly-Sitapur is divided into two sections i.e. Section-I is from km 262.000 to km 342.000, Section-II from km 342.000 to km 419.590 & Section-III is from km 130.560 to km 209.120 of Muzaffarnagar-Haridwar Section of NH-334.
3	Contract Period	The Initial Contract Period shall be for Two (02) years. + 1 year on based on performance.
4	Escalation	No escalation shall be applicable for the initial 02 years of contract.

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S. No	Item Description	Responsibility & Scope of Work
		Escalation is applicable for the 3rd year of contract at 50% WPI and 50% CPI. Base Date for escalation shall be Bid Due Date.
5	Variation / Extra Items	The costs related to any variation in scope of work due to the instructions from The Company shall be mutually agreed and shall be payable to the agency at accepted/agreed rates.
6	Suspension	If for any default or breach by the Contractor, and after due notice and reasonable cure period of 15 (fifteen) days, the Employer intends to suspend the maintenance works, then the Employer reserves the right to do so in whole or in part, at any time by giving the Contractor notice in writing to such effect stating the nature, the date and the anticipated duration of such suspension. However, no cure period shall be provided for any default or breach by the Contractor in complying with Safety Requirements and the suspension shall be effective forthwith. On receiving the notice of suspension, the Contractor shall stop all such maintenance Works which the Employer has directed to be suspended in writing with immediate effect. During such suspension the Employer shall not be liable to make any payment to the Contractor to the extent of the suspended works. The Employer shall, however, be liable for payment of any dues accrued prior to such suspension of maintenance works. The Contractor shall however resume the suspended works as expeditiously as possible after receipt of withdrawal of written suspension notice by the Employer. In the event such suspension continues for more than 90 (ninety) days or is not revoked by the Employer, this Work Order shall stand terminated by mutual agreement between the Parties. The Contractor agrees and acknowledges that in case the suspension is for part of the maintenance works or a particular activity as notified by the Employer, it (the Contractor) will continue to perform the remaining obligations and activities and nothing in this clause should be considered as a waiver of the Contractor's obligation to otherwise perform its obligations.
7	Termination	In the event of performance of the Contractor is consistently found to be less than 80% compared to the agreed maintenance program in 2 Consecutive months, in such cases, in the interest to maintain the high quality of work, the Employer with 15 days' notice reserves the right to delete any part of the scope of work or entire balance work from the Contractor's scope and get such works executed by other agencies/contractor at the risk, cost and expenses of the Contractor. The Employer reserves the right to terminate the contract with the Contractor at its convenience and remove the Contractor without assigning any specific reason, and without incurring any cost or obligation for compensation thereof. Furthermore, the Employer retains the prerogative to replace the Contractor with a new contractor, whether for an ongoing or future requirement, at any stage during the contractual period providing 30 days' notice. Such

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S. No	Item Description	Responsibility & Scope of Work
		termination or replacement shall be at the sole discretion of the Employer, and the Contractor acknowledges and agrees to comply with such decisions without recourse or claim for damages A Party hereto may terminate this Contract, if the other Party is likely to become or becomes insolvent or makes or attempts to make an assignment for the benefit of creditors or ceases or attempts to cease to do business or institutes or has instituted against it or allows any third party to institute against it, any proceedings for bankruptcy, reorganization, insolvency, or liquidation or other proceedings under any bankruptcy or other law for the relief of debtors; and does not terminate such proceedings within thirty (30) days.
8	Performance Security	Amount equivalent to 05% of the Contract Price shall be submitted within 15 days from the date of issuance of Letter of Award (LOA) valid till 30 days after contract period.
9	Retention Amount	The deduction of Retention Money shall be 06% from each bill, subject to a maximum of 05% of the total Contract Price. Retention money shall be released every year on successful completion of assignment, subject to satisfactory performance.
10	Tax Payment – GST Payment Clause	The bidder must have a valid GST Registration and PAN in India. In case of payment to a GST registered supplier, the GST amount as claimed in the invoices by the contractor in terms of provisions mentioned in the Contract Agreement/Purchase Order may be paid along with their invoices subject to: - The GST portion that would be released would be proportionate to the amount of work certified as due for payment. - If the GST for any previous invoice is not reflected or reflected incorrectly in GSTR-2B after the due date of filing Return under GST Act is over, then for further payments the GST portion will be withheld till the previous GST amount is reflected accurately in GSTR-2B and position to the extent as depicted above is rectified.
11	Timelines & Payment Schedule	The payment of fee for the Services shall be monthly and shall be made only post submission of invoice duly approved by the Project Manager.
12	Anti-Bribery & Corruption (ABC) Policy	It is our policy to conduct all our business in an honest and ethical manner. We take a zero-tolerance approach to Bribery and Corruption and are committed to acting professionally, fairly and with integrity in all our business dealings and relationships wherever we operate and implementing and enforcing effective systems to counter bribery. Requested to report improper demands from The Company Employees. You may address the same through email at whistleblow@nhit.co.in
13	Labor Laws	The Agency shall be responsible for compliance as per prevalent labor laws.

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S. No	Item Description	Responsibility & Scope of Work
14	Insurance	The Agency shall at their cost and expense up to the end of the contract period, maintain coverage in respect of the following risks: a) Workmen's compensation policy. Any other insurance that the Agency may be required to take out under Indian law including comprehensive bodily injury and property damage. Such other insurances as the Agency may reasonably consider necessary or desirable in accordance with good industry practice together known as the ("Agency Insurances").
15	Force Majeure	A Force Majeure (FM) means extraordinary events or circumstance beyond human control such as an event described as an act of God (like a natural calamity) or events such as a war, strike, riots, crimes (but not including negligence or wrong-doing, predictable/seasonal rain and any other events specifically excluded in the clause). In the case of FM, the contract frees both parties (The Company & the Contractor) from contractual liability or obligation when prevented by such events from fulfilling their obligations under the contract. However, this does not excuse a party's non-performance entirely, but only suspends it for the duration of the FM. The parties have to give notice of FM as soon as it occurs, and it cannot be claimed ex-post facto. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of FM for a period exceeding 90 (Ninety) days, The Company may at its option terminate the contract without any financial repercussion on the other side. Notwithstanding the punitive provisions contained in the contract for delay or breach of contract, the Contractor would not be liable for imposition of any such sanction so long as the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event covered in the FM clause.
16	Indemnification	The Agency shall hold The Company or any representative thereof harmless and shall indemnify the same against all claims, penalties, fines, losses, damages, costs and proceedings arising from the breach or contravention of any laws, rules and regulations referred to in this order
17	Governing law and dispute resolution	This RFE and the resulting Contract shall be governed by and construed in accordance with the laws of India, and the courts at New Delhi shall have exclusive jurisdiction over any disputes arising hereunder. In the event of any dispute between the Parties, either party may call upon a person as the parties may mutually agree upon ('The Conciliator') to mediate and assist the parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of Conciliator either party may require such dispute to be referred to the arbitration administered by the Arbitration and Conciliation Act, in accordance with the arbitration rules at present and

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S. No	Item Description	Responsibility & Scope of Work
		as amended from time to time, which rules are deemed to be incorporated by reference in this clause. The seat of Arbitration shall be Delhi and the Language of Arbitration shall be English. The Arbitration tribunal shall consist of a sole arbitrator to be mutually appointed by both the Parties. The award shall be final and binding on the Parties and without appeal and capable of being enforced in any courts having jurisdiction.
18	Ethics & integrity	The Selected Contractor/agency/firm is/are expected to maintain a high level of professional ethics and will not act in any manner, which is detrimental to The Company Interest.
19	Warranty	As per Original Equipment Manufacturer (OEM)
20	Defect Liability Period (DLP)	The Defects Liability Period (DLP) shall be for twelve (12) months, from the date of Issuance of Completion Certificate.
21	Maintenance During DLP	The Contractor shall ensure that all components related to Highway Lighting and other associated civil and electrical infrastructure— are maintained in a fully functional and compliant state throughout the Defects Liability Period (DLP). The Contractor shall conduct routine inspections and undertake necessary maintenance activities in accordance with the MoRTH specifications, and IRC guidelines. Any deterioration, structural failures, electrical malfunctions, or deficiencies identified during this period shall be rectified by the Contractor at its own cost within the timeframe specified in the Concession Agreement or as directed by the Client. Non- compliance with maintenance obligations or delays in rectification shall attract penalties as per Concession Agreement (Performance Standards and Penalties), and the Client reserves the right to undertake necessary corrective actions at the Contractor's expense.
22	Commencement Date	The commencement date shall be 07(seven) days from the date of bid opening.
23	Completion Date	Three (03) Months from the date of issuance of Commencement.

4. Eligibility Criteria, Proposal Submission requirements and Bid Evaluation Criteria

Sr No	Criteria
1	Work Experience: - The Bidder shall have a minimum experience of Five (5) years in Implementation & Maintenance of Highway Lighting/Lighting System on the Bid Due Date. "Similar Works" shall mean completed/ongoing works involving one or more of the following activities on National Highways, State Highways and Expressways. The bidder must have experience in the supply, installation, testing, and commissioning of LED Highway lighting on at least 05 National Highway projects, each with a length of more than 50 kilometres.

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Sr No	Criteria
	- The bidder must have experience in the supply, installation, testing, and commissioning of Central Control and Monitoring System (CCMS). - Sector-Specific Experience: Minimum five (5) years of experience in Routine Maintenance of ToT, InVIT, BoT, or HAM Projects
2	Technical Evaluation: – The Company will evaluate the technical bid based on completed works, ongoing works, upcoming works, key team members, manpower, machinery.
3	Financial Standings: – a) Net Worth: The Net Worth for the previous three audited financial years shall be positive. b) Annual Turnover: – The Bidder should have cumulative revenue/turnover of a minimum Rs 100 Crore during the last three financial years. Certified copies of Financial Statements or certificate of turnover from Statutory Auditor / Chartered Accountant of the Bidder to be submitted along with the bid.
4	Resources Availability: The bidder shall submit a declaration of resources available for this Project.
Note	The Company may carry out due diligence of the bidder to validate the information submitted by the bidder. The Company will reject the bid in case of any discrepancy found in the financial standings submitted by the bidder.

5. Bid Submission Process

- 5.1** The bidder is expected to read and examine all instructions, terms & conditions, forms, Scope of Work, Technical Specifications, etc. carefully in the RFP. Bids which don't meet the requirements of the RFP, shall be rejected.
- 5.2** The bidder shall furnish all the documents in its bid
- Annexure A: Technical Proposal
 - Annexure B: Financial Proposal
 - Annexure C: Bid Evaluation Criteria
 - Annexure D: Vendor Declaration
 - Safety Plan as per Company's SOP
- 5.3** The Company will carry out the background verification of all agencies. Bids will be disqualified if bidder has
- Made misleading or false representations in the forms, statements, and attachments submitted with the bid.
 - Any criminal records or any history of indulging in any corrupt practices in the past.
 - Records of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures in previous execution work, etc.

6. Scope of Work – Highway Lighting Works

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- 6.1** The Scope of Work shall include Supply, Installation, Testing and Commissioning of Highway Lighting and High Mast Lighting systems at the specified chainages, including but not limited to obtaining the required local grid connection from the concerned DISCOM, along with the necessary arrangements and ancillary works.
- The scope shall include lighting design, preparation and submission of the final quotation, detailed BOQ with item-wise separate supply and installation costs, lighting layout plans, design calculations/reports, relevant drawings, execution methodology, and all other documents required for Client/Consultant review and approval.
 - The design, equipment selection, sizing, installation, testing, commissioning, and BOQ preparation shall comply with the minimum technical requirements specified herein, applicable codes and standards, statutory requirements, and the requirements of the Client/Consultant.
 - The Contractor shall be implemented of Smart Highway Lighting through Centralized Web Based CCMS Portal as per NHA circular.
 - The contractor shall be responsible for obtaining the 3-Phase, 24-hour express feeder/local grid connection for the Highway Lighting system from the concerned DISCOM at the approved locations. All statutory charges, including application fees, security deposits, and DISCOM estimation charges, shall be borne by the SPV/Client.
 - The Contractor shall deploy adequate and suitably qualified manpower to execute the works within the required timeframe. As a minimum, two dedicated Site Supervisors shall be provided for supervision of site execution, monitoring of work progress, and necessary coordination and reporting with the Consultant and Client.
 - The Contractor shall strictly comply with the Safety SOPs and safety requirements issued by the Client/SPV during execution of the works. All necessary safety arrangements, Shadow vehicle, PPE, manpower, equipment, permits, and associated costs required for compliance shall be considered and included in the Contractor's quotation.

6.2 Light Lux Level Design Criteria.

The contractor shall submit the Lux Level Design Report for highway-lighting chainage based on the applicable TCS (Typical Cross Section). The design shall consider the complete road width/ROW, including shoulders on both sides of the carriageway. Unless otherwise specified by the Client, the luminaire mounting height for Highway Lighting shall be 10m above the finished ground level.

- Highway light poles shall be proposed on the main median. At structures/barrier locations, poles shall be proposed on the cross barrier at suitable height, subject to site feasibility and safety requirements. Also At very narrow median sections, poles shall be proposed along the outer edge of the shoulder, maintaining a minimum clear distance of 1.5 m from the MCW.
- Also, the contractor shall submit the High Mast light Lux Level Design Report for each applicable junction or designated area requiring high-mast lighting. High mast light poles shall be located at safe and technically suitable positions, ensuring that they do not obstruct traffic movement and road safety.
- The lighting design shall minimize the zebra effect and shall maintain an acceptable level of visual comfort and uniformity at main carriageway. The lighting system shall also ensure adequate visibility of the roadway surrounding areas and roadside sign boards for road users and Pedestrian.
- Lighting lux level design shall be performed using latest Dia-Lux software or software validated by the Original Equipment Manufacturer (OEM).
- For Highway Lighting and High mast light the required lux level on the road surface is minimum 40 lux, the overall uniformity (Min/Avg) requirement is ≤ 0.4 with considering the maintenance factor of not less than 0.85 for lighting design. Concession Agreement, IRC Manual, Latest IS 1944 and National Lighting Code (SP-72) latest version may be followed for any additional design factor and information.

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- f. The contractor shall submit a Design Basis Report indicating the chainage-wise quantity, type, rating, and key technical parameters of poles, arms/brackets, luminaires and associated components for CLIENT review and approval.
- g. The contractor shall submit the proposed lux level testing/measurement methodology in accordance with the National Lighting Code – SP 72, 09-Point Method, for client approval prior to testing. Also required to submit the lux meter make, model, serial number, accuracy/specification, and valid calibration certificate, with the calibration certificate issued by a NABL-accredited laboratory and valid at the time of testing.

6.3 Local Grid Connection.

The contractor shall be responsible for obtaining the 3Ph, 24-hour express feeder local grid connection for the Highway Lighting system from the concerned DISCOM at the approved chainages/locations.

- a. The scope shall include all necessary liaison and coordination with the DISCOM, preparation and submission of applications and statutory documentation, coordination for site inspection, Estimation, Necessary arrangement and Site execution works, energy meter installation, meter termination, and all associated departmental works. All works shall be executed in accordance with the applicable DISCOM requirements, Indian Standards.
- b. All statutory charges, including application fees, security deposits, and DISCOM estimation fees, shall be borne by the SPV.
- c. The contract demand for each grid connection shall be determined based on the approved feeder pillar design load, with an additional 10% capacity provision for future requirements.

6.4 Technical Criteria of Octagonal Pole and Its Foundation.

The Highway Light Pole shall be suitably designed for the prevailing climatic and environmental conditions of the project region to ensure structural integrity, durability, and safe performance throughout its design life.

- a. Unless otherwise specified by the Client, octagonal type poles with a suitable height as per design shall be provided for Highway Lighting and shall be designed to withstand a maximum wind speed of 180 km/hr in accordance with IS 875. The design shall consider the complete top loading, including the projected area and weight of all luminaires and accessories, for structural and maximum deflection calculations, and the permissible deflection shall comply with the requirements of BS EN 40-3-3:2013.
- b. The pole shaft shall be single section, octagonal type, continuously tapered, and fabricated with a single longitudinal submerged-arc weld, with no circumferential welds. Each pole shall be provided with a rigid base flange plate of suitable thickness, designed for a minimum of four foundation bolts, and the base plate shall be fillet-welded to the shaft on both inner and outer sides. The poles shall be hot-dip galvanized in accordance with IS 2629, IS 2633 and IS 4759, with an average zinc coating thickness of 70 microns, achieved through a single-dip galvanizing process. The zinc ingots used shall be of minimum 99.99% purity, sourced from approved/reliable suppliers and supported by valid Quality Test Certificates. The pole manufacturing and galvanizing facilities shall be ISO 9001 and ISO 14001 certified.
- c. Each pole shall be supplied with a hot-dip galvanized decorative mounting bracket, as approved/selected by the Employer, suitable for secure installation of the specified luminaires.
- d. Each pole shall be provided with an integrated junction box having an openable door of suitable size (approximately 500 mm height), located 1000 mm above the base plate. The door shall be mechanically interlocked to avoid theft, dustproof, weatherproof, vandal-resistant, flush-fitted with the pole surface, and provided with a suitable locking arrangement. The pole shall be adequately reinforced around the door opening to compensate for the material removed. The junction box shall provide clear access to termination strips, connectors, MCBs and cables, along with suitable earthing provisions. Electrical connections shall include four-way slide-lock connectors, suitable for 1.1 kV grade, up to 4C × 35 sq.mm aluminum cable, 6 A DP MCBs for each fixture, and 2.5 sq.mm connectors for looping 2.5 sq.mm copper wires. The luminaires shall

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be connected through 0.6 kV grade, 3C × 2.5 sq.mm PVC-insulated, flexible, unarmored copper cables, with no joints permitted in cables routed through the pole.

- e. Two earth bosses shall be provided at the bottom of the pole, diagonally opposite each other, suitable for 25 × 6 mm GI strip or minimum 8 SWG GI wire, and an additional earth boss shall be provided on the internal control plate for 4 sq.mm copper wire earthing of electrical components. Each pole shall be earthed with one dedicated earth electrode; the electrode shall be a GI pipe electrode and for rocky or high resistivity soil chemical earthing with back fill compound recommended (Ref- IS 3043). Earthing resistance value should remain ≤5 ohms.
- f. Prior to Manufacture the Vendor shall submit GTP, GA drawing and Structural calculation of Highway Light Pole along with its Foundation drawing and Structural design to client for approval and further process.
- g. Also, before dispatch, the vendor shall carry out all applicable tests and inspections on the poles in the presence of the Employer or a Third-Party Inspection (TPI) Agency nominated by the Employer, at no additional cost to the Employer. The poles shall not be dispatched without completion and acceptance of the required inspections and tests.
- h. The Highway light foundation design shall be suitable for a minimum wind speed of 150 km/hr in accordance with IS 875. Concrete shall be M20 grade (1:1.5:3) with Fe 500 or Fe 415 reinforcement steel. Two minimum 40mm OD flexible HDPE/DWC pipe, 500m long, shall be embedded in the foundation for cable routing for both directions. The Highway Light Foundation shall be structurally designed and executed in accordance with the approved foundation drawings issued by the Highway Light Pole OEM and approved by the Client.
- i. The contractor shall propose a suitable foundation construction method, either precast or cast-in-situ, based on the site conditions, soil bearing capacity, structural stability requirements of the project location. The poles shall be securely bolted to the foundation using a minimum of four foundation bolts to ensure adequate rigidity and stability.
- j. At structure locations, the highway light pole shall be mounted on a hot-dip galvanized L-type bracket, suitably designed to withstand the self-weight of the pole with complete setup as well as applicable wind loads. The bracket shall be securely fixed to the cross barrier using adequately sized 04nos of stainless-steel nuts and bolts/Fastner at mounting height as per the approved lighting design. The contractor shall submit the bracket GTP and drawing, structural design and calculations, material specifications, and fixing methodology for CLIENT review and approval prior to installation. (Note: Fastener-type fittings shall be used only after client approval, only HILTI make is preferred)
- k. The contractor shall provide sequential numbering on each Highway light pole, The pole number shall be painted in black lettering within a yellow circular marking, at a location and size approved by the client, ensuring clear visibility and uniformity throughout the project.

6.5 LT Cable and It's Termination

All LV power cables shall be 1.1KV grade, multi-stranded aluminium/copper conductor, XLPE insulated, PVC sheathed (ST2) and provided with galvanized steel strip armour. Cables shall comply with IS 7098 (Part 1), and armouring shall comply with the latest applicable version of IS 3975. The cable shall be selected and rated for use at the following site conditions: Ambient temperature: 50°C, Ground temperature: 30°C, Solar gain 1100w/m², Relative Humidity: 95%Max, Atmospheric Condition: Non-corrosive, Humid and Dusty.

- a. The contractor shall submit a detailed cable route plan, including cable size/rating, route length, connected load, and voltage-drop calculations, for client approval prior to execution. Power distribution cable sizing and maximum permissible circuit length shall be determined based on the design load and applicable voltage-drop criteria, with the maximum permissible voltage drop limited to 3%. All under and over ground cables shall be suitably protected, concealed, and routed through a safe and secure passage to minimize the risk of unauthorized access, mechanical damage, tampering, or theft. The cable installation shall comply with the approved route plan and applicable statutory codes and project specifications.

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- b. All LT power and control cable terminations shall use double-compression glands, with aluminum lugs for aluminum conductors and tinned-copper lugs for copper conductors, including all necessary clamps, cleats, cable tags, markers, and accessories. Cable installation shall comply with the latest applicable version of IS 1255. Cable tags shall be provided at the feeder pillar termination and at each pole junction box, immediately before cable entry into the equipment enclosure.
- c. Underground cables shall be laid through DWC conduits of minimum 35/50 mm ID (as per requirement) by open excavation. At structure locations, cables shall be routed along the structure wall through HDPE conduit 50mm ID, securely fixed with GI or AI clamps at maximum 1.0 m intervals. For road crossings by open excavation, cables shall be laid with a minimum 1.0 m cover below FGL inside 100 mm OD HDPE conduit of minimum 6 mm wall thickness; where the specified depth cannot be achieved, 150 mm dia Hume pipe (RCC) shall be provided as protective casing, subject to Site in charge's approval. For HDD road crossings, the top of the conduit shall be maintained at a minimum 750 mm below FGL, using 100 mm OD HDPE conduit with minimum 6 mm wall thickness. A RCC chamber of 1m×1m×1m with water/Dust proof RCC cover shall be provided at both ends of each road crossing. All disturbed roads, pavements and surfaces shall be reinstated to their original condition using approved materials and standard construction practices.
- d. Cable joints shall be of heat-shrinkable or pre-molded push-on type, from approved/reputed manufacturers, and valid test certificates shall be submitted during inspection. No cable joints shall be permitted within road-crossing sections or between two consecutive poles/structures.
- e. Concrete LT cable route markers shall be provided at maximum 30m intervals and at every change in direction, projecting 150 mm above FGL, without obstructing pedestrians, parked vehicles or traffic, with suitably sloped tops to prevent water and dust accumulation.

The cables will be measured in meters, The unit rate shall include cutting the cable into required lengths, packing, loading, unloading, transportation, delivery and testing of cables at site

6.6 Technical Criteria of LED Luminaries

The average atmospheric conditions during the year are given below. The equipment shall be designed to work under these conditions: Maximum ambient air temperature: 45 °C, Minimum ambient air temperature: 5 °C, Maximum relative humidity: 90%, Atmosphere: dusty and humid, Rainfall: 1000 mm.

- a. Luminaires shall be suitable for a single-phase, three-wire supply (phase, neutral and earth) and shall maintain rated lumen output under specified voltage variations, fluctuations, transients and harmonics. The luminaire shall comprise a single-piece, high-pressure diecast LM6 aluminum alloy housing, corrosion-resistant and suitably epoxy/polyester powder coated after phosphor-chromate treatment, with IP66/Higher and minimum IK08 impact protection.
- b. The housing shall be free from cracks/through-holes and provided with an extruded silicone gasket; felt gaskets shall not be permitted. The heat sink shall be high-conductivity extruded aluminum, thermally coupled to the MCPCB/LED assembly and adequately designed for effective heat dissipation. The luminaire shall accommodate 3C × 2.5 sq.mm copper flexible cable through double-compression glands and shall use high-power LEDs with individual polycarbonate lenses mounted on a lens plate, providing Cut-Off/Semi Cut-Off photometric distribution in accordance with IS 1944/NLC 2010.
- c. Luminaire efficacy shall be more than 150 lm/W, the assembly shall include a high-efficiency (90%) metallic LED driver, operating Voltage 140V to 277V AC, suitable optical cover, corrosion-resistant hardware and LSZH/fire-retardant internal wiring. The LED driver/control gear shall comply with IEC 61347-2-13, IEC 62031 and IEC 62384, as applicable.
- d. Incorporate protection against overload, short circuit, over/under-voltage (140V Low and 277V High), over-temperature, LED string open circuit and surge. Each luminaire shall be provided with an external minimum 20 kV/10 kA SPD with thermal protection, complying with applicable ANSI C136.2/UL 1449 and IEC 61643-11/IEC 62305 requirements.

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- e. All materials shall be RoHS-compliant, halogen-free, fire-retardant and free from toxic materials such as mercury. The Manufacturer shall provide relevant NABL-accredited laboratory reports, including LM-79, LM-80, LM-90 IS 16103/IS 16107 and applicable safety/performance test certificates, and submit LED OEM procurement evidence during inspection. The luminaire shall be permanently marked with the manufacturer, model/serial number, batch number, year, wattage and frequency.

6.7 Technical Criteria of Highway Light Feeder Pillar

All Feeder Pillars shall be outdoor type, single-front, double-door, steel-support mounted non-compartmentalized, weather and vermin proof enclosures with secure locking provisions.

- a. The enclosure shall be fabricated from 3 mm CRCA sheet, hot dip galvanized after complete fabrication with a 3 mm gland/base plate and provided with a permanent rain canopy, minimum IP55 and IK10 protection. All cutting, drilling, punching and welding shall be completed before galvanizing and surface treatment; the enclosure shall be free from externally visible welds and thoroughly cleaned before the seven-tank chemical pretreatment process, followed by epoxy powder coating in the approved colour, with a minimum 80–100 µm DFT.
- b. Doors shall be provided with neoprene gaskets, concealed hinges, captive screws, corrosion-resistant stainless-steel hardware, Suitable Panel locks with duplicate keys. Feeder Pillars shall be uniformly sized and installed with the bottom at least 500 mm above foundation level.
- c. Each Feeder Pillar shall include a suitable arrangement of Incoming Side 3-Phase Indicator, 3-phase digital panel meter, TP-N Main incoming MCCB/MCB with SPD protection, Digital timer and contractor circuit for timely operation, dedicated TP-N MCB for each outgoing feeder. A LED light & Socket shall be provided inside the panel for maintenance work.
- d. All Panel Switch gears shall comply with applicable IS/IEC standards, be current-limiting type and provide thermal-overload, short-circuit and earth-fault protection, as applicable, with the specified fault-clearing and breaking-capacity requirements. SPDs shall be tested in accordance with the requirements of IEC 60364.
- e. Bottom cable entry shall be provided with double-compression glands suitable for 02 runs of 3.5C × 50/70 sq.mm aluminum XLPE armored incoming cables and minimum 04 runs of 4C × 16/25/35 sq.mm aluminum XLPE armored outgoing cables.
- f. Each Feeder Pillar shall be provided with two Chemical earthing electrodes in accordance with the latest applicable IS 3043, interconnected using a 25 × 6 mm GI earth strip. A suitable HDPE/DWC pipe of minimum 40 mm internal diameter shall be provided up to the feeder pillar for routing and termination of buried incoming and outgoing cables, and the GI earthing strip shall be neatly routed and properly dressed.
- g. A 2 mm GI danger notice board in English and Hindi and durable radium markings and Name Plate indicating Feeder Pillar number, Voltage, Discom Connection/meter number, Ownership name shall be provided.
- h. Street Light Feeder Pillars shall be located at safe and technically suitable positions, ensuring that they do not obstruct traffic movement, road safety and proper access to feeder pillar.
- i. The feeder pillar shall be mounted on a prefabricated hot-dip galvanized steel support structure off 500mm ground clearance, securely anchored to an M20 concrete foundation with a suitable height as site condition and designed considering the applicable local soil, seismic and environment conditions.
- j. The feeder pillars quantity and installation chainages shall be determined by the contractor based on the overall Highway Lighting circuit length & connected load, permissible voltage drop and power losses, safe and practical cable routing, suitable locations for panel installation, and feasibility of obtaining the local grid connection. The proposed feeder pillar locations and quantity shall be supported by appropriate load schedules, cable sizing and voltage-drop calculations and shall be submitted to the client for review and approval prior to installation.
- k. The contractor shall submit the following documents of feeder pillars for client approval: General Arrangement (GA) drawing, support and foundation drawings, wiring/schematic diagram, Quality Assurance Plan (QAP), and datasheets for all components.

6.8 Feeder Pillar's Control Components Criteria

- a. Main Incomer: TPN/FP, MCCB/MCB Rating as per connected load, 100 mA sensitivity, current-limiting, B/C-curve, minimum 10 kA breaking capacity.
- b. Incomer side - 3Ph LED Indicator (RYB) with ON, OFF & Trip indicator, 3ph Digital Panel Meter (Load, Amp, Vol, Hz, PF, KWh, KVAh, KVARh) and Individual feeder ON indicator Lamp provided for every O/G Feeder. Cast Resin CT and PT of appropriate rating shall be provided at the incomer side for metering.
- c. Surge Protection Device- SPD-Suitable rating and provide protection between the line to earth (common mode), TP-N, Type-2, 8/20 microseconds waveform, UP-1.5KV, I_{max} 40KA, Visual Healthy/Dead.
- d. Rotary/Selector Switch-On/OFF, Manual/Auto, 03-Position, 415V AC, 50Hz
- e. Contactors: 4-pole, 3-phase, 440 V, 50 Hz, AC-3 duty, high rupturing capacity.
- f. Digital Timer: Single-channel, programmable control with automatic power-resume reset and manual override.
- g. Voltage Monitoring Relay: Adjustable under/over-voltage(300-500V) relay with time-delayed automatic disconnection and reconnection within the permissible voltage range.
- h. Busbar: Minimum 25 × 3 mm Al Busbar with Sheet Molding Compound insulation supports; phase and neutral busbars shall be of equal cross-section.
- i. Outgoing MCB: MCB Rating as per connected load, 100 mA sensitivity, current-limiting, C-curve, minimum 10 kA breaking capacity. (Qty as per Outgoing Feeder and 02no Spare shall be maintain)
- j. Terminals Connectors: Terminal blocks/connectors shall be suitably rated and sized for the specified incoming and outgoing cable sizes, including the required current-carrying capacity, insulation level, and termination arrangement. Provide spare terminals for future use.
- k. Internal Wiring: FRLS PVC-insulated stranded Cu conductors; minimum 1.5 sq.mm for control and 4 sq.mm for power circuits.
- l. Panel Illumination: 7 W LED lamp with door-operated limit switch, and 16A Socket supplied from the meter outgoing through a dedicated DP MCB.
- m. Earth Bus: Continuous GI/Al earth busbar along the feeder pillar base, bonded at both ends to the external earthing system for connection to the GI earth strip.

All materials, equipment and accessories shall comply with the latest applicable IS standards and amendments and shall be supplied with valid Manufacturer's Test Certificates. The completed feeder pillar shall have a minimum insulation resistance of $\leq 5 \text{ M}\Omega$ between live parts and earth, and all power circuits/equipment shall withstand an HV test of 1.5 kV AC for 1 minute between live parts and earth without insulation breakdown

6.9 Technical Criteria of High Mast Pole

This specification covers the Design, Supply, installation, testing and commissioning of the complete of 30m High mast Light, including civil foundation works.

- a. Applicable Standards: ILP -TR No. 7 - High Masts for Lighting, SABS 0225:1991 - High Mast natural frequency calculation, IS 875 Part 3 - Wind loading, BS EN 10025:1993 - High tensile steel sheets, IS 2062 - Mild steel, BS EN ISO 1461 - Galvanization, IS 3459 / 2266 - Stainless steel wire rope, IS 9968 Part 1 - Trailing cable, IS 325 - Motor, IS 5135 - Welding
- b. Structure: The High Mast shall be of continuously tapered polygonal construction, with a minimum of 20 sides for 30m High mast light with 03 Section, providing a uniform and aesthetically suitable profile. The mast shall be of a proven, established design complying with the applicable specified standards and shall be structurally designed to ensure safe and reliable performance under wind loading in accordance with IS 875 (Part III).
- c. Construction: High Mast sections shall be fabricated from steel plates conforming to BS EN 10025 or equivalent IS standards, formed to the specified polygonal profile. Sections shall be telescopically welded as per BS 5135/AWS, with one longitudinal weld only and no circumferential welds. Welds shall be tested for

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- geometry and workmanship; electrodes shall match or exceed the base-metal mechanical properties. Site assembly shall be by slip stress-fit jointing only, with no site welding or bolting. Minimum overlap shall be $1.5 \times$ mast diameter at penetration. Structural design calculations, certified by a Structural Engineer, shall be submitted before fabrication. The base flange shall be fully penetrated and designed to develop the full mast-section strength, with supplementary gussets between bolt holes to prevent helical movement. Each mast section shall be hot-dip galvanized internally and externally by single-dip process in accordance with BS EN ISO 1461.
- d. Door Opening: A reinforced access door shall be provided at the mast base, suitably sized for inspection, maintenance and removal of the winch, cables, plug/socket and associated equipment. The door shall be close-fitting, vandal-resistant and weatherproof, with a heavy-duty double internal lock, special paddle key and padlock provision. The door opening shall be structurally reinforced with welded steel sections to maintain mast integrity and prevent local buckling.
 - e. Lantern Carriage: The lantern carriage shall be fabricated from steel tubes, sized for the specified floodlights, suitable for 12-14 no fixtures and control gear, and designed for self-balancing. Tubes shall serve as cable conduits, with all openings protected by grommets. The carriage shall comprise two bolted halves with stainless-steel bolts and nylon-type stainless-steel nuts for easy installation/removal. Internal PVC lining shall protect the mast surface during raising/lowering. The complete carriage shall be hot dip galvanized after fabrication.
 - f. Junction Box: A weatherproof, cast-aluminium junction box shall be provided on the lantern carriage for interconnection of the specified floodlight luminaires and associated control gear.
 - g. Winch: The winch shall be self-sustaining and self-locking, requiring no brake shoes, springs or clutches, with gravity-operated pawls positively locking each driving spindle. Each drum shall permit independent operation for fine carriage adjustment. The winch shall have a suitable gear ratio for smooth operation, with minimum SWL of 750 kg, oil-bath self-lubrication using readily available reputed-brand oil, and clearly marked capacity, operating speed, SWL, lubrication grade and serial number. The grooved drum shall ensure secure rope winding without slippage, with rope termination preventing distortion/twisting and maintaining minimum 5-6 turns on the drum when the carriage is fully lowered. The winch shall be manually operable or power-tool driven, and the double drum shall be removable through the mast access door. A reversible gearbox shall be provided for simultaneous double-drum operation. The winch shall be type-tested by a reputed institution, with valid test certificates submitted prior to supply. An OEM certificate confirming the rated maximum operating load shall be provided for each winch.
 - h. Head Frame: The head frame shall be a welded steel capping assembly, hot dip galvanized internally and externally after fabrication. The pulley assembly shall be of non-corrodible LM-6 die-cast aluminium, suitably sized for SS wire ropes and multi-core cable; plastic/PVC pulleys are not permitted. Pulleys shall have stainless-steel shafts and self-lubricating bearings. The assembly shall be canopy-protected and provided with rope/cable guides, sleeves, carriage docking guides/stops and PVC buffers.
 - i. Wire Ropes: The suspension system shall use continuous AISI 316 or superior stainless-steel wire ropes, without intermediate joints or terminations. Ropes shall be 7×19 construction with SS core, minimum 6 mm dia., with minimum breaking load of 2350 kg per rope and system safety factor >5 at full load. Winch ends shall be secured using Talurit fittings/compression splices. Two continuous rope lengths shall be provided between the winch and lantern carriage.
 - j. Winch Power Tool: Each mast shall be provided with an internally mounted, electrically operated power tool with manual override, suitable for the specified carriage load and operating speed. The unit shall be single-speed, self-supporting, correctly aligned with the winch and complete with controls. Mechanical torque/load limiting protection shall be provided with adjustable settings, automatic trip and operator warning, including independent rope over-stretch protection. Each mast shall have a dedicated power-tool motor.
 - k. Electrical System & Cable Termination: The trailing cable shall be 1.1 kV, EPR-insulated, PCP-sheathed Cu cable, minimum 5C × 2.5 sq.mm, with suitable male/female connectors and one cable per mast. Luminaire

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wiring shall be 3C × 1.5 sq.mm PVC-insulated flexible Cu cable (FRLS). The base compartment shall include suitable incoming cable termination and an MCB for supply isolation.

- l. Aviation Lamp and LA: One dedicated Lighting Arrester and LED Type double dome aviation obstruction light shall be provided at the top of High mast light.
- m. High mast Light Panel: outdoor type stands mounted feeder pillar with 40A TPN MCB incomer single dial time switch 40A FP contactor for the automatic switching of luminaries' power tool control with 2 no 16A contactors and raise lower push button Incoming 35 sq. mm and outgoing 20 x 1.5 sq. mm terminals. Construction of shallow foundation with M20 grade concrete for the high mast considering the safe soil bearing capacity at site as 10 T/sq mtr at 2 metre depth with all materials and labour. (Foundation civil design will be approved by structural consultants).
- n. Earthing: The High Mast and feeder pillar shall each be effectively earthed through 2 Nos. earth pits, maintaining the mast body at earth potential under normal conditions. Earthing shall comply with IS 3043, CEA guideline 2010.

High mast Light Foundation: The Contractor shall be responsible for the complete civil work of the RCC foundation for 30 m high-mast lighting, including site setting-out, excavation, PCC, RCC of minimum M30 grade, Fe500/Fe500D reinforcement, formwork, anchor bolts with template, cable sleeves/conduits, earthing provisions, non-shrink grouting, backfilling, compaction, curing, testing and all associated works. The foundation shall be designed certified by OEM of High mast light pole, based on the actual soil conditions, applicable wind/seismic loads in accordance with applicable IS Codes. Detailed structural calculations, foundation drawings and method statement shall be submitted for client approval prior to execution.

6.10 Centralized Control & Monitoring System (CCMS)

6.10.1 Operational Features

- a. The CCMS unit shall be capable of switching **ON and OFF** the highway lights of an individual switching point and/or networked switching points from the **Central Control Station**, either instantaneously or automatically throughout the year based on **sunrise and sunset timings**, depending on the geographical location of the switching point.
- b. The CCMS unit shall be a **GPRS and/or GSM-based (with unique IMEI number)** proven technology remote Highway Lighting monitoring system with in-built protection against **short circuit, over-voltage, surge, and anti-theft/tamper alerts**.
- c. The CCMS unit shall be provided with an internal backup arrangement capable of maintaining Real Time Clock (RTC), configuration data, event logs and power failure/restoration records during power interruption. The system shall be capable of recording and communicating power failure and power restoration events, and the RTC shall remain functional for minimum 3 days during power interruption.
- d. The CCMS shall have **optically isolated communication/RS485 ports** for secure data transfer and protection against unauthorized access.
- e. The rating of the CCMS unit shall be minimum twice the connected lighting load.
- f. CCMS shall provide remote restoration through motorized switching arrangement or equivalent technology, incorporating safety interlocks and maintenance lockout provisions to prevent unintended energization during fault conditions or maintenance activities.
- g. The CCMS unit shall have an independent hardware timer to ensure operation of highway lights in case of network failure or any technical glitch.

6.10.2 Energy and Measurement Features

- a. Each CCMS feeder panel shall be provided with a 3-Phase, 4-Wire Energy Meter, ISI marked, LT AC, CT operated, static, DLMS compliant (Category C1)/Modbus, with CT ratio 100/5A or 200/5A, having Accuracy Class 1 for both active and reactive energy, with Optical Port and RS-232/RS-485 communication port, along with compatible software, to be installed inside the CCMS panel.

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- b. The CCMS control panel shall include, but not be limited to, MCB, MCCB, contactors, relays, transformer, controller, SPD, CCMS Panel Size 850*750*250 Stand Mounted and associated accessories.
- c. The CCMS unit shall be capable of recording and providing the following parameters at programmable time intervals, switching-point wise and/or networked switching points: – Phase-wise Voltage – Phase-wise Current – Power Factor – Active Power (kW) – Apparent Power (kVA) – Cumulative Energy (kWh) – Cumulative Energy (kVAh).
- d. Recording of number of glowing hours of LED luminaires connected with each switch controller.
- e. Recording of power supply interruption duration.
- f. Provision of special emergency ON/OFF operation through wireless control.
- g. Benchmarking and threshold setting capability for generation of SMS alerts for: – Phase-wise over/under current – Phase- wise over/under voltage – MCCB trip – Theft / tamper alert – Group failure of lights – No output supply.
- h. Alert SMS shall be forwarded to minimum five (05) mobile numbers.
- i. Provision for future integration of smart solutions such as environmental sensors, Wi-Fi hotspots, etc.
- j. Accuracy Class 1.0 as per IEC 62053-21 (Class 0.5: IEC 62053-22-Optional) energy meter, with type test report from NABL accredited laboratory, shall be provided. The energy meter shall be calibrated annually.
- k. In case of an inbuilt energy meter, it shall be DLMS compliant, and shall have Class 1.0 as per IEC 62053-21 (Class 0.5: IEC 62053-22-Optional) accuracy for active energy (kWh) measurement. The integrated system shall measure, record and communicate all required electrical parameters including kWh, Voltage, Current, kW, kVA, kVAR, Power Factor and Frequency, and shall meet all data logging, reporting and functional requirements specified in the tender without any relaxation of performance criteria.

6.10.3 Web Based Central Control & Monitoring System

- a. CCMS shall have a web-based central server to receive, store, and process data from all CCMS units with time stamping.
- b. The system shall allow group-wise control and monitoring of switching points.
- c. The system shall record glowing and non-glowing hours of LED luminaires for each switching point.
- d. Display of power failure details feeder-wise.
- e. Registration and display of all fault conditions such as over- voltage, over-current, power failure, contactor failure, door open alarm, etc., with real-time alerts.
- f. Generation of daily automated reports including energy consumption, energy savings, lamp failure, actual operating hours, and system uptime (%).
- g. Role-based user access control with capability to handle large- scale deployments.
- h. GIS / Google Map based visualization of all CCMS switching points.
- i. Remote configuration of CCMS units including ON/OFF timings, automation response time, system reset, and status monitoring.
- j. Minimum data update interval of 15 minutes, programmable up to 1 minute.
- k. GPS-based time synchronization of controllers and central server.
- l. Secure data storage for minimum 24 months online and archived data for entire contract period.
- m. Cyber security provisions including jamming/hacking detection, self-healing mechanism, and fail-safe operation ensuring default ON/OFF operation during system failure.
- n. The CCMS system shall be integrated with the centralized NHAI Head Office server/portal through secure API implementation for monitoring reporting and data management purposes. The bidder shall be pay such API integration, ration, portal usage, cloud hosting, data storage and related charges, if any, as may be prescribed by NHAI/authorized agency from time to time. The actual charges paid by the contractor towards such services shall be reimbursable by the Authority on submission of supporting documents and proof of payment.

6.11 Documents to be Submitted with the Technical Bid

The Contractor shall submit the following documents along with the Technical Bid for CLIENT review and evaluation:

- a. Design Basis Report: Including proposed lighting design, lux-level calculations, design criteria, applicable standards, and item-wise quantity summary.
- b. Detailed BOQ: Clearly indicating item descriptions, quantities, unit of measurement and separate Supply and Installation rates for each item.
- c. Execution Methodology: Detailed approach and methodology for execution, installation, testing, commissioning, and overall project implementation.
- d. Manpower & Schedule: Proposed manpower deployment plan, key personnel details, execution methodology, and detailed project completion schedule.

6.12 Documents to be Submitted Prior to Execution of Work

The Contractor shall submit the following documents for Client approval prior to commencement of the respective works:

- a. Final Design Basis Report: Including finalized lighting design, lux-level calculations, design criteria, applicable standards, and item-wise quantity summary.
- b. Layout Plan/ GFC Drawings: Showing the locations of Highway light poles, high-mast lights, cable routes, feeder pillars, road crossings, and other relevant electrical installations.
- c. GTP & Structural Calculations: Guaranteed Technical Particulars of Highway light poles, High-mast poles and lighting arms, including structural design and calculations duly certified by the OEM.
- d. Foundation Drawings: Detailed civil foundation drawings and design calculations for Highway light and high-mast poles, duly prepared/certified by the OEM.
- e. Cross-Barrier Bracket Details: GTP, structural details, fixing arrangement, and installation methodology for L-type brackets on cross barriers. (wherever applicable)
- f. Lighting Stretch Load & Electrical Connection Details: Stretch-wise, connected load, feeder pillars allocation, electrical connection arrangement, and load distribution details.
- g. Cable Measurement & Distribution Schedule: Cable measurement sheet, cable routing details, feeder-wise power distribution with respect to voltage-drop calculations.
- h. Feeder Pillar GA Drawings: General Arrangement drawings with complete technical details, dimensions, component specifications and SLD/schematic arrangement of Highway light and high-mast feeder pillars.
- i. Test Certificates & Reports: Factory Acceptance Test Report, Site test report, compliance certificates from OEM.
- j. Earthing System Details: Earthing design, arrangement, calculations, material specifications, locations, and installation methodology.

6.13 Documents to be Submitted After Completion of Work

Upon completion of the works, the Contractor shall submit a complete Handover / As-Built Dossier for client approval, comprising, as a minimum:

- a. As-built drawings reflecting the actual installed locations, cable routes, feeder pillars, poles, high masts, road crossings, and other electrical installations.
- b. Approved/final Design Basis Report and lighting design calculations.
- c. Final Lux Test Reports and test results demonstrating compliance with the specified lighting criteria.
- d. Final equipment datasheets, technical specifications, and approved GTPs.
- e. Test reports and commissioning records for all relevant electrical equipment and installations.

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- f. Original OEM Warranty Certificates, duly signed and stamped by the OEM.
- g. Any other drawings, certificates, test records, manuals, and documents required by the client for complete handover and future operation and maintenance

6.14 List of Approved Makes

S.no	Items	Approved Makes/ Criteria
1	Highway Light Pole and Arms	Bajaj, Valmont, Utkrash, Transrail, Skipper, Jindal, RR Ispat
2	High mast Light Pole	Bajaj, Valmont, Jindal, Utkrash, Transrail, Skipper, RR Ispat
3	LED Highway Light & High mast Light	Signify (Philips), Havells, Bajaj, Compton, Wipro, Jaquar, Surya
4	LT Cable	Polycab, KEI, RR Kabel, Havells, Universal, Finolex,
5	Flexible Cu Cable (FRLS)	Polycab, Finolex, KEI, RR Kabel, Havells, Universal
6	HDPE and DWC Pipe	Rex, Gemini, Duraline, Creator poly, or equivalent approve by Gov. agency like PWD etc
7	Highway Light Pole Fidler Pillars	ISO/CPRI Certified and NABL Approved
8	MCCB and MCB-	Legrand, Siemens, ABB, Scheinder, Havells, L&T
9	SPD	Phonix, Schneider, ABB, Siemens, C&S, Havells
10	Digital Panel Meter	Schneider, Secure, Neptune, ABB, C&S, Elmeasure
11	Current Transformer	Schneider, Siemens, ABB, L&T, Nippen
12	Selector/Rotary Switch	GE, Siemens, C&S, ABB, Schneider, L&T
13	Voltage Monitoring Relay	ABB, Siemens, L&T, Schneider,
14	Digital Timer Switch	Legrand, Siemens, ABB, Scheinder, Havells, L&T
15	Contractor (Heavy duty)	Legrand, Siemens, ABB, Scheinder, Havells, L&T
16	Terminal Blocks	Wago, Hensel, Phoenix, Elmax, Dirak, Connectwell, Gewiss
17	GI/Chemical Earthing	ISO/CPRI Certified, Approved by Gov. Agency PWD etc.

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ANNEXURE – A

Form A – Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand

(On letterhead of the bidder)

To,

M/s National Highways InvIT Project Managers Pvt. Ltd (On Behalf of SPV)

1st Floor, Asia Bhawan (Gate No 2), Road no 205,

Sector – 9, Dwarka,

New Delhi-110075

Subject: Technical bid for Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand

Sir/Madam,

We, the bidder, having read and examined in detail the Specifications and Scope of the Work as specified in this document in respect of Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand.

1. Financial Standings

The contractor should provide all the required details in the table below and submit the supporting documents.

S. No	Description	FY 2025-26	FY 2024-25	FY 2023-24	FY 2022-23	FY 2021-22
1	Total Assets					
2	Current Assets					
3	Total External Liabilities					
4	Current Liabilities					
5	Liquidity (2-4)					
6	Profitability					
7	Net Worth (1-3)					
8	Annual Turnover					

*** Balance Sheet and Income Statement for the respective years must also be submitted.**

2. Past Experience and Testimonials

The Contractor should submit the details of all past projects in the last 5 years. Work Value, including the following:

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S. No.	Description of Work	Name of the Client along with contact person details	Total Work Value (INR Cr.)	Project Start Date	Project End Date
1					
2					
3					
4					
5					

3. Key Terms and Conditions

- a) A Performance Bank Guarantee (PBG) of **5%** of the Contract Value (excluding GST) must be submitted within 15 working days of the award of the contract or mail confirmation.
- b) Financial Proposals will only be considered and evaluated for Contractors who fulfils the technical evaluation criteria and are deemed suitable by the Company for the execution of the works.
- c) If the company discovers any discrepancies or false information shared during the technical evaluation of the contractor, the contractor will not be considered for the current or any future works of the company, and disciplinary actions will be taken as per the Company's policy.
- d) Failure to share proofs of submitted information in this form may result in non-consideration for the financial proposal for this project.

Thanking You
Yours,

Authorized Signatory

(Name of representative)
(Name of Firm)

(Date)
(Seal/Stamp of the Firm)

National Highway InvIT Project Managers Private Limited (NHIPMPL)

ANNEXURE – B

On the Letter Head of the Bidder)

Financial Proposal
From (Name and Address of the Bidder)

To,
M/s National Highways InvIT Project Managers Pvt. Ltd (On Behalf of SPV)
1st Floor, Asia Bhawan (Gate No 2), Road no 205,
Sector – 9, Dwarka,
New Delhi-110075

Sub: Request for Empanelment (RFE) Issued by National Highways InvIT Project Managers Pvt Ltd for Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH-30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand.

1. Abstract Cost for the Said Scope of Works

<u>Description</u>	<u>Amount</u>
Design, Supply, Installation, Testing, and Commissioning of High-Quality Integrated LED Highway Lighting along with CCMS from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH-334 in the States of Uttar Pradesh & Uttarakhand	

Name and Signature of Bidder's Authorized Signatory

Date:

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2. Bill of Quantities for Supply and Installations of New Highway Light Poles

S.no	Description	Unit	Qty	Rate	Total
1	Supply and erection of 10 Meter Octagonal GI Highway Light Pole, continuously tapered, hot-dip galvanized with minimum 65 micron coating, complete with base plate, 4 foundation bolts, lockable door, 6A SP MCB and 4 Nos. 16 sq.mm connectors, including excavation and construction of suitable M-20 grade concrete foundation, complete.	Nos	664		
3	Supply and fixing of 200 Watt LED Highway Light Fixture, complete with LED driver, mounting arrangement, connectors, clamps and all necessary accessories, suitable for outdoor installation, complete	Nos	1328		
4	Supply, Installation, Testing & Commissioning of 35 Sq.mm, 4 Core Armoured Aluminium XLPE Underground Cable complete with accessories.	Meter	23240		
	HDPE pipe with I.D. 43 mm & O.D. 63 mm. (For Cable Laying)	Meter	19920		
5	Supply, Installation, Testing & Commissioning of 2.5 Sq.mm Copper Flexible FRLS Wire complete with accessories.	Meter	1328		
6	Feeder Panel, control panel, necessary accessories, supports, refrigerant piping connections, testing and commissioning, complete	Nos	20		
	Required connection new				
a	Transformer	Nos	26		
b	Poles	Nos			
c	Wire Clamps / meter charge & security amount	Nos			
		Total			

3. Bill of Quantities for Rectification of the Existing Highway Light Poles.

S.no	Items	Unit	Qty	Rate	Amount
SITC of Cable					
1	Supply and installation of highway light cable connection plate with aluminium lugs/thimbles and PVC insulation tape, complete with all necessary accessories, as required.	Nos	1770		

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S.no	Items	Unit	Qty	Rate	Amount
2	Supply, installation, laying, testing and commissioning of 16 Sq.mm, 4-Core Aluminium armoured cable from highway light pole to pole, complete with all necessary accessories, cable glands, lugs and connections, as required.	Meter	9960		
3	Supply, installation, laying, testing and commissioning of 25 Sq.mm, 4-Core Aluminium armoured cable from highway light pole to pole, complete with all necessary accessories, cable glands, lugs and connections, as required.	Meter	49810		
4	Supply, installation, laying, testing and commissioning of 35 Sq.mm, 4-Core Aluminium armoured cable from highway light pole to pole, complete with all necessary accessories, cable glands, lugs and connections, as required.	Meter	11685		
5	Supply, installation, laying, testing and commissioning of 2.5 Sq.mm 3 core copper cable from highway light pole to pole, complete with all necessary accessories, cable glands, lugs and connections, as required.	meter	26000		
SITC HDPE Duct					
5	HDPE pipe with I.D. 43 mm & O.D. 63 mm. (For Cable Laying)	Meter	65995		
HDD work					
6	HDD Work 150 MM DIA with 2 Meter Depth	Meter	2005		
Highway Light Panel with CCMS					
7	Supply, Installation, Testing and Commissioning of Following Sub Feeder Pillars, With Provision of Metering System, suitable for 415 V, 1 phase / 3 phase, 4 wire, 50 Hz, power supply distribution system. The panel shall be 1.6mm sheet metal enclosed, double door conforming to IP 54, with Bus bars. The painting process shall conform to relevant IS code for outdoor application. I/C : 63A 4pole MCB - 1 No. + Indication Lamp : - 3 Nos. + 80A 4P Contactor + A/M Selector switch + Ino. CCMS control Panel, Push Button Start and Stop. O/G : 25-63A SP MCB 6 Nos.	No	34		
Highway Light Pole Cover					

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S.no	Items	Unit	Qty	Rate	Amount
8	Octagonal Pole Cover - Galvanized Iron , 4- And 6-foot Lengths With Nylon Button, Grey Color, Ribbed Design To Minimize Contamination with welding	No	1500		
9	Supply, installation, testing and commissioning of 220W LED highway light, complete with all necessary accessories, mounting hardware and connections, designed to achieve an average illumination level of 40 Lux, as required.	no	2500		
10	Supply and installation of 8 SWG GI earth strip for interconnection of highway light poles, including necessary clamps, connectors and all accessories, complete as required.	Meter	54870		
11	Supply, installation, testing and commissioning of 3.0 m long GI chemical earthing electrode, complete with earth enhancement compound, earth conductor, 300 × 300 × 300 mm PVC inspection chamber, concrete cover/base, clamps and all necessary accessories, as required.	Nos	221		
12	Supply and installations of 10 Meter Octagonal GI Highway Light Pole, continuously tapered, hot-dip galvanized with minimum 65 micron coating, complete with base plate, 4 foundation bolts, lockable door, 6A SP MCB and 4 Nos. 16 sq.mm connectors, including excavation and construction of suitable M-20 grade concrete foundation , complete.	Nos	100		
13	Providing and Obtaining New 3-Phase Electricity Connection from the Concerned Electricity Department for Existing Highway Light Poles, including 25 kVA Distribution Transformer, approximately 500 m LT Line, Poles, Conductors, Metering Equipment, Earthing, Safety Devices, Installation, Testing, Commissioning and all applicable departmental charges, complete as per the approved estimate and demand note of the Electricity Department and directions of the Engineer-in-Charge.	Job	9		
14	Dismantling, shifting, re-erection, testing and commissioning of existing highway light control panel complete with disconnection of incoming/outgoing cables, transportation, reconnection, earthing, gland-lug termination and all allied works required for satisfactory operation as directed by Engineer-in-Charge.	Job	35		

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S.no	Items	Unit	Qty	Rate	Amount
Total Amount					

Note: The above quantities are indicative/minimum, while contractor shall execute any other quantity upon prior approval from the company.

4. Bill of Quantities for Supply and Installation of High Mast.

S.no	Description	Unit	Qty	Rates	Total
1	Supply, Installation, Testing and Commissioning of 30 Mtr High Mast complete with galvanized high mast pole, winch mechanism, motor, wire ropes, head frame, foundation with anchor bolts, 2.5 sq.mm 3-core flexible copper cable, testing and all necessary accessories, complete in all respects as per specifications and site requirements.	Nos	20		
2	Supply and fixing of 350 Watt LED high mast light Fixture, complete with LED driver, mounting arrangement, connectors, clamps and all necessary accessories, suitable for outdoor installation, complete	Nos	240		
3	Supply, Installation, Testing & Commissioning of 6 Sq.mm 4 core Copper Flexible FRLS Wire complete with accessories.	Meter	700		
4	High mast feeder Panel, control panel, necessary accessories, supports, refrigerant piping connections, testing and commissioning, complete	Nos	20		
2	63 mm HDPE pipe by HDD method	Meter	600		
3	Supply and installation of 8 SWG GI earth strip for interconnection of highway light poles, including necessary clamps, connectors and all accessories, complete as required.	Meter	200		
4	Supply, installation, testing and commissioning of 3.0 m long GI chemical earthing electrode, complete with earth enhancement compound, earth conductor, 300 × 300 × 300 mm PVC inspection chamber, concrete cover/base, clamps and all necessary accessories, as required.	Nos	20		
Required New Connection					
a	Estimate for New Electrical connection 7 KW	Nos	20		

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S.no	Description	Unit	Qty	Rates	Total
b	Contactor supervision charges and Document Submitting Charges	Nos			
c	Meter Box	Nos			
Total Amount					

Note: The above BOQ is indicative while the Electrical Contractor shall survey the site at his own cost and submit the BOQ accordingly on the design basis report.

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ANNEXURE – C

Bid Evaluation Criteria shall be undertaken as tabulated below.

S. no	Evaluation Criteria & Scoring Guidance	Maximum Marks
1	Experience in Similar Fields (Min. 5 years) 05 Years to 07 Years – 10 Marks More than 07 Years – 20 Marks	30
2	Number of Projects (Minimum 03 Projects during last 3 years) 03 to 05 Projects – 20 Marks 06 to 07 Projects – 25 Marks More than 07 Projects – 30 Marks	30
3	Last Three years Cumulative Turnover (100 Cr) 100 Cr to 150 Cr: Last 3 years Cumulative turnover – 20 Marks 151 to 200 Cr: Last 3 years Cumulative turnover – 25 Marks 201 Cr Above: Last 3 years Cumulative turnover – 30 Marks	30
4	Number of Employees (Min. 15 Employees) 15 to 25 Employees – 05 Marks 26 to 35 Employees – 7 Marks 36 and above – 10 Marks	10
	Total Technical Score:	100

ANNEXURE – D

Declaration By the Vendor: Empanelment of Contractors for Implementation and Maintenance of Highway Lighting Works along km 262.000 to km 419.590 of Bareilly–Sitapur Section of NH–30 in the State of Uttar Pradesh & from km 130.560 to km 209.120 of Muzaffarnagar–Haridwar Section of NH–334 in the States of Uttar Pradesh & Uttarakhand

(On letter head of the bidder)

We hereby state that all the terms and conditions written in the bidding document have been agreed and acknowledged and we have read all the bid documents and duly acknowledge the work requirements.

Thanking You
Yours,

Authorized Signatory

(Name of the Representative)

(Date)

(Name of the Firm)

(Seal/Stamp of the Firm)

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