

RW/NH-34066/QCZ/MQCV/2025-26/1
GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
(Quality Control Zone)

Dated: 07th November, 2025

OFFICE MEMORANDUM

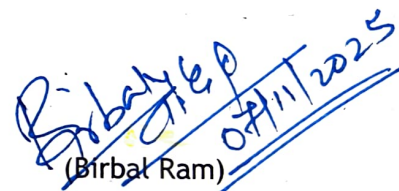
Subject: Invitation for Public Comments on Proposed Draft Document for Request for Proposal (RFP) for Phase-II of Mobile Quality Control Vans (MQCVs) for Non-Destructive Testing (NDT) on National Highway/Expressway Projects-reg.

Ministry had engaged 'Services for Supply, Operation and Maintenance of Mobile Quality Control Van (MQCV) for conducting NDT tests on National Highway/ Expressway Works in 4 States Rajasthan, Gujarat, Karnataka and Odisha on pilot basis.

2. The Ministry is in the process of expansion of above project in other states. A draft proposed RFP document for Phase II of MQCVs is enclosed herewith for reference.

3. Comments/ suggestions on the proposed RFP, if any, may kindly be submitted within fourteen days (14 days) from date of this communication i.e. upto 21.11.2025, to the email address ce.qc.morth@gmail.com.

Encl: As above.


(Birbal Ram)
07/11/2025

Assistant Executive Engineer
Quality Control Zone, HQ, MoRTH
ce.qc.morth@gmail.com, 9784806202

To

NIC- for uploading on Ministry website under 'whats new' / any other appropriate place, for obtaining Public Comments

Copy for kind information to:

1. Sr. PPS to Secretary (RT&H)
2. -Sr. PPS to DG(RD)&SS
3. -PS to ADG (North & QC)



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

भारत सरकार
(आईएसओ 9001:2008 प्रमाणित मंत्रालय)

Government of India
(An ISO 9001:2008 Certified Ministry)

Website <http://www.morth.nic.in>

Email: ce.qc.morth@gmail.com

Open Tender
Document for
E-Procurement of
Services for Supply, Operation and Maintenance of
Mobile Quality Control Van (MQCV) for Non-Destructive
Testing of National Highway Works in the State of ----

November, 2025

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Section-1
Notice Inviting Tender
NIT No. .../2025-26

Bid No. -----

Dated:- -----

The Ministry of Road Transport & Highways is engaged in the development of National Highways (NHs) and as part of this endeavor, it has been decided to undertake Non-Destructive testing on all ongoing NH/ Exressway works.

1.2 Ministry of Road Transport and Highways, New Delhi invites online bids on from eligible Firms/ Investors/ Individuals for providing “Services for Supply, Operation and Maintenance of Mobile Inspection Quality Control Van (MQCV) for Quality Inspection Non-Destructive Testing of National Highway Works in the State of ----”

1.3 The complete BID document can be viewed / downloaded from official portal of the CPPP website <https://eprocure.gov.in/eprocure/app> from ____** to ____** (upto 17.00 Hrs. IST). Bidder must submit its Financial bid and Technical Bid at <https://eprocure.gov.in/eprocure/app> on or before (upto ____** hours IST). Bids received online shall be opened on ____** (at ____** hours IST) .

1.4 Bid through any other mode shall not be entertained. However, Bid Securing Declaration, document fee and Power of Attorney etc. shall be submitted physically by the Bidder on or before ____** (at ____** hours IST), Please note that the Ministry reserves the right to accept or reject all or any of the BIDs without assigning any reason whatsoever.

1.5 Bids will be opened in the presence of Bidders' authorized representatives who choose to attend on the specified date and time either physically or online. In the event of the date specified for bid receipt and opening being declared as a closed holiday for Authority's office, the due date for submission of bids and opening of bids will be the following working day at the appointed time.

1.6 Financial bid/Price bid shall be submitted only on CPPP in the format uploaded on CPPP. Any financial bid/price bid submitted in hard copy would amount to rejection of bid.

2. The Bidder shall quote a single price for “Services for Supply, Operation and Maintenance of Mobile Quality Control Van (MQCV) for Non-Destructive Testing of National Highway Works in the State of ---- ”. Price will be **inclusive of all applicable taxes** including Insurance, Stamp Duty, GST, Custom Duty etc.

3. The firm/ investor/ individual (hereinafter referred to as the Contractor) shall provide Mobile Van unit MQCV completely fitted with Non-Destructive Testing (NDT) equipment (as specified in Appendix-I of Section-5 of this document) for quality inspection of NHs in the State of Contract period of the Agreement shall be **four years** from the date of commissioning. Fully Equipped Mobile Quality Control Van (hereinafter referred to as MQCV) has to be strictly as per specification mentioned in this document. Equipment shall be procured from Entities/firms (the “Supplier”) authorized by the Original Equipment Manufacturer (OEM).

4. The contractor shall procure and provide the traveler van (as per para 11 of Section - 6: Technical Specifications) to the Supplier for fabrication and fitting of the following equipment along with the provision of GPS tracking, compartmentalization for the safety of individual equipment and electrical fittings for temporary charging points:

- (i) Digital Concrete Test Hammer with Anvil
- (ii) Ultrasound Pulse Echo Tomography : Multi-channel transducer
- (iii) Pile Integrity Tester (PIT)
- (iv) High Precision Rebar Scanner
- (v) Non-Nuclear Asphalt Density Gauge
- (vi) Light weight Deflectometer
- (vii) Lightweight Dynamic Cone Penetrometer
- (viii) Spectral Analysis of Surface Waves (SASW-S)
- (ix) Retro Reflectometer for Road Markings
- (x) Retro Reflectometer for Road Signs
- (xi) Marking Thickness Gauge
- (xii) GPR for Pavement Layer Thickness measurement
- (xiii) Laptop & printer

5. Signed Memorandum of Understanding (MoU) between the Bidder and Supplier(s) as per Format enclosed in this document, shall be submitted along with the Technical Bid. All payments to the Supplier shall be made by the Contractor as specified in the MoU.
6. All bidders are advised to get them enrolled on e-tendering portal(<https://eprocure.gov.in/eprocure/app>)
7. The complete BID document can be viewed / downloaded from official portal of the CPP website <https://eprocure.gov.in/eprocure/app>
8. All interested firms are requested to upload their bid at <https://eprocure.gov.in/eprocure/app> on or before the scheduled closing date & time as mentioned in NIT.
9. Cost of tender document is Rs. 5,000.00 payable through BharatKosh portal in favor of "Ministry of Road Transport & Highways, New Delhi" acknowledgement receipt of which is to be submitted on CPP portal while submission of bid.

Pay & Account office (PAO):

Drawing and Disbursing Office (DDO):

10. Any conditional tender shall liable to be rejected without assigning any reason there off.
11. Ministry of Road Transport and Highways reserves the right to accept or reject any bids or accept all tenders either in part or in full, or to annul the bidding process without assigning any reason.

(-----)

Quality Control Zone

Ministry of Road Transport & Highways, New Delhi

Phone:-

Email-ce.qc.morth@gmail.com

DISCLAIMER

The information contained in this Request for Proposal document (the "RFP") or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an Agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their financial offers (BIDs) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP.

The assumptions, assessments, statements and information contained in the Bidding Documents, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources. Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein. The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this BID Stage.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Selected Bidder, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or BIDs without assigning any reason whatsoever. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its BID including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its BID. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the BID, regardless of the conduct or outcome of the Bidding Process.

Section-2

Instructions to Bidders (ITB)

Name of work : - “Services for Supply, Operation and Maintenance of Mobile Inspection Quality Control Van (MQCV) for Quality Inspection Non-Destructive Testing of National Highway Works in the State of ----”

1. Background

1.1 The selected Bidder (the “Contractor”) shall be responsible for Supply, Operation and Maintenance of Mobile Quality Control Van (MQCV) completely fitted with NDT equipment (as specified in the TOR of this document) for conducting NDT of National Highway Works as per the Contract to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto.

1.2 The Authority shall receive BIDs pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP (collectively the “Bidding Documents”), and all BIDs shall be prepared and submitted in accordance with such terms on or before the BID due date specified in Clause 1.3 of Section 1(NIT) for submission of BIDs (the “BID Due Date”)

2. Brief Description of Bidding Process:

2.1 The Ministry herein after to be referred as “**Authority**” has adopted a single stage two parts system (refer to as the “Bidding Process”) for selection of the Bidder for the award of the work.

(i) Under the process the Bid shall be invited under two parts. Eligibility and qualification of the Bidder will be first examined based on the details submitted under the first part (Technical Bid) with respect to eligibility and qualification criteria prescribed in this Request for Proposal (RFP). The Financial Bid under the second part shall be opened of only those Bidders whose Technical Bids are substantially responsive to eligibility and qualifications requirements as per this RFP.

(ii) Interested Bidders have been called upon to submit their Bid in accordance with the terms specified in this Request for Proposal. The Bid shall be valid for a period of 120 days from the date of bid opening prescribed by the Authority.

(iii) The RFP document is enclosed for the Bidders. Any addenda issued subsequent to this Request for Proposal will be deemed to form part of the bidding documents.

(iv) Generally the lowest Bidder shall be the selected Bidder. In case, such lowest Bidder withdraws or is not selected for whatsoever reason, the Authority shall annul the Bidding process and invite fresh Bids.

(v) No Bidder shall submit more than one Bid.

(vi) The Bidder shall submit a Power of Attorney duly notarized authorizing the signatory of the Bid.

(vii) Bidder shall sign a Memorandum of Understanding (MoU) with Supplier(s) as per Format enclosed in the RFP and submit along with the Technical Bid. Supplier(s) may sign MoU with more than one Bidders or the bidder **may also sign MOU with more than one Supplier**s. This MOU(s) need to be adhered strictly by all parties after finalization of the Contract between the Lowest Bidder (L1) and the Authority.

(viii) Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection.

(ix) The Bid prepared by the Bidder, as well as all correspondence and documents

relating to the bid exchanged by the Bidder and the Authority, shall be written in English language only especially when the details are technical.

(x) Prices shall be quoted in Indian Rupees only.

(xi) Other details of the process to be followed under this bidding process and the terms thereof are spelt out in this RFP.

(xii) Any queries or request for additional information concerning this RFP shall be submitted before Pre-bid meeting by e-mail to the officer designated in Clause 7.3.4 below with identification/ title: "Queries / Request for Additional Information: RFP for Services for Supply, Operation and Maintenance of Mobile Inspection Quality Control Van (MQCV) for Quality Inspection Non-Destructive Testing of National Highway Works in the State of ----"

2.2 Schedule of Bidding Process

The Authority shall endeavor to adhere to the following schedule:

| Sl. No. | Event Description | Date |
|---------|---|--|
| 1. | Invitation of RFP (NIT) | |
| 2. | Last date for receiving queries | |
| 3. | Pre-BID meeting | |
| 4. | Authority response to queries latest by | |
| 5. | Last date of Request for BID Document | |
| 6. | BID Due Date | |
| 7. | Physical Submission of Bid Documents | |
| 8. | Opening of Technical BIDs as per Cl. 7.3.4 of section 2 | |
| 9. | Declaration of eligible / qualified Bidders | To be announced |
| 10. | Opening of Financial BID | To be announced |
| 5. | Letter of Acceptance (LOA) | To be announced |
| 12. | Return of signed duplicate copy of LOA | To be announced |
| 13. | Validity of BID | 120 days from BID Due Date |
| 14. | Submission of Performance Security (PS) | Within 15 days of receipt of LOA. |
| 15. | Signing of the Contract Agreement | Within 15 days of the signing of the Agreement |

3.1. General terms of Bidding

3.1.1 No Bidder shall submit more than one BID for each MQCV.

3.1.2 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement. Further, the statements and explanations contained in this RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Contractor set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority

3.1.3 The BID shall be furnished in the formats exactly as enclosed in Section-5 of this Document. BID amount shall be indicated clearly in both figures and words, in Indian Rupees in prescribed format of Financial Bid and it will be signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

3.1.4 The Bidder should submit a Power of Attorney authorizing the signatory of the BID to commit the Bidder.

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

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

3.1.7 This RFP is not transferable.

3.1.8 Any award of Project pursuant to this RFP shall be subjected to the terms of Bidding Documents and fulfilling the criterion as mentioned in clause 17.3 of this section.

3.1.9 NO JOINT VENTURE IS ALLOWED

3.1.10 Bidding is open to domestic bidders only.

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

3.1.12 The Bidder should not be a non-performing party on the bid submission date. The Bidder, shall be deemed to be a non-performing party (not applicable to the project whose contract is terminated by the Authority) if it attracts any or more of the following parameters:

- (i) Fails to complete or has missed more than two milestones in already awarded two or more NH projects, even after lapse of 6 months from the scheduled completion date, unless Extension of Time has been allowed on the recommendations of the Independent Engineer due to Authority's default;
- (ii) Has Failed to perform for the works of National Highways or CRF / ISC & EI works in the last 2(two) years, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against the Bidder, including individual or as the case may be.
- (iii) Has been expelled or the contract terminated by the Ministry of Road Transport & Highways or its implementing agencies for breach by such Bidder, including individual; Provided that any such decision of expulsion or termination of contract leading to debarment of the Bidder from further participation in bids for the prescribed period should have been ordered after affording an opportunity of hearing to such party.

3.2 Qualification Criteria of the Bidder

The Bidder shall satisfy either of the following two criteria (A OR B)

- A. i) The Firm/ Company/ Entity should have experience in successfully completing Equipment/Machinery supply contract/ **Maintenance Contract (Ordinary Repair/Special Repair/Flood Damage Repair)** / Quality Control Contract in road works amounting **50 lakhs** within the last **three** financial years preceding from bid due date.

- ii) Financial Criteria

| S. No. | Parameter | As per current Contract |
|--------|---|-------------------------|
| 1 | Net worth | 35 lacs |
| 2 | Average Annual Turnover for last five years | 75 lacs |

OR

- B. i) **The individual/ investor shall have a degree in Civil Engg. granted by a statutory University / an institution empowered by UGC / University/ State Council or Board of Technical Education established by State Government/ equivalent institute recognized by State or Central Government to grant such degree by an act of parliament/ professional bodies through graduate examination recognized by Central Government as equivalent to degree e.g. AMIE(Associate Member of Institution of Engineers) having 5 years experience of Highways construction / design experience**

- ii) Solvency certificate from a Scheduled Bank amounting to minimum 30% of the Tender Amount.

- iii) Proof of Available assets duly certified by the empaneled / authorized Valuers of the Scheduled Banks / Insurance Companies at their disposal for procuring necessary loan from the market for 60% of the Tender Amount.

Note: Firms with experience as Authority Engineer/ Independent Engineer/ DPR Consultant or experience as EPC/BOT/ITEM Rate/HAM Contractor on NH works shall not be entertained on account of Conflict of Interest.

C. Qualification Criteria of the Suppliers for MoU

- (i) Supplier can either be ISO 9001:2000 certified Original Equipment Manufacturer (OEM) who can ensure the manufacturing of the Equipment as per the required testing standards BIS/ BS/ ASTM standards in its own manufacturing establishment and within the specified tolerance limits.

OR

Any firm/entity with a Manufacturers Authorization certificate for Indian market or specific tender/ or Manufacturers' Authorization Form (MAF) specifying the Tender No. clearly in the bidding document to demonstrate that it has been duly authorized by the manufacturer of the goods to quote and/or supply the goods.

- (ii) The Supplier should have experience in successfully completing **at least one similar supply contract** each of "Equipment for Quality Inspection of road/bridge/structure having aggregate value (inclusive of all applicable taxes)

more than the Rs.1.0 Crore” within the last five financial years preceding from bid due date.

(iii) Supplier shall have testing and calibration facility as per national/ international standards as on last date of submission of bid.

(iv) Supplier shall have service center in India.

(v) Supplier should have trained and qualified customer support service personnel with ample experience in the required field.

3.3 Proprietary data

All documents and other information supplied by the Authority or submitted by a Bidder to the Authority shall remain or become the property of the Authority and are transmitted to the Bidders solely for the purpose of preparation and the submission of a BID in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 3.3 shall also apply *mutatis mutandis* to BIDs and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any BID, document or any information provided along therewith.

3.4 Cost of Bidding:

The Bidders shall be responsible for all of the costs associated with the preparation of their BIDs and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

3.5 Verification of Information:

It shall be deemed that by submitting a BID, the Bidder has:

- (a) made a complete and careful examination of the Bidding Documents;
- (b) received all relevant information requested from the Authority;
- (c) satisfied itself about all matters, things and information necessary and required for submitting an informed BID, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- (e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the Agreement by the Contractor;
- (f) acknowledged that it does not have a Conflict of Interest; and
- (g) agreed to be bound by the undertakings provided by it under and in terms hereof.

The Authority shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, including any error or mistake therein or in any information or data given by

the Authority.

3.6 Verification and Disqualification

3.6.1 The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by the Authority, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

3.6.2 The Authority reserves the right to reject any BID if:

- (a) at any time, a material misrepresentation is made or uncovered, or
- (b) The Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the BID.

Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If such disqualification/rejection occurs after the BIDs have been opened and the lowest Bidder gets disqualified / rejected, then the Authority reserves the right to annul the Bidding Process and invites fresh BIDs.

3.6.3 In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of defect liability subsistence thereof, that one or more of the eligibility and /or qualification requirements have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the contractor either by issue of the LOA or entering into of the Agreement, and if the Selected Bidder has already been issued the LOA or has entered into the Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority to the Selected Bidder or the Contractor, as the case may be, without the Authority being liable in any manner whatsoever to the Selected Bidder or the Contractor. In such an event, the Authority shall be entitled to forfeit and appropriate the Performance Security as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and / or the Agreement, or otherwise.

4. Documents

4.1 Contents of the RFP

4.1.1 This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 6 of this section:

- Section 1. Notice Inviting Tender
- Section 2. Instructions to Bidders
- Section 3. Terms of Reference and Conditions of Contract
- Section 4. MoU between Contractor and Supplier(s)
- Section 5. Appendices and Annexures
- Section 6. Technical Specification

5. Clarifications

5.1 Bidders requiring any clarification on the RFP may notify the Authority in writing by e-mail in accordance with Clause 2.1 (xii). They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 2.2. The Authority shall endeavor to respond to the queries within the period specified therein, but no later than 15 (fifteen) days prior to the BID Due Date. The responses will be sent by e-mail. The Authority will forward all the queries and its responses thereto, to all Bidders without identifying the source of queries.

5.2 The Authority shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, the Authority reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification

5.3 The Authority may also on its own motion, if deemed necessary, issue interpretations & clarifications to all Bidders. All clarifications & interpretations issued by the Authority shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on the Authority.

6. Amendment of RFP

6.1 At any time prior to the BID Due Date, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

6.2 Any Addendum issued hereinafter will be hosted on the Gol e-Tendering Portal (<https://eprocure.gov.in/eprocure/app>).

6.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Authority may, in its sole discretion, extend the BID Due Date.

7. PREPARATION AND SUBMISSION OF BIDS

7.1 Format and Signing of BID

7.1 The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those BIDs that are received online in the required formats and complete in all respects and Bid Securing Declaration, Copy of online receipt towards payment of cost of Bid document & Power of Attorney are received in hard copies.

7.2 The BID shall be typed and signed in indelible blue ink by the authorised signatory of the Bidder. All the alterations, omissions, additions or any other amendments made to the BID shall be initialed by the person(s) signing the BID.

7.3 Documents comprising Technical and Financial BID

7.3.1 The Bidder shall ensure that all the details are updated as on the due date of submission of this bid. The Bidder shall then apply for the RFP on the CPPP website <https://eprocure.gov.in/eprocure/app> by submitting the documents mentioned below along with the supporting documents which shall comprise of the Technical BID on the CPPP portal:

Technical Bid

- (a) Bidder Information Form (Annexure- I)
- (b) Bid Securing Declaration Form (Annexure - II)
- (c) Bid form (Annexure-III)
- (d) Technical Specification Compliance Form (Annexure-IV)
- (e) Technical Capacity of the Bidder (Annexure-V)
- (f) Financial Capacity of the Bidder (Annexure-VI)
- (g) Performance Statement Form For Supplier (Annexure-VII)
- (h) Format for declaration by the Bidder for Code of Integrity & conflict of interest (Annexure-VIII)
- (i) Memorandum of Understanding (MOU) signed between the Bidder and Equipment Supplier(s) as per Format in Section- 4 of this RFP.
- (j) Performance Security Form as per Annexure- IX

Other necessary formats of the Technical Bid:

- a) Proof of ISO 9001: 2000 Certified Original Equipment Manufacturer as well as the supplier for the equipment specified
- b) Copies of original Memorandum and Articles of Association, defining the constitution or legal status, place of registration and place of business of the company, GST registration certificate and PAN details
- c) Proof of Supplier having service center/authorized dealer in India
- d) Details of trained and qualified customers support engineers
- e) Power of Attorney in favor of signatory of the Bid
- f) The Supplier(s) shall provide authorization from OEM/Manufacturer addressed to the Bidder clearly mentioning the Tender No. duly authorizing the Supplier for supply of Equipment as mentioned in RFP to the Contractor. These authorizations shall be a part of the MoU and are to be submitted in the online bid.
- g) The Contractor shall provide brochure/catalogue clearly mentioning the technical specifications of the equipments that shall be procured by the Contractor after issue of LOA.

Financial Bid

Letter comprising the Financial Bid shall be submitted online through e-procurement portal on or before **1200 hrs IST on**

7.3.2 The Bidder shall submit the following documents physically:

- a) Original Power of Attorney for signing the BID as per format;
- b) BID Securing Declaration;
- c) Copy of online receipt/Original Demand Draft towards payment of cost of Bid document of **Rs.5,000** (Rupees Five Thousand Only) to The Regional Pay and Accounts Officer, Ministry of Road Transport and Highways, Through Bharatkosh Portal towards the cost of bid document.
- d) Bidder shall comply with the provisions of Office Memorandum No. RW/NH-37010/4/2010/PIC-EAP(Printing) dated 22.02.2016 and its subsequent amendments if any issued by MoRT&H (Annexure-VIII) regarding Integrity Pact (IP) and the Integrity Pact (IP)duly signed by Authorised signatory shall be submitted by the Bidder with the RFP Bid & shall be part of the Contract Agreement; and

7.3.3 The documents listed above shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification “Services for Supply, Operation and Maintenance of Mobile Inspection Quality Control Van (MQCV) for Quality Inspection Non-Destructive Testing of National Highway Works in the State of -- --” and shall clearly indicate the name and address of the Bidder. In addition, the BID Due Date should be indicated on the right hand top corner of the envelope

7.3.4 The envelope shall be addressed to the following officer and shall be submitted at the respective address:

| | | |
|--|----------------|--|
| | ATTN. OF: | |
| | DESIGNATION | Additional Director General (North & QC) |
| | ADDRESS: | MoRTH, Transport Bhawan, 1, Parliament Street, New Delhi- 110001 |
| | E-MAIL ADDRESS | ce.qc.morth@gmail.com |

7.3.5 If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the contents of the BID submitted and consequent losses, if any, suffered by the Bidder.

7.3.6 BIDs submitted by fax, telex, telegram or e-mail shall not be entertained and shall be summarily rejected.

8. BID Due Date

Financial BID comprising of the documents listed at clause 7.3.1 of the RFP shall be submitted online through e-procurement CPPP website <https://eprocure.gov.in/eprocure/app> on or before 1200 hrs IST on

9. Late BIDs

E-procurement portal CPPP website <https://eprocure.gov.in/eprocure/app> shall not allow submission of any Bid after the prescribed date and time at clause 2.2. Physical receipt of documents listed at clause 7.3.2 of the RFP after the prescribed date and time at clause 2.2 shall not be considered and the bid shall be summarily rejected.

10. Procedure for e-tendering

10.1 Accessing/ Purchasing of BID documents

10.1.1 It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC)(in the name of Authorized Signatory / Firm or Organisation / Owner of the Firm or Organisation) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link www.cca.gov.in) to participate in e-tendering of MoRT&H/ NHAI/NHIDCL/BRO/State PWD.

DSC should be in the name of the authorized signatory as authorized or person executing/delegating in favour of Authorized Signatory. It should be in corporate capacity (that is in Bidder capacity). The Bidder shall submit document in support of the class III DSC. In other cases, the bid shall be considered Non-responsive.

10.1.2 To participate in the bidding, it is mandatory for the Bidders to get registered their firm with e-procurement portal <https://eprocure.gov.in/eprocure/app> to have user ID & password which has to be obtained free of cost. Following may kindly be

noted:

- (a) Registration with e-procurement portal should be valid at least up to the date of submission of BID.
- (b) BIDs can be submitted only during the validity of registration.

It is also mandatory for the Bidders to get their firms registered with e-tendering portal. The Bidders shall update their project and other details on the portal on a regular basis and apply to the tenders via the portal.

10.1.3 If the firm is already registered with e-tendering service provider, and validity of registration is not expired, then the firm is not required a fresh registration.

10.1.4 The complete BID document can be viewed / downloaded by the Bidder from e-procurement portal <https://eprocure.gov.in/eprocure/app> from ... to ... (upto1200 Hrs. IST).

10.2 Preparation & Submission of BIDs:

10.2.1 The Bidder may submit his Bid online following the instructions appearing on the screen. The detailed guidelines for e-procurement is also available on e-procurement portal.

10.2.2 Bid must be submitted online only through e-procurement portal <https://eprocure.gov.in/eprocure/app> using the digital signature of authorized representative of the Bidder on or before (upto 1200 hours IST).

10.3 Modifications/ Substitution/ withdrawal of BIDs

10.3.1 The Bidder may modify, substitute or withdraw its e- BID after submission prior to the BID Due Date. No BID can be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.

10.3.2 For modification of e-BID, Bidder has to detach its old BID from e-procurement portal and upload / resubmit digitally signed modified BID. For withdrawal of BID, Bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again.

11. Online Opening of BIDs.

11.1 Opening of BIDs will be done through online process.

11.2 The Authority shall on-line open Technical BIDs on at 1300 hours IST, in the presence of the authorized representatives of the Bidders, who choose to attend. The Authority will subsequently examine and evaluate the BIDs in accordance with the provisions of Section 2 of RFP.

12. Rejection of BIDs

12.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any BID and to annul the Bidding Process and reject all BIDs at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

12.2 The Authority reserves the right not to proceed with the Bidding Process at any

time, without notice or liability, and to reject any BID without assigning any reasons.

13. Validity of BIDs

The BIDs shall be valid for a period of not less than 120 (one hundred and twenty) days from the BID Due Date. The validity of BIDs may be extended by mutual consent of the respective Bidders and the Authority.

14. Confidentiality

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the BID, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

15. Pre-Bid Conference

15.1 Pre-BID conference of the Bidders shall be convened at the designated date, time and place. A maximum of two representatives of prospective Bidders shall be allowed to participate on production of authority letter from the Bidder.

15.2 During the course of Pre-Bid conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

16. Bid Securing Declaration

The bidder has to sign a Bid securing declaration accepting that if the bidder withdraw or modify its bid during the period of validity i.e. not less than 180 (one hundred eighty) days from the bid due date or if the bidder is awarded the contract and fail to sign the contract or to submit a performance security before the deadline defined in this document, the bidder will be suspended for a period of one year from the bid due date, from being eligible to submit bids for contracts with the entity that invited the bids. The bid securing declaration shall be submitted as per the format prescribed in RFP.

17. Evaluation of Technical Bids and Opening & Evaluation of Financial Bids

17.1 Evaluation of Technical Bids

17.1.1 The Authority shall open the BIDs received online at 1300 hours IST on, in the presence of the Bidders who choose to attend. The Authority shall prepare minutes of the BID opening, including information disclosed to those present at the time of BID opening.

17.1.2 Technical Bids of those Bidders who have not submitted their Bid online, shall not be considered for opening and evaluation.

17.1.3 If any information furnished by the Bidder is found to be incomplete, or

contained in formats other than those specified herein, the Authority may, in its sole discretion, exclude the relevant information for consideration of eligibility and qualification of the Bidder.

17.1.4 To facilitate evaluation of Technical BIDs, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing. The bids will be examined and evaluated in accordance with the provisions set out in this section. The Authority will subsequently flag issues, if any with the data updated by the Bidders.

17.1.5 If a Bidder does not provide clarifications sought under Clause 17.1.4 above within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.

17.1.6 Tests of responsiveness

17.1.6.1 As a first step towards evaluation of Technical BIDs, the Authority shall determine whether each Technical BID is responsive to the requirements of this RFP. A Technical BID shall be considered responsive only if:

- (a) Technical BID is received online as per the format;
- (b) Technical Bid is accompanied by the BID Securing Declaration
- (c) The Power of Attorney is uploaded on e-procurement portal
- (d) Technical Bid contains all the information (complete in all respects);
- (e) Technical Bid does not contain any condition; and
- (f) Copy of online receipt/ Demand Draft towards payment of cost of Bid document of **Rs. 5,000** (Rupees Five Thousand Only) to The Regional Pay and Accounts Officer, Ministry of Road Transport and Highways,towards the cost of bid document

17.1.6.2 The Authority reserves the right to reject any Technical BID which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the Authority in respect of such BID.

17.1.7 In the event that a Bidder claims credit for an Eligible Project, and such claim is determined by the Authority as incorrect or erroneous, the Authority may reject / correct such claim for the purpose of qualification requirements.

17.1.8 The Authority will evaluate the Technical BIDs for their compliance to the eligibility and qualification requirements of this RFP.

17.1.9 After evaluation of Technical Bids, the Authority will publish a list of Technically Responsive Bidders whose financial bids shall be opened. The Authority shall notify other Bidders that they have not been technically responsive. The Authority will not entertain any query or clarification from Applicants who fail to qualify.

17 .2 Opening and Evaluation of Financial Bids

The Authority shall inform the venue and time of online opening of the Financial Bids to the technically responsive Bidders through e-procurement portal and e-mail. The Authority shall open the online Financial Bids of the technically responsive Bidders only on scheduled date and time in the presence of the authorised representatives of the Bidders who may choose to attend. The Authority shall publicly announce the Bid Prices quoted by the technically responsive Bidder. Thereafter, the Authority shall prepare a

record of opening of Financial Bids.

17.3 Selection of Bidder

17.3.1 Subject to the provisions of Clause 12.1, the Bidder whose BID is adjudged as responsive in terms of Clause 17.1.6 and who quotes lowest price shall be declared as the selected Bidder (the "Selected Bidder").

17.3.2 In the event that two or more Bidders quote the same BID Price (the "Tie BIDs"), the Authority shall identify the Selected Bidder by draw of lots, which shall be conducted, with prior notice, in the presence of the Tie Bidders who choose to attend.

17.3.3 In the event that the Lowest Bidder is not selected for any reason, the Authority shall annul the Bidding Process and invite fresh BIDs. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

17.3.4 After selection, a Letter of Acceptance (the "LOA") shall be issued as per Format in Annexure- X, in duplicate, by the Authority to the Selected Bidder and the Selected Bidder shall, within 7(seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the Damages on account of failure of the Selected Bidder to acknowledge the LOA.

17.3.5 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the Bidder to submit Performance Security within the period prescribed/extended by Authority and then execute the Agreement within the period prescribed in Clause 2.2. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

17.4 Contacts during BID Evaluation

BIDs shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/ rejection to the Bidders. While the BIDs are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, the Authority and/ or their employees/ representatives on matters related to the BIDs under consideration.

17.5 Correspondence with Bidder

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

17.6 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.

18. Fraud and Corrupt Practices

18.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, the Authority may

reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, the Authority shall be entitled to forfeit and appropriate Performance Security as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Agreement, or otherwise.

18.2 Without prejudice to the rights of the Authority under Clause 18.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder, or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

19. Performance Security

19.1 Within 15 (Fifteen) days of receipt of Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form set forth in Annexure- IX (the "Performance Security").

Notwithstanding anything to the contrary contained in this RFP, Performance Security for an amount equal to 3% (three percent) of the Contract Price shall be applicable for all tenders/contracts issued till 31.12.2021, in accordance with DoE's OM No. F.9/4/2020-PPD dated 12.11.2020. Rate of Performance Security to be adopted for Contracts finalized after 31.12.2021 shall be governed by applicable policies at that period.

19.2 The Performance Security shall be valid until 60(sixty) days after the Contract Period.

19.3 The Selected Bidder has the option to provide 50% of the Performance Security within 15 (Fifteen) days of receipt of Letter of Acceptance, in any case before signing of the Contract Agreement and the remaining Performance Security shall be submitted within 30 days of signing of the agreement.

19.4 In the event the Selected Bidder fails to provide the remaining Performance Security as prescribed herein, it may seek extension of time for a further period upto 60 days by paying the Damages upfront along with the request letter seeking the extension. The Damages shall be the sum calculated at the rate of 0.01% (zero point zero one per cent) of the Bid Price offered by the Selected Bidder for each day until the Performance Security and Additional Performance Security, if any, is provided in full as prescribed herein. The damages at full rate as given above shall be applicable even if a part of the Performance Security is provided.

19.5 For avoidance of any doubt, in case of failure of submission of Performance Security within the additional 60 days' time period, the award shall be deemed to be cancelled/ withdrawn. Thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of the Award shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and the Award shall be

deemed to have been withdrawn by the Authority

19.6 The agreement as per Format given in Annexure - XI will be executed within 15 days of receipt of 50% Performance Security as per sub-clause 19.3 above.

20. Miscellaneous

20.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

20.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

- (a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
- (b) consult with any Bidder in order to receive clarification or further information;
- (c) retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or
- (d) independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

20.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

Section-3

Terms of Reference (TOR) and Conditions of Contract

1. Scope of Work - Under this agreement, the scope of the work shall mean and include:

- a) Services for supply of Mobile Quality Control Van (MQCV) completely fitted with Non-Destructive Testing (NDT) Equipment
- b) Operation of the MQCV for assessment of Quality of NH works through NDT testing in the State of for the entire contract period of 4 years
- c) Maintenance & upkeep of the MQCV including in accordance with the provisions of this Agreement
- d) Performance and fulfillment of all other obligations of the Contractor in accordance with the provisions of this agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under the Agreement

2. Supply and Installation: The contractor shall procure and provide the van to the Supplier (as per recitals (d) of the Section 4 of this document) for installation and fitting of the equipment (manufactured on or after 1st January, 2024) along with the provision of GPS tracking, compartmentalization for the safety of individual equipment and electrical fittings for temporary charging points. Mobile Van Unit compulsorily needs to be modified as per requirement to accommodate placement (compartmentalization etc.) for various equipment along with minimum seating arrangement of 2 quality control technicians and 1 driver.

3. Financing by the Contractor

- (i) Contractor shall complete all the loan / credit facilities within 45 days of the signing of the agreement.
- (ii) (ii) Contractor shall place order for Van immediately after issuance of LoA so that the same can be handed over to the Supplier for customization and installation of Equipment no later than 60 days from issuance of LoA
- (iii) The following timelines may be adhered to by the contractor

| S. No. | Activity | Time required | Cumulative Time from Issue of LOA (days) |
|--------|---|--|--|
| 1 | Issuance of LoA | A | A |
| 2 | Furnishing of performance security by the Contractor | 15 days from LOA | A+15 |
| 3 | Signing of Contract Agreement | Within 15 days of receiving performance security | A+30 |
| | Completion of Formalities regarding Acquiring Loan | Within 45 days from LoA | A+45 |
| 5 | Handing over of Van to Supplier for fabrication and fitting of the equipment/fixtures | Within 60 days from LoA | A+60 |
| 6 | Complete installation of all required equipment/fixtures | Within 30 days from the handing over of Van | A+90 |
| 7 | Commissioning of vehicle / commencement of services | Within 15 days from receiving complete vehicle from the Supplier | A+105 |

4. **Test-trial and commissioning** - Test, trial and commissioning of MQCV along with all equipment shall be done in presence of the Authority. In case of any failure of equipment during test, trial and commissioning or the equipment does not conform to the specifications as mentioned in Section 6 of this document the same shall be replaced / rectified and recommissioned by the contractor at his own cost.

5. **Contract period** - The Contract period shall be **4 years** from the date of Commissioning of the MQCV as certified by Authority.

6. **Operation and Maintenance during Contract Period**

(i) The Responsibility of Operation and Maintenance of the Mobile Inspection Van including all Equipment and fixtures shall lie on the Contractor for the Contract period.

(ii) The Van would be required to operate for a minimum **20 days a month**

(iii) The Contractor shall provide **One Driver** and 2 quality control technicians with the following minimum experience:

1 No. Technician with Degree in Civil Engineering with 2 Years of conducting NDT Testing/ QC testing in Highway/ Bridge/ Metro Construction

AND

1 No. Technician with Diploma/ Degree in Civil Engineering with 2 Years of conducting NDT Testing/ QC testing Highway/ Bridge/ Metro Construction (1 No.)

(iv) Payments to the Contractor shall be made on monthly basis.

(v) Payments shall be made for conducting NDT testing on minimum '1000' lane kms of ongoing NH/ Expressway project length in the State of..... **per month** following the work program as finalized by the Quality Control Zone in consultation with Regional Officers of executing Agencies.

(vi) **Further, it is assumed that MQCV shall have to traverse 1200 km per month including dead lead.** Any extra traversing more than 1200 km per month shall be paid @ **Rs. 20/-** per km after due certification by the concerned Executive Engineers / Project directors.

(vii) All expenses of Fuel/ POL and miscellaneous costs for running and upkeep/routine maintenance of Van/ Equipment shall be borne by the Contractor during then the Contract period.

(viii) The complete establishment Costs i.e. parking of vehicle/ accommodation of manpower etc. shall be borne by contractor.

(ix) Testing shall be done as per minimum Frequency mentioned in **Appendix - II** of this RFP. Further, testing shall be conducted at any location where visible failure/ distress is observed.

(x) If any equipment is found not working at the time of testing then the repair/ replacement of Equipment/ parts shall be completed within 15 days of such occurrence. Failure in repairing / replacing such equipment shall attract a penalty of Rs. 1,000 per day for each day exceeding 15 days.

(xi) The Contractor shall upload all testing data and results on the online portal within 2 days of such tests or shall provide via email to Quality Control Zone reports of such testing within 2 days after completion of the test till launch of the online web portal.

(xii) Compiled Monthly Reports for tests conducted in a month in standardized formats and to be mailed within first 5 days of the next month to the Quality Control Zone.

(xiii) The contractor shall provide coverage plan of all NHs in the state of for three months to Quality Control Zone of the Ministry within 30 days from the date of issue of LoA based on the list of the ongoing works in that particular state as provided by the Authority. Further, the contractor shall submit monthly coverage plans 15 days prior to completion of one cycle of testing on all ongoing works in that state. Quality Control Zone of the Ministry will approve the coverage plan and intimate the same to Ministry's Regional Officers for that state for further facilitation of the work.

(xiv) Contractor shall provide test reports as per format mentioned in Appendix - III along with the test unique ID for easy traceability and reference. The format of the unique ID shall be as below:

Date of Testing / NH / Chainage / Type of test/ Test No.

- a) Date of testing shall be written in the format " DD-MM-YYYY"
- b) NH denotes the New National Highway No. (5 digits, first three numeric and last two alphabetical, e.g.)
- c) The chainage of the location, where the test is being done, shall be written upto three decimals.
- d) Following abbreviations shall be used for the type of test:

| Equipment | Abbreviation |
|---|--------------|
| Digital Concrete Test Hammer with Anvil | RH |
| Ultrasound Pulse Echo Tomography : Multi-channel transducer | UP |
| High Precision Rebar Scanner | RB |
| Pile Integrity Tester (PIT) | PI |
| Non-Nuclear Asphalt Density Gauge | AD |
| Light weight Deflectometer | DL |
| Lightweight Dynamic Cone Penetrometer | CP |
| Spectral Analysis of Surface Waves (SASW-S) | SW |
| Retro Reflectometer for Road Markings | RM |
| Retro Reflectometer for Road Signs | RS |
| Marking Thickness Gauge | MT |
| GPR for Pavement Layer Thickness measurement | LT |

For e.g. , if a rebound hammer test is performed on NH-165BG on 15th December, 2026 at chainage 25.200 then the unique ID for the first Rebound hammer shall be :

15-12-2026 / 165BG / 25.200 / RH / 01 = 15122021165BG25200RH01

(Clarification:- if NH no. is of two digit then first digit will be marked as 0 in the nomenclature e.g. NH 10 will be 010 and NH 8 will be 008. Similarly if suffix with NH no. is either blank or one letter then the blank letter will be marked as X e.g. complete nomenclature of NH 8 will be 008XX)

7. Prices and Currency - Prices shall remain firm and no escalation shall be permissible. However, any statutory variation in taxes in State / India, after the award of work till dispatch shall be paid / adjusted on production of documentary evidences. All payments to the Contractor shall also be made in Indian Rupees (INR) only.

8. Payment Terms:

Payments to the Contractor shall be made by the Authority in equal installments on monthly basis (i.e. total quoted price divided by 48)

i) The contractor has to cover the minimum length of NHs in lane km for carrying out the tests as per the approved coverage plan in the month. If minimum lane km of NHs are not covered by the Contractor in a particular month then the same need to be compensated in next month. If contractor fails to achieve minimum coverage of cumulative 3000 lane kms in 3 months or cumulative length for 3 months as decided in the approved coverage plan, then the payment shall be reduced on the pro-rata basis in the third month.

For example, if the Contractor covers 950 lane Km in first month and 900 lane km in second month, then the Contractor has to cover 1150 lane Km in the third month (50 balance from 1st month + 100 balance in second month + 1000 required in third month).

ii) If the Contractor fails to cover cumulative 3000 lane Km in three months or the lengths per month as decided in the monthly coverage plans and there is a shortfall of x lane km (say), the payment on the third month shall be reduced to $((P/48)*(L-X)/L)$ where P is the Contract Price, X is the shortfall and L is the cumulative target lane Km for the 3 months as per coverage plan approved.

iii) No mobilization advance shall be payable.

iv) No escalation would be payable during the Contract Period.

v) The payment to contractor shall be made within 10 days from the date of submission of the monthly payment statement by the contractor to the **Regional Office, MoRTH of the concerned State with a copy to QC Zone.**

vi) Complete monthly report for the previous month has to be submitted by the contractor before claiming of invoice for payment.

vii) If reports submitted by the contractor cannot be completely verified/ reconciliation of length covered in necessary, 80% of the amount claimed by the contractor may be released within 10 working days from date of submission of bill. Balance payment may be made along with the monthly bill of subsequent month.

viii) All payments to the Supplier(s) shall be made by the Contractor based on the payment schedule, as specified in the MoU signed between the Supplier and the Contractor.

9. Insurance for Works and Maintenance

(i) The Contractor shall effect and maintain at its own cost the insurances for the

MQCV including all Equipment as per the requirements under the Applicable Laws.

(ii) The Contractor shall effect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it under this agreement.

10. Training of MQCV Personnel and Officers of Ministry- Contractor and Supplier as per provisions of MoU shall ensure that at the time of Commissioning of MQCV, Technicians employed in the Vans shall be fully trained in usage of NDT Equipment installed in the MQCV and interpretation of such results and related civil engineering principles. Officers of QC Zone through Interviews/ Interaction at site shall ascertain the fitness of Technicians during the trial stage as well as after operations start. Contractor shall replace Personnel with similar or better qualified Personnel if the Technician engaged is found to be below par/ unfit for the assignment.

The supplier as per the MoU between Supplier and Contractor shall also have to provide 4 nos. of free of cost training for 1-2 days each time to concerned HQ and Field Level officers of MoRTH and its executing agencies to handle, operate and carry out various tests as well as to make them enable to interpret the results and reports in desired manner. Contractor / Supplier shall organize the trainings / workshops at various locations in the State of ... or in Indian Academy of Highway Engineers (IAHE), Noida. Workshop may be assumed to impart training to roughly 15-20 Officers (from MoRTH/ NHAI/ NHIDCL/PWD) at a time.

11. Confidentiality - Interim/final Test reports submitted to the MoRTH and any other relevant data or material compiled in the course of services shall be confidential and shall be absolute property of MoRTH. Contractor shall not reveal / leak any of such information to any party other than the Quality Control Zone of the Ministry. Contractor shall not use the same for purposes unrelated to this contract without any prior approval of the MoRTH.

12. Conflict of Interest - The Contractor and its personnel deployed for the contract shall not engage directly or indirectly, with Contractors/Concessionaire/ DPR Consultants/ Authority's Engineer/ Independent Engineer in any other business or professional activities related to National Highways/Expressways, other than the performance of his duties or assignment during the period of this Agreement.

13. Penalty

(i) If MQCV is not fully functional, penalty as per Clause 6 (viii) of this section shall be applicable.

(ii) The Contractor is liable to repeat testing on the stretches where inconsistencies are observed between the test results and ground conditions or otherwise.

(iii) If any form of collusion/ breach of confidentiality with any party or a gross misrepresentation or misreporting of test results are found on the part of the Contractor, the Authority may terminate the contract and/or debar the contractor for a minimum period of 2 years from any works being executed by MoRTH or its executing agencies.

14. Arbitration settlement of disputes

a) Any Dispute arising out of agreement or related to any matter there to whether

during or after expiration of the agreement shall be decided by reference to arbitration by a Board of Arbitrators. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the “Rules”), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration Act. The venue of such arbitration shall be [Delhi], and the language of arbitration proceedings shall be English.

b) There shall be a Board of three arbitrators, of whom each Party shall select one, and the third arbitrator shall be appointed by the two arbitrators so selected and in the event of disagreement between the two arbitrators, the appointment shall be made in accordance with the Rules.

c) The arbitrators shall make a reasoned award (the “Award”). Any Award made in any arbitration shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.

d) The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated. This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder.

e) In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

15. Force Majeure - Force Majeure shall mean unforeseen cause beyond the control and without the fault or negligence including but not restricted to acts of God or cause by war, civil commotion riots, flood, epidemics, freight embargoes and obstruction of navigation port or exit on entry or acts of Governments.

16. Termination

16.1 The Authority or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

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

- a) the Contractor stops providing services for continuous 28 days when no stoppage of work has been authorized by the Authority;
- b) the Contractor is has become bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
- c) a payment to the Contractor within 56 days of the date of submission of Bill;
- d) if the Contractor, in the judgment of the Authority has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

16.1.2 Ministry on its own discretion may choose to conduct detailed Quality Control Tests on selected stretches based on reports obtained from MQCV. The reports obtained from MQCV and those conducted by Ministry shall be reconciled and if discrepancies or fudging of data on part of Contractor is observed, the Contract may be subject to termination.

16.1.3 Notwithstanding the above, the Authority may terminate the Contract for convenience.

Section-4 : Memorandum of Understanding (MoU)

This Memorandum of Understanding (“the MOU”) is executed on *(insert date)* at *(insert city/location)* by and between:

(INSERT NAME OF CONTRACTOR), a company registered under the Companies Act 1956 and having its Registered Office at *(insert registered address of contractor)* PAN: _____ and CIN: _____, or the Individual PAN: _____, hereinafter referred as the “*Contractor*”, which expression shall, unless repugnant to the context and meaning thereof, shall mean and include its successors, representatives and permitted assigns);

And

(INSERT NAME OF SUPPLIER) a company incorporated under the Companies Act, 1956, having its registered office *(insert registered address of contractor)*, bearing PAN: _____ and CIN: _____, hereinafter referred to as “*Supplier*” which expression shall, unless repugnant to the context and meaning thereof, shall mean and include its successors, representatives and permitted assigns

RECITALS:

- a) Whereas Ministry of Road Transport and Highways (also referred to as the “AUTHORITY” or “MORTH”) has issued tender for *(Insert Name of Project with tender reference number)* (“The Tender”).
- b) Whereas the Main Contract specifies that the **Contractor** shall provide *Services for Supply, Operation and Maintenance of Mobile Quality Control Van (MQCV) for Quality Control of National Highway Works fitted with requisite testing equipment as described in the Tender.*
- c) Whereas, the **Contractor** hereby agree to enter in agreement with Supplier and cooperate for supply, installation, operation & maintenance, spare support of proposed Instruments and laboratory equipment required by the **Contractor** to set-up Mobile Inspection Van for Quality Control of NH Works for 4 years for this Tender.
- d) Whereas the **Contractor** shall be responsible for
 - (i) Provide a traveler van as per specifications laid out in Section 6 of the RFP to the **Supplier**.
 - (ii) Providing necessary operational support at installation site to the **Supplier**
 - (iii) Providing **Supplier** place for storage of equipment/instruments during installation period and protection of equipment from theft during installation and service period .
 - (iv) Operation and daily maintenance of the Mobile Quality Monitoring Unit including supply of day-to-day consumable parts
 - (v) Deployment of Quality Control Technicians and Drivers as per Contract for taking readings from the instruments/equipment on the mobile unit and submission of reports thereof to the **Authority**

- (vi) To ensure that misuse and rough handling of instruments/equipment is not carried out.
- (vii) Payment of **Supplier** invoices for supply, installation and annual maintenance/spare etc. as per the terms of payment agreed between both parties
- (viii) The contractor shall pay 50% of amount as upfront to supplier before handing over of Van by the contractor for fabrication and fitting of the equipment/fixtures against the bank guarantee from a scheduled Bank of equal amount from the Supplier and rest of the amount on commissioning of vehicle after completion of test trial/document verification in presence of the Authority. The Contractor shall return the BG to the supplier on the date of Commissioning of vehicle After completion of test trial/document verification in presence of the Authority
- e) Whereas the **Supplier** shall be responsible for
- (i) Supply of the following NDT equipment to the Contractor for the MQCV at *(insert location/city)* :
- a) Digital Concrete Test Hammer with Anvil
 - b) Ultrasound Pulse Echo Tomography : **Multi-channel transducer**
 - c) Pile Integrity Tester (PIT)
 - d) High Precision Rebar Scanner
 - e) Non-Nuclear Asphalt Density Gauge
 - f) Light weight Deflectometer
 - g) **Lightweight Dynamic Cone Penetrometer**
 - h) **Spectral Analysis of Surface Waves (SASW-S)**
 - i) Retro Reflectometer for Road Markings
 - j) Retro Reflectometer for Road Signs
 - k) Marking Thickness Gauge
 - l) GPR for Pavement Layer Thickness measurement
- (ii) Customisation and fabrication of necessary compartments, storage and electrical fitments of traveller van for carrying NDT Equipment
- (iii) *The location for installation / fabrication ,i.e, has been mutually agreed to by Contractor and Supplier and has to be strictly adhered to by both parties.*
- (iv) The supplier shall adhere to following timelines:

| S. No. | Activity | Time required | Cumulative Time from Issue of LOA (days) |
|--------|--|--|--|
| 1 | Handing over of Van by the contractor for fabrication and fitting of the equipment/fixtures | B | |
| 2 | Complete installation of all required equipment/fixtures | Within 30 days from the handing over of Van | B+30 |
| 3 | Commissioning of vehicle After completion of test trial/document verification in presence of the Authority | Within 15 days from receiving complete vehicle from the equipment supplier | B+45 |
| 4 | Contract Period of Main Contract | 4 years from the date of Commissioning of vehicle | |

- (v) Failure to adhere to the above time line shall attract a penalty @ Rs. 10,000/- per day for a period of 30 days. If Commissioning of vehicle After completion of test trial/document verification has been delayed by more than 30 days then contractor shall be free to encash the Bank Guarantee.
 - (vi) Provide operational manuals of the equipment as applicable
 - (vii) Provide training to the personnel of the Contractor for operation of the equipment/instruments for a period of **4 weeks** before Commissioning of MQCV.
 - (viii) Provide free of cost training for 4 nos. of free of cost training for 1-2 days each time to concerned HQ and Field Level officers of MORTH and its executing agencies to handle, operate and carry out various tests as well as to make them enable to interpret the results and reports in desired manner in their established laboratories. Contractor / Supplier shall organize the trainings / workshops at various locations in the State of or in Indian Academy of Highway Engineers (IAHE), Noida. Workshop may be assumed to impart training to roughly 15-20 Officers (from MoRTH/ NHAI/ NHIDCL/PWD) at a time.
 - (ix) Provide annual maintenance and spare-part support of proposed equipment to the Contractor a period of 4 years from date of Commissioning of Vehicle.
 - (x) The Supplier should provide Warranty against any manufacturing defect, design and such other defects shall be applicable for all supplied equipment from the date of commissioning. However, in case warranty expires, the Contractor will replace/repair the same at his own cost within a reasonable period of time, not exceeding 15 days for one instrument. The **Supplier** shall provide spares and maintenance parts within 15 days to the **Contractor**.
 - (xi) Provide on-site calibration services to the **Contractor** periodically at intervals defined in the main contract or by the instrument manufacturer. Third party calibrations shall make the warranty invalid.
 - (xii) Supplier shall be responsible for the storage of MQCV during installation period and protection of MQCV from theft during installation till the handing over back the MQCV to the Contractor for commissioning.
- f) Whereas the **Supplier** shall not be responsible for accidental damage/theft of the instruments/equipment during operation or standby of the Mobile Unit
 - g) Whereas the **Contractor** shall be responsible to notify the **Authority** of any changes in the terms of this MOU between the Contractor and Suppliers including termination of the MOU with 15 days of such a change in the association contract.
 - h) Undertaking is hereby given that both parties have not been blacklisted by any MoRTH or its Executing Agencies in last 5 years
 - i) Each party undertakes that it will not offer, give, receive or solicit, directly or indirectly, anything of value including substantial gifts, extravagant entertainment, payments, loans or other benefits, to any person, including to any employee of the Authority, or to any government official, in order to obtain any advantage or to improperly influence the actions of any person or for any other reason in connection with this agreement or the Project
 - j) IN WITNESS WHEREOF, the authorized representative of the parties has duly executed this agreement as of the date set forth above.

For and on Behalf of the **Contractor**

For and on Behalf of the **Supplier**

Signature and Stamp _____

Signature and Stamp _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Section-5- Appendices and Annexures

Appendix-I:- List of Equipment

The mobile Quality Control Van unit shall consist of the following Equipment:

- (i) Digital Concrete Test Hammer with Anvil (1 No.)
- (ii) Ultrasound Pulse Echo Tomography : Multi-channel transducer(1 No.)
- (iii) Pile Integrity Tester (PIT) (1 No.)
- (iv) High Precision Rebar Scanner(1 No.)
- (v) Non-Nuclear Asphalt Density Gauge(1 No.)
- (vi) Light weight Deflectometer(1 No.)
- (vii) Lightweight Dynamic Cone Penetrometer(1 No.)
- (viii) Spectral Analysis of Surface Waves (SASW-S) (1 No.)
- (ix) Retro Reflectometer for Road Markings(1 No.)
- (x) Retro Reflectometer for Road Signs(1 No.)
- (xi) Marking Thickness Gauge(1 No.)
- (xii) GPR for Pavement Layer Thickness measurement(1 No.)
- (xiii) Laptop & printer

In addition, the MQCV shall be modified to provide for GPS tracking (If not fitted with the vehicle), compartmentalization for the safety of individual equipment and electrical fittings for temporary charging points.

Appendix - II :- Frequency of Testing

| Sl. No. | Test Type | Purpose | Number of Locations |
|--------------------------------------|---|--|---|
| 1 | Concrete test hammer | Non-destructive testing for concrete strength | In Minimum 5 Different Locations at every lane Km of Rigid Pavement AND Minor Bridge-Foundation, Substructure and Superstructure of 50% of Piers and all completed Abutments along full length of structure/ component |
| 2 | Ultrasonic Pulse Velocity test- Multichannel Transducer | Onsite inspection to check the homogeneity of concrete, tomographic evaluation | |
| 3 | Pile Integrity test | depth and integrity of Piles | |
| 4 | Rebar Detection | Rebar Assessment in concrete structures | Major Bridge- Foundation, Substructure and Superstructure of all PIERS and all ABUTMENTS along full length of structure/ component |
| 6 | Spectral Analysis of Surface Waves (SASW-S) | Depth of surface-opening cracks in concrete. | In atleast 10% area of PQC tunnel liners, slabs, and other structural concrete components in each visit |
| Soil/ Subgrade | | | |
| 7 | Lightweight Dynamic Cone Penetrometer | Onsite measurement of soil compaction / resilient modulus for subgrade | Minimum 5 locations at every lane Km locations of Soil/ subgrade layer length |
| Sub base and Base compaction | | | |
| 8 | Light weight Deflectometer test | Onsite measurement of density of Non-Bituminous layers | Minimum 5 locations at every lane Km locations of Non-bituminous layer length |
| Asphalt Density | | | |
| 9 | Non Nuclear Asphalt Density test | Onsite measurement of density of Bituminous layers | Minimum 5 locations at every lane Km of Bituminous layer length |
| Pavement layers thickness GPR | | | |
| 10 | GPR for layer thickness measurement | On site testing and inspection of Pavement layers, concrete structures | Minimum 5 locations at every lane Km of Bituminous/ Concrete Pavement |

| | | | |
|--------------------|--|--|--|
| | | etc. | |
| Road Safety | | | |
| 11 | Retro-reflectometer for signages | Measurement of reflective index of Road Signs | As per discretion with a minimum of 10 locations per project |
| 12 | Retro-reflectometer and Thickness Measurements for Road Markings | Measuring thickness of paints/thermoplastic paint for road signage and road markings | As per discretion with a minimum of 10 locations per project |
| 13 | Marking Thickness Gauge | Measuring thickness of paints/thermoplastic paint for road signage and road markings | As per discretion with a minimum of 10 locations per project . |

NOTE:

- Testing shall be necessarily done at the locations where failure is visible, irrespective of the above mentioned frequency.
- A unique testing ID incorporating the date of test conducted, NH No. and corresponding chainage, type of test etc. for easy traceability and reference should be generated for each test.
Testing Locations shall be selected in staggered manner in every lane

Appendix - III :- Testing Formats

| | | | |
|------|--|--|--|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of Non-Destructive Testing of Concrete</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Method of Test Rebound Hammer as per IS 13311(Part 2): 2018</u> | <u>Issue Date: XXXX</u> <u>Revision Date: -</u> |

Project :

Chainage/ KM Stone :

Testing Date :

Environmental Condition: Temperature °C, Relative Humidity%

Equipment Used: Make Name, Sr. No. Unique ID.....

| Sl. No. | Test Locations | Test ID | Impact Direction | Rebound No. | | | | | | Average Rebound No. |
|---------|----------------|---------|------------------|-------------|---|---|---|---|---|---------------------|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |
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| | | | | | | | | | | |

| | Tested By | Checked By |
|-----------|-----------|------------|
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|--|--|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of Non-Destructive Testing of Concrete</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Method of Test Integrity Test of Piles as per ASTM D 5882-16</u> | <u>Issue Date: XXXX</u> <u>Revision Date: -</u> |

| | |
|----------------------|------------------------|
| Project : | |
| Chainage/ KM Stone : | |
| Testing Date : | |
| Pile Name : | Date of Casting Pile : |
| Diameter of Pile : | Grade of Concrete : |

Environmental Condition: Temperature °C, Relative Humidity%

Pile Head Condition : Dry / Moist / Wet

Pile Head Surface Condition : Very Rough / Rough / Smooth / Very Smooth

Number of Strikes : Picked by Instrument

Testing remark if any: _____

| | Tested By | Checked By |
|-----------|-----------|------------|
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|--|--|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | Field Observation Sheet of Non-Destructive Testing of Concrete | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Method of Test Ultrasonic Pulse Velocity as per IS 13311(Part 1) : 2018</u> | <u>Issue Date: XXXX</u> <u>Revision Date: -</u> |

Project :

Chainage/ KM Stone :

Testing Date :

Environmental Condition: Temperature °C, Relative Humidity %

Unique ID

| Sl. No. | Test Locations | Test ID | Distance between two probing (mm) | Method of Probing | Observed UPV (m/s) |
|---------|----------------|---------|-----------------------------------|-------------------|--------------------|
| | | | | | |
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| | | |
|------------------|------------------|-------------------|
| | Tested By | Checked By |
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|---|-----------------------------|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of Non-Nuclear Soil Density gauge</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Non-Nuclear Soil Density gauge</u> | <u>Issue Date: XXXX</u> |
| | | | <u>Revision Date: -</u> |

Project : Chainage :
 Unique ID
 Customer Name : Testing Date :
 Environmental Condition: Temperature °C, Relative Humidity%
 Equipment Used: Make Name:, Sr. No., Lab ID

| Sl. No. | Test Locations | Test ID | Bulk Density Measured By Non-Nuclear gauge (g/cc) | | | | Average Bulk Density (g/cc) |
|---------|---------------------------|---------|--|---|---|---|------------------------------|
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Moisture Content Measured By Non-Nuclear gauge (%) | | | | Average Moisture Content (%) |
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Dry Density (g/cc) | | | | | | |

| | Tested By | Checked By |
|-----------|-----------|------------|
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|--|-----------------------------|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | Field Observation Sheet of Light Weight deflectometer | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | Light Weight Deflectometer LWD ASTM E 2835-11 | <u>Issue Date: XXXX</u> |
| | | | <u>Revision Date: -</u> |

Project : Chainage :
 Unique ID
 Testing Date :

Environmental Condition: Temperature °C, Relative Humidity%

| Sl. No. | Test Locations | Test ID | Light weight Deflectometer (mm) | | | | Average Deflectometer (mm) |
|-----------------------|----------------|---------|---------------------------------|---|---|---|----------------------------|
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| Modulus of surface :- | | | | | | | |

| | | |
|-----------|-----------|------------|
| | Tested By | Checked By |
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|---|-----------------------------|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of Non-Nuclear Asphalt Density gauge</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Non-Nuclear Asphalt Density gauge</u> | <u>Issue Date: XXXX</u> |
| | | | <u>Revision Date: -</u> |

Project : Chainage :
 Unique ID
 Customer Name : Testing Date :
 Environmental Condition: Temperature °C, Relative Humidity%

| Sl. No. | Test Locations | Test ID | Density Measured By Non-Nuclear gauge (g/cc) | | | | Average Density (g/cc) |
|---------|----------------|---------|--|---|---|---|------------------------|
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
| | | | | | | | |
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| | | |
|-----------|-----------|------------|
| | Tested By | Checked By |
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|---|-----------------------------|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of GPR Pavement layer Thickness measurement</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>GPR Pavement layer Thickness measurement</u> | <u>Issue Date: XXXX</u> |
| | | | <u>Revision Date: -</u> |

Project : Chainage/ Km stone :
 Unique ID
 Testing Date :

Environmental Condition: Temperature °C, Relative Humidity%

| Sl. No. | Test Locations | Test ID | Pavement layer Thickness From GPR machine (mm) | | | | Average Thickness (mm) |
|---------|----------------|---------|--|---|---|---|------------------------|
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

| | | |
|-----------|-----------|------------|
| | Tested By | Checked By |
| Name | | |
| Signature | | |

Other Observations and Remark: _____

| | | | |
|------|--|--|-----------------------------|
| Logo | <u>Services for Supply, Operation and Maintenance of Mobile Inspection Van (MQCV) for Quality Inspection of National Highway Works in the State of ----</u> | | |
| | <u>Format Name</u> | <u>Field Observation Sheet of Road Marking Thickness</u> | <u>Issue No/Rev No.:XXX</u> |
| | <u>Format No.-XXXXX</u> | <u>Road Marking Thickness measurement</u> | <u>Issue Date: XXXX</u> |
| | | | <u>Revision Date: -</u> |

Project : Chainage :

Unique ID

Testing Date :

Environmental Condition: Temperature °C, Relative Humidity%

| Sl. No. | Test Locations | Test ID | Marking Thickness (μm) | | | | Average Thickness (μm) |
|---------|----------------|---------|-------------------------------------|-------------------|---------------|---|-------------------------------------|
| | | | 1 | 2 | 3 | 4 | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Observation | | | | |
| | | | Road Marking | Road Signs | Remark | | |
| | | | | | | | |

| | | |
|-----------|-----------|------------|
| | Tested By | Checked By |
| Name | | |
| Signature | | |

Other Observations and Remark: _____

Format of documents required for Technical Bid**Annexure- I****Bidder Information form**

(a) The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for bids]

| | |
|----|--|
| 1. | Bidder's Legal Name [insert Bidder's legal name] |
| 2. | Bidder's Year of Registration: [insert Bidder's year of registration] |
| 3. | Bidder's Legal Address in Country of Registration: [insert Bidder's legal address in country of registration] |
| 4. | Bidder's Authorized Representative Information Name: [insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephone/Fax numbers: [insert Authorized Representative's telephone/fax numbers] Email Address: [insert Authorized Representative's email address] |
| 5. | Attached are copies of original documents of: [check the box(es) of the attached original documents] Articles of Incorporation or Registration of firm named in 1, above. |

Signature of Bidder _____ Name _____ Business Address _____

Annexure – II

Bid Securing Declaration

I hereby submit a declaration that the bid submitted by the undersigned, on behalf of the bidder [*Name of the Bidder*], shall not be withdrawn or modified during the period of validity i.e. not less than 180 (one hundred eighty) days from the bid due date.

I, on behalf of the bidder, [*Name of the bidder*], also accept the fact that in case the bid is withdrawn or modified during the period of its validity or if we fail to sign the contract in case the work is awarded to us or we fail to submit a performance security before the deadline defined in Request for Proposal (RFP), then [*Name of the bidder*] will be suspended for participation in the tendering process for the works of MoRTH/NHAI/NHIDCL/BRO and works under other Centrally Sponsored Schemes, for a period of one year from the bid due date of this work.

(Signature of the Authorised Signatory)
(Official Seal)

Annexure-III

Bid Form

[The Bidder shall fill in this Form in accordance with the instructions indicated No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of Bid Submission]*

Tender No.: *[insert number from Invitation for Bids]*

Invitation for Bid No.: *[insert No of IFB]* To: *[insert complete name of Authority]*

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda No.: *[insert the number and issuing date of each Addenda]*;
- (b) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services *[insert a brief description of the Goods and Related Services]*;
- (c) Our bid shall be valid for the period of time of 120 days from the date fixed for the bid opening, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) If our bid is accepted, we commit to obtain a performance security in accordance with Terms of Reference and Conditions of Contract for the due performance of the Contract;

Name of Recipient:

Address:

Reason:

Amount:

(If none has been paid or is to be paid, indicate “none.”)

- (e) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.
- (f) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed:

[insert signature of person whose name and capacity are shown]

In the capacity of *[insert legal capacity of person signing the Bid Submission Form]*

Name: *[insert complete name of person signing the Bid Submission Form]*

Technical Specification Compliance

It is certified that undersigned will supply the equipment as per Appendix-I of the RFP as per technical specifications stated in section -6 of the RFP.

Place:

Date:

Signature and seal of the Bidder

Technical Capacity of the Bidder

A. For Companies/ Firms

| Applicant Name | S. No. | Experience in successfully completing Equipment/Machinery supply contract/ Maintenance Contract(OR/SR/FDR)/ Quality Control Contract in road works within the last three financial years preceding from bid due date. | | Technical Experience (Value of the Project) |
|----------------|--------|--|--------------------|---|
| | | Name of the Project | Year of Completion | |
| (1) | (2) | (4) | (5) | (6) |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

B. For Individuals

| | | | |
|---|--------|--|---------------------|
| Applicant Name | | | |
| D.O.B | | | |
| Year of Passing B.Tech/ BE: | | Name of Statutory University / an institution empowered by UGC / University/ State Council or Board of Technical Education | |
| | Sl. no | Name of Employer | Duration of Service |
| Experience of Highways construction / design experience | | | |
| | | | |
| | | | |
| | | | |

Note: Photocopies of relevant documents substantiating information / experience claimed above shall form part of the Bid. Failure to provide the same shall be liable for disqualification and rejection of Bid.

Financial Capacity of the Bidder
(In Rs. crore)

A. For Companies/ Firms

| Bidder | Net Cash Accruals | | | | | Net Worth ^L |
|----------------|-------------------|--------|--------|--------|--------|------------------------|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 |
| Name of Bidder | | | | | | |
| TOTAL | | | | | | |

| Bidder | Annual Turnover | | | | | | | | | | Average Annual Turnover (In Rs. crore ^S) |
|----------------|-----------------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|--|
| | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | |
| | (Rs.) | Updation factor | (Rs.) | Updation factor | (Rs.) | Updation factor | (Rs.) | Updation factor | (Rs.) | Updation factor | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | (2x3+4x5+6x7+8x9+10x11)/5 |
| Name of Bidder | | 1.00 | | 1.05 | | 1.10 | | 1.15 | | 1.20 | |
| | | | | | | | | | | | |

B. For Individuals

- i) Solvency certificate from a Scheduled Bank amounting to minimum 30% of the Tender Amount.
- ii) Proof of Available assets duly certified by the empaneled / authorized Valuers of the Scheduled Banks / Insurance Companies at their disposal for procuring necessary loan from the market for 60% of the Tender Amount.

Instructions:

1. The Bidder shall attach copies of the balance sheets, financial statements and Annual Reports for 5 (five) years preceding the Bid Due Date. The financial statements shall:
 - (a) reflect the financial situation of the Bidder;
 - (b) be audited by a statutory auditor;
 - (c) be complete, including all notes to the financial statements; and

- (d) correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
- 2. Net Cash Accruals shall mean Profit After Tax + Depreciation.
- 3. Net Worth (the “Net worth”) shall means the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.
- 4. Year 1 will be the latest completed financial year, preceding the bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, the previous Financial Year shall not be considered as Year 1 for calculation of Financial Capacity.
- 5. The Bidder shall also provide the name and address of the Bankers to the Bidder.

The Bidder shall provide an Auditor’s Certificate specifying the net worth of the Bidder.

Annexure– VIIPerformance Statement Form For Supplier(For a period of last 5 years)

Name of the Firm.....

| Order Placed by (full address of Authority) | Order No. and date | Description and quantity of ordered equipment | Value of order | Date of completion of delivery as per Contract | Date of actual Completion of delivery | Remarks indicating reasons for late delivery, if any | Has the equipment been installed satisfactory ? (Attach a certificate from the Authority/ Consignee) | Contact Person along with Telephone No., e-mail address |
|---|--------------------|---|----------------|--|---------------------------------------|--|--|---|
| | | | | | | | | |

Signature and Seal of the Supplier

Place:

Date:

Annexure-VIII

Format for declaration by the Bidder for Code of Integrity & conflict of interest

(On the Letter Head of the Bidder)

Ref. No:

Date:.....

.....

To,

.....
.....

(Name & address of the Authority)

Sir,

With reference to your Tender No.
dated I/We hereby declare that we shall abide by the Code of Integrity
for Public Procurement and have no conflict of interest.

The details of any previous transgressions of the code of integrity
with any entity in any country during the last three years or of being
debarred by any other Procuring Entity are as under:

- a.
- b.
- c.

We undertake that we shall be liable for any punitive action in case
of transgression/ contravention of this code.

Thanking you,

Yours sincerely,

Signature
(Name of the Authorized Signatory)
Company Seal

Other necessary formats

Annexure-IX

Performance Security Form

MODEL BANK GUARANTEE FORMAT FOR PERFORMANCE SECURITY

To,
.....

WHEREAS (name and address of the bidder) (hereinafter called "the bidder") has undertaken, in pursuance of contract No. datedto supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the bidder shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the bidder such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the bidder, up to a total of (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the bidder to be in default under the contract 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 or the sum specified therein.

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

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the bidder 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 the day of, 20.....

(Signature of the authorized officer of the Bank)

.....
..... Name and designation of the officer

.....
Seal, Name & Address of the Issuing Branch of the Bank

Annexure-X

Letter of Acceptance

(Letterhead paper of the Employer)

..... (Date)

To

..... (Name and address of the Contractor)

.....

.....

Dear Sirs,

This is to notify you that your Bid dated for execution of the (Name of the contract and identification number, as given in the Instructions to Bidders) for the Contract Price of Rupees in figures and words..... (.....) has been accepted by the Authority.

You are hereby requested to furnish Performance Security, for an amount equivalent to Rs. within 15 days of the receipt of this letter of acceptance valid up to 60 days from completion of Contract and sign the contract.

Yours faithfully

Authorized Signature
Name and title of Signatory
Name of Agency

Agreement Form

This agreement, made the day of between(name and address of Employer) [hereinafter called “the Employer] and (name and address of contractor) hereinafter called “the Contractor” of the other part.

Whereas the Authority is desirous that the Contractor execute

..... (name and identification number of Contract) (hereinafter called “the Works”) and the Authority has accepted the Bid by the Contractor for the execution and completion of such works and the remedying of any defects therein, at a cost of Rs.

NOW THIS AGREEMENT WITNESSETH as follows :

- 1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
- 3. In consideration of the payments to be made by the Authority to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Authority to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
- 3. The Authority hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein 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.
- 4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
 - i) Letter of Acceptance
 - ii) Notice to proceed with the works;
 - iii) Contractor’s Technical and Financial Bid
 - iv) Terms of reference (TOR) and conditions of the Contract
 - v) MoU between the Contractor and the Supplier(s)
 - vi) Any other documents as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of was was hereunto affixed in the presence of :

Signed, Sealed and Delivered by the said

.....
.....

in the presence of :

Binding Signature of Authority.....

Binding Signature of Contractor

Section -6: Technical Specifications

| Sr No | Name of Equipments | Features/Technical Specifications |
|--------------------------|--|---|
| Tests on Concrete | | |
| 1 | Digital Concrete Test Hammer with Anvil | <ul style="list-style-type: none"> ● Automatic conversion of rebound values (Q values) ● Principle of operation : optical rebound velocity quotient ● Should be portable and user friendly, the instrument should be wire free during testing and be able to carry out tests at critical places. Display should be interactive ● Measuring range should be between 10 to 100 N/mm² and ultra-high performance up to 120 MPA ● Units of measurement should be user selectable including N/mm², MPa, psi, kg/cm² ● Digital display should be integrated, 100 x 100 pixels backlit ● Direct display of measured values on Mobile app, on site, via Bluetooth including statistics, bar charts. App should be available on android google play store & iOS. ● Automatic self-correction of readings based upon the impact direction ● Should be able to calculate median, mean value and standard deviation automatically on instrument and on mobile app in real time on site. ● Should contain USB charging port ● Possibility to check the strength through carbonation corrections ● Instrument should provide form factor corrections based on Cube, 2:1 cylinder, 1:1 core, user-definable ● Should have user defined statistical methods ● User should be able to define the conversion curves (Polynomial or exponential) ● Provision for testing using the instrument in any angle without any corrections ● Testing standards : ASTM C805 EN 12504-2, EN13791, JGJ-T23 ● Impact energy : 2.207 Nm ● Operating Temperature range : 10° C to + 50° C ● Weight of the instrument : should be Less than 1.2 kg ● Memory capacity : >= 20000 impacts ● Maximum number of Impacts per series : 70 ● Battery: rechargeable 1 AAA, charging through USB. ● Battery Life:> 20000 impacts between charges ● Instrument should have an option to connect with Bluetooth printer (optional accessory) ● Supply should include anvil, duly calibrated. |
| 2 | Ultrasonic Pulse echo tomography multichannel | <p><u>System Application</u> The Ultrasonic Concrete Imaging Equipment shall be capable of detecting and imaging defects, voids, delamination, honeycombing, rebars, and other discontinuities in concrete structures using multi-channel Ultrasonic Pulse Echo (UPE) technology. It shall support bonding assessment, thickness measurement, and fibre-reinforced concrete. The system shall be suitable for inspection of reinforced concrete structures, bridge decks, slabs, tunnels, and similar civil infrastructure elements.</p> <p><u>System Composition</u></p> |

| | | <p>The system shall include the following components:</p> <ul style="list-style-type: none"> • Ultrasonic Pulse Echo Imaging System (≥ 8-channel, multi-probe configuration) • iPad® (iOS 11.0 or higher) controller • Advanced Workspace software suite with AI and Augmented Reality integration • Battery pack and charger, Wi-Fi module, cables, and all necessary accessories • Hard carrying case for system portability <p>3. Technical Requirements</p> <table border="1" data-bbox="502 360 1453 1550"> <thead> <tr> <th>Parameter</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Technology</td> <td>Multi-channel Ultrasonic Pulse Echo (UPE)</td> </tr> <tr> <td>Bandwidth</td> <td>20 – 80 kHz or higher</td> </tr> <tr> <td>Pulse Voltage</td> <td>± 50 to ± 150 V or higher</td> </tr> <tr> <td>Receiver Gain</td> <td>0 – 80 dB (1 to 10,000) or higher</td> </tr> <tr> <td>Measuring Resolution</td> <td>0.1 μs or better or better</td> </tr> <tr> <td>Measuring Range</td> <td>Up to 2.0 m (depending on concrete quality)</td> </tr> <tr> <td>Measurement Modes</td> <td>Line Scan, Stripe Scan, Grid Scan</td> </tr> <tr> <td>Review Modes</td> <td>A-scan, B-scan (Line view), C-scan (Time-slice), Heat Map (depth/velocity)</td> </tr> <tr> <td>Applications</td> <td>Void and delamination detection, bonding assessment, honeycombing, thickness measurement, fibre concrete, concrete hit prevention, imaging of closely spaced rebars</td> </tr> <tr> <td>Special Features</td> <td>High-definition focus view, Macro view (variable frequency and voltage), Wide panoramic B-scan, Augmented Reality (AR), 3D view, AI-assisted positioning, AI-assisted feature interpretation, Image stabilizer</td> </tr> <tr> <td>Connectivity</td> <td>Encrypted Wi-Fi connection; USB-C port for Wi-Fi restricted areas</td> </tr> <tr> <td>Battery</td> <td>NiMH rechargeable battery pack</td> </tr> <tr> <td>Operating System</td> <td>iOS 11.0 or higher</td> </tr> <tr> <td>Display Unit</td> <td>Screen size 11" or higher</td> </tr> <tr> <td>Integrated Sensors</td> <td>GNSS, Three-axis gyro, Accelerometer, Barometer, Ambient light sensor</td> </tr> <tr> <td>Reporting</td> <td>Cloud synchronization, Automatic logbook, HTML export, Raw data export, Instant report generation, Share via URL</td> </tr> <tr> <td>Software Suite</td> <td>AI and Augmented Reality-powered acquisition and visualization; 3D and heatmap view; real-time imaging with adjustable transmission parameters</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>Software License & Updates</p> <p>Licenses for Workspace cloud integration shall be valid for a minimum duration of five (5) years from the date of supply, including free updates and feature enhancements.</p> | Parameter | Specification | Technology | Multi-channel Ultrasonic Pulse Echo (UPE) | Bandwidth | 20 – 80 kHz or higher | Pulse Voltage | ± 50 to ± 150 V or higher | Receiver Gain | 0 – 80 dB (1 to 10,000) or higher | Measuring Resolution | 0.1 μ s or better or better | Measuring Range | Up to 2.0 m (depending on concrete quality) | Measurement Modes | Line Scan, Stripe Scan, Grid Scan | Review Modes | A-scan, B-scan (Line view), C-scan (Time-slice), Heat Map (depth/velocity) | Applications | Void and delamination detection, bonding assessment, honeycombing, thickness measurement, fibre concrete, concrete hit prevention, imaging of closely spaced rebars | Special Features | High-definition focus view, Macro view (variable frequency and voltage), Wide panoramic B-scan, Augmented Reality (AR), 3D view, AI-assisted positioning, AI-assisted feature interpretation, Image stabilizer | Connectivity | Encrypted Wi-Fi connection; USB-C port for Wi-Fi restricted areas | Battery | NiMH rechargeable battery pack | Operating System | iOS 11.0 or higher | Display Unit | Screen size 11" or higher | Integrated Sensors | GNSS, Three-axis gyro, Accelerometer, Barometer, Ambient light sensor | Reporting | Cloud synchronization, Automatic logbook, HTML export, Raw data export, Instant report generation, Share via URL | Software Suite | AI and Augmented Reality-powered acquisition and visualization; 3D and heatmap view; real-time imaging with adjustable transmission parameters | | |
|----------------------|--|---|-----------|---------------|------------|---|-----------|-----------------------|---------------|-----------------------------------|---------------|-----------------------------------|----------------------|---------------------------------|-----------------|---|-------------------|-----------------------------------|--------------|--|--------------|---|------------------|--|--------------|---|---------|--------------------------------|------------------|--------------------|--------------|---------------------------|--------------------|---|-----------|--|----------------|--|--|--|
| Parameter | Specification | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technology | Multi-channel Ultrasonic Pulse Echo (UPE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bandwidth | 20 – 80 kHz or higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pulse Voltage | ± 50 to ± 150 V or higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Receiver Gain | 0 – 80 dB (1 to 10,000) or higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measuring Resolution | 0.1 μ s or better or better | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measuring Range | Up to 2.0 m (depending on concrete quality) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement Modes | Line Scan, Stripe Scan, Grid Scan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Review Modes | A-scan, B-scan (Line view), C-scan (Time-slice), Heat Map (depth/velocity) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applications | Void and delamination detection, bonding assessment, honeycombing, thickness measurement, fibre concrete, concrete hit prevention, imaging of closely spaced rebars | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Special Features | High-definition focus view, Macro view (variable frequency and voltage), Wide panoramic B-scan, Augmented Reality (AR), 3D view, AI-assisted positioning, AI-assisted feature interpretation, Image stabilizer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connectivity | Encrypted Wi-Fi connection; USB-C port for Wi-Fi restricted areas | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery | NiMH rechargeable battery pack | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating System | iOS 11.0 or higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Display Unit | Screen size 11" or higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Integrated Sensors | GNSS, Three-axis gyro, Accelerometer, Barometer, Ambient light sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reporting | Cloud synchronization, Automatic logbook, HTML export, Raw data export, Instant report generation, Share via URL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Software Suite | AI and Augmented Reality-powered acquisition and visualization; 3D and heatmap view; real-time imaging with adjustable transmission parameters | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Pile Integrity Tester (PIT) | <p>Pile Integrity Test Kit:</p> <ol style="list-style-type: none"> <u>1. According to the Norm: ASTM D5882-07</u> <u>2. Time & Frequency domain system</u> <u>3. Onsite analysis of pile length , section and stiffness</u> <u>4 System supply should include PIT instrumented force hammer and accelerometer and geophone with natural frequency of 4.5 Hz</u> <u>5. Test System should be based on Low Strain Integrity and Echo methods</u> <u>6. System supply should include Pile Processing software also</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|-------------------|-------------|----------------------|-------------------------|---------|---|-----------------|--|----------------|--|-------------|---|---------------------|--|-------------|---|------------|--|--------------|---|--------------------|----------------------|---------|--------------------------|
| | | <p><u>8. TFT/ LCD/ Touch Pads screen which is clearly visible in bright daylight</u></p> <p><u>9. To be used to test precast concrete, cast in place concrete of most dimensions</u></p> <p><u>10. Typical anomalies to be located include shaft restraints, Overbreak, Cracks, Reductions in section and zones of poor quality concrete.</u></p> <p><u>11. By virtue of force measurement, mobility should be measured and which in turn should be used to assess concrete quality and pile section.</u></p> <p><u>12. Software should tabulate the data and present all response curves for reporting</u></p> <p><u>13. Simulation module should be provided which can be used to produce a theoretical curve using a pile soil model.</u></p> <p><u>14.Acquisition: 2 channel, 16 bit acquisition at 25KHz sample rate</u></p> <p><u>15. Pre trigger on both channels and autoranging gain feature</u></p> <p><u>16. Displays should include: Velocity- time; Force -time; Force-Frequency and mobility frequency</u></p> <p><u>17. Impulse hammer: hammer with builtin load cell</u></p> | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | High Precision Rebar Scanner | <p>Instrument offered should be advanced rebar locator with built in encoders for rebar detection, mapping & diameter estimation.</p> <table border="1"> <tr> <td>Rebar cover range</td> <td>Upto 180mm.</td> </tr> <tr> <td>Rebar dia estimation</td> <td>Should appear on screen</td> </tr> <tr> <td>Display</td> <td>Should be color LCD Display integrated in instrument.</td> </tr> <tr> <td>Probe & encoder</td> <td>instrument should be integrated rebar locator, cordless, containing 4 wheel based probe system with built in encoder for location of rebars including mapping distance upto rebar and between rebars</td> </tr> <tr> <td>Locating modes</td> <td>Should include single line scan, additionally area scan based on X & Y Grid.</td> </tr> <tr> <td>Calibration</td> <td>It should be possible to calibrate cover, on site, based on actual cover depth.</td> </tr> <tr> <td>Map output software</td> <td>Windows based processing software Should be provided, which should allow grid based scan map with rebar spacing to be view in 2D/3D.</td> </tr> <tr> <td>Scan length</td> <td>Individual scan length 50 meters or higher should be possible. Scan length traversed should be indicated on screen. Instrument should indicate spacing between rebars, automatically calculated based on encoder.</td> </tr> <tr> <td>Indicators</td> <td>Instrument should provide audio & visual indication of rebar location.</td> </tr> <tr> <td>Data storage</td> <td>Instrument should contain data storage for > =3000 events</td> </tr> <tr> <td>Data communication</td> <td>Via Micro USB Output</td> </tr> <tr> <td>Battery</td> <td>Lithium ion with charger</td> </tr> </table> | Rebar cover range | Upto 180mm. | Rebar dia estimation | Should appear on screen | Display | Should be color LCD Display integrated in instrument. | Probe & encoder | instrument should be integrated rebar locator, cordless, containing 4 wheel based probe system with built in encoder for location of rebars including mapping distance upto rebar and between rebars | Locating modes | Should include single line scan, additionally area scan based on X & Y Grid. | Calibration | It should be possible to calibrate cover, on site, based on actual cover depth. | Map output software | Windows based processing software Should be provided, which should allow grid based scan map with rebar spacing to be view in 2D/3D. | Scan length | Individual scan length 50 meters or higher should be possible. Scan length traversed should be indicated on screen. Instrument should indicate spacing between rebars, automatically calculated based on encoder. | Indicators | Instrument should provide audio & visual indication of rebar location. | Data storage | Instrument should contain data storage for > =3000 events | Data communication | Via Micro USB Output | Battery | Lithium ion with charger |
| Rebar cover range | Upto 180mm. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rebar dia estimation | Should appear on screen | | | | | | | | | | | | | | | | | | | | | | | | | |
| Display | Should be color LCD Display integrated in instrument. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Probe & encoder | instrument should be integrated rebar locator, cordless, containing 4 wheel based probe system with built in encoder for location of rebars including mapping distance upto rebar and between rebars | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locating modes | Should include single line scan, additionally area scan based on X & Y Grid. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Calibration | It should be possible to calibrate cover, on site, based on actual cover depth. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Map output software | Windows based processing software Should be provided, which should allow grid based scan map with rebar spacing to be view in 2D/3D. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Scan length | Individual scan length 50 meters or higher should be possible. Scan length traversed should be indicated on screen. Instrument should indicate spacing between rebars, automatically calculated based on encoder. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicators | Instrument should provide audio & visual indication of rebar location. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data storage | Instrument should contain data storage for > =3000 events | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data communication | Via Micro USB Output | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery | Lithium ion with charger | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Spectral Analysis of Surface Waves (SASW-S) | <p>WHAT IS MENTIONED IN THE SPECIFICATIONS IS FOR SOIL, WE NEED IT FOR CONCRETE AND PAVEMENTS. THE REVISED SPECIFICATIONS ARE AS FOLLOWS</p> <ol style="list-style-type: none"> 1,SASW system to assess material stiffness and condition, and layer thickness 2. Surface-opening crack depth measurement 3. Condition assessment of concrete, including liners in tunnels, slabs, and other structural concrete members 4. Determination of abutment depths of bridges | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | <p>5.Determination of pavement system profiles including the surface layer, base and subgrade materials with optional software.</p> <p>6. Receivers should be mounted on the SASW-S bar to allow for fast and accurate field measurements</p> <p>7. Real-time waveform display while testing</p> <p>8. System should be compact, durable, and easily transported allowing for multiple tests per day</p> <p>9. Measurements should be accurate to within 5-10% for the determination of the thickness and stiffness of the top layer in a pavement system or of the concrete liner of a tunnel</p> <p>10.Capable of performing tests for surface crack depth, layer thickness, material moduli, and shear wave velocity profiles.</p> <p>12.Compliant with ACI Standard 228.2R</p> <p>13. Should include acquisition and analysis software that is compatible, user-friendly, and delivers quick, accurate results</p> |
| Tests on Bituminous layer | | |
| 4. | Non-Nuclear Asphalt Density Gauge | <p>The Instrument should provide accurate asphalt pavement density readings. Instrument should be based on use of Impedance Spectroscopy to measure the electrical response of asphalt from which the density is calculated. The features should include customizable project entries, diagnostics reading mode, data management screen and ability to disable data logging. The equipment should also have advanced GPS system which enables position and Independent time logging. It should be possible to do customizable project entries, diagnostics reading mode, data management screen and ability to disable data logging.</p> <ul style="list-style-type: none"> ● Display: Full-color GUI, 480x640VGA touch-screen display with LED backlit ● Operating system : Windows ● Display output: Display should output Density, %Compaction, Surface Temperature, Mix & Project Name. ● Status Bar Displays GPS status, Data Save status, battery voltage, low battery & Date/time ● Project Details: Stores upto 20 projects with details ● Mix Details Stores upto 20 mixes, details incl. (MTD, Mix Name, Stone Size, Depth, etc) ● Reports Easily download data to be imported into Excel ● Units Interchangeable settings for Density (kg/m³, lb/ft³, Temp (°C, °F), Depth (in, mm) ● User Programmable Target Density Used for calculating % compaction. ● Standardization While gauge is still in the case, a quick one touch measurement should ensure the gauge is still in proper working mode. ● Functions: Density, %Compaction, ● Integrated Temp Sensing: Real time temperature display 0° to 350° F (-15.0 to 170.0°C or higher range) ● Calibration Mode: Correlation offset to cores. ● Measurement Specifications: <ul style="list-style-type: none"> ➢ Sensing Area: 11 in. dia base or higher. ➢ Measurement Depth: User selectable & adjustable from 25 to 100mm ➢ Measurement Display: Density, %Compaction, ➢ Surface Temp, Mix & Project Name ● Display and Output <ul style="list-style-type: none"> ➢ Units: in and mm, kG/m³ or lb/ft³ . ➢ Units should be interchangeable or selectable by user. ➢ Screen : Instrument should be provided with a touch screen display with 480 x 640 graphics VGA LCD Color display ➢ Status display : Instrument should display important ➢ Parameters such as Battery voltage, low battery, GPS On, Data save etc. ➢ Mix Data : Instrument should be in a position to store mix data for up to 20 mixes including Mix name, MTD, Stone size, Depth, offset, |

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| | | <p>operator name</p> <ul style="list-style-type: none"> ➤ Data logging : instrument should be in a position to store information of at least 20 projects ➤ Output : data should be downloadable for output of data in excel format ➤ System should conform to ASTM D7113 and AASHTO T 343 |
| Tests on Non-Bituminous layer | | |
| 5. | Light weight Deflectometer combined field and lab version | <ul style="list-style-type: none"> ➤ For Quality Assurance & Quality Control of Earthwork Projects ➤ Measurement of In-situ soil modulus to ensure soil compaction requirements are met project-wide on subgrade, subbase and roadbase ➤ Embedded load cell measures actual impact force ➤ Multiple plate diameters available (300, 200, 150 and 100 mm (~ 12, 8, 6 and 4 inch) ➤ Impact Weight of 10Kgs with 5kg and 10kg add on weights. ➤ Impulse duration- 15-20 ms ➤ Data Channels – 4 ➤ No of sensors-3 ➤ Should conforms to ASTM standard E2835-11 for plate deflection measurement ➤ Should measure the actual impulse force to calculate stiffness (peak force ÷ peak displacement) and modulus based on soil type (granular, clay, or mixed). ➤ Should come with a lighter weight to match loading pressure and impulse duration time in Proctor molds to in situ field testing for determination of the target soil modulus. ➤ modulus and moisture content from field samples, our LWD plots ensure the lab Target elastic modulus has been achieved ➤ Lab unit to be used along with a standard or modified Proctor mold compaction test to determine the optimum moisture content, the maximum dry density, and the Target E_{LWD} value |
| Tests on Soil | | |
| 6. | Lightweight Dynamic Cone Penetrometer | <p>Application: Determination of layer boundaries during subsoil for, bridge, roads construction projects. Verification of compaction work and fills. Determination of bedding conditions of non cohesive soils.</p> <ul style="list-style-type: none"> - Striking head should be equipped with a sensor to measure the energy of blows done by Hand at each impact, measure depth of depression and soil resistance or Pneumatic pressure control with measuring unit for Automatic Impact count logging & Automatic evaluation of penetration depths via ultrasonic sensor and soil resistance calculated from penetration per blow - Recording all the data/ blow counts with evaluated depth , equipped with a GPS for the geolocation of the surveys and a colour screen for an instantaneous reading of the data - Depth of investigation: 5-10 mts - Automated Data Acquisition system and data processing software - Should be complete with 2cm² cones or 10cm², cone holders and rods <p>2 cm² fixed cones and 4 cm² lost cones or 10 cm² standard cone Colour screen TFT display or touchscreen</p> |
| Tests on Road Markings and Road Sign | | |

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| 7. | Retro Reflectometer for Road Markings | <p>Instrument should have following salient minimum specifications and features :</p> <ul style="list-style-type: none"> ● Supporting both night visibility (RL) and daytime visibility (QD). Where RL is a measure of retro-reflected light, the QD is a measure of diffuse illumination during daytime. RL and QD can be measured under “dry” and “wet” conditions. ● Displays and stores day, time, as well as road ID, marking type and user ID. ● Installed with maintenance-free LED/ Xenon light or any other light sources as long as both night visibility (RL) and daytime visibility (QD) is supported. ● Should Feature an easy readable color LED display. ● Intuitive user interface (multiple language support), and relies on rugged push buttons that can be handled in the field - even when using gloves. ● Integrated GPS. ● Measurements of both RL and QD retro-reflection parameters in just 1 second. ● Data acquired can fast and seamless be uploaded to a PC for further analysis through a USB connection. ● software facilitates further data analysis, including transfer of data to e.g. Google Earth, which offers excellent overview of acquired data referenced to the exact measurement positions on the map. ● Measurement can be exported to MS-Excel format. ● Instrument to feature convenient dimensions to enable Single handed operation. ● Automatic electronic stray light compensation, which ensures optimum performance during daylight operation. ● Device comes with a reference / calibration tile that should have been calibrated by accredited photometric lab, which has direct traceability to NIST & PTB. ● Instrument to be delivered with both RL & QD calibration reference standards <p>Standards: EN 1436 (RL/Qd), ASTM E1710 (RL), ASTM E2302 (Qd), ASTM E2177 (RL wet)</p> <p>Instrument specification & dimensions:</p> <ul style="list-style-type: none"> ● To measure RL from 0 to 4.000 mcd/lx/sqm and Qd from 0 to 318 mcd/lx/sqm ● Repeatability better than +/- 2%. ● Reproducibility better than +/-5%. ● Stores more than 100,000 acquired measurements of retro-reflection. ● Field of measurement: · Width: >50 mm Height <= 180 mm |
| 8. | Retro Reflectometer for Road Signs | <p>Instrument should have following salient minimum specifications and features :</p> <ul style="list-style-type: none"> ● Measurement of the Coefficient of retro-reflected luminance RA (night-time retro-reflection) of road traffic signs. ● Measurements are taken in one second and data is easily transferred to a PC or a tablet. ● Built-in Camera for photos of signs with resolution 5MP or more, ● Built-in GPS, ● Equipment should have built in Bluetooth for data transfer. ● Instrument should have touch screen display ≥3.5” with backlight ● ● Point based technology for correct results with modern sheeting, in addition to allowing the user to detect if direction sensitive micro prismatic material has been correctly mounted. ● Up to 3 observation angles (0.2°, 0.5°, 1.0°) and a standard entrance (illumination) angle allowing for ASTM (-4°). ● Entrance angles can be supplemented with 10°, 15°, 20°, 30°, 40°, 45° adaptor extensions as and when needed. As a minimum 30° illumination angle adaptor should be used as per IRC. ● automatic color recognition of sign sheeting . ● Color contrast recognition (background and legend colors), ● Automatic average calculation for 2 - 10 measurements · |

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| | | <ul style="list-style-type: none"> • Calibrated from accredited laboratory with traceability to to European institute of metrology or NIST. • Reporting Software should be provided for data export to xls, kmz, with direct report in excel and mapping tools. <p>Standards to be followed: Road traffic signs: ASTM E-1709 & ASTM E-2540</p> <p>Instrument specification & dimensions:</p> <ul style="list-style-type: none"> • Entrance / illumination angle: -4° • Observation angles: 0.2° 0.5°, 1.0° , • Range (cd·lx-1 ·m⁻²): 0 - 2000 • Reproducibility of better than +/- 5 % • Repeatability of +/- 2 %. • Measuring area : 25mm dia • Data memory: > 1Gb SD flash memory to save ≥ measurements without pictures > 3.000 measurements with pictures • Interface: USB memory stick (standard, to PC), Bluetooth • Measurement Area : Ø: 25 mm / 1.0 inch • Housing: should be rugged and based on all aluminium body/ no plastic body • Image capture : should be in resolution 600 x 800, 1200 x 1600 or 2592 x 1944 • Supply should include extendable handle 1.7~3 meters (telescopic) • Equipment should be from Manufacturer with Accredited Calibration Laboratory according to ISO/IEC 17025, guaranteeing the traceability of calibrations and tests of instruments. Furthermore, calibration should have with direct traceability to European institute of metrology. |
| 9. | Marking Thickness Gauge | <ul style="list-style-type: none"> • The Gauge must be heavy duty made of Stainless-Steel body • Must have Absolute Digimatic Indicator LED display type • The gauge measuring range must be -12.5 mm to +12.5 mm or higher • Resolution:0.02mm • Accuracy: 0.02mm • Must be Dust / water protection level standard IP42 • Must be battery operated, battery type SR-44 Silver Oxide easily replaceable type and the battery -must last for 20,000 hours. • Accessories required - Hard Transportation Box, Operating Manual, Calibration Certificate |
| Pavement Evaluation | | |
| 10. | GPR for Pavement Layer Thickness measurement | <p>System Composition</p> <p>The GPR should be all in one solution, compact and portable system integrating:</p> <ul style="list-style-type: none"> • 4 wheels cart with 4 integrated distance measurement systems. • Dual polarized GPR antenna at 2 GHz; • Integrated Multi-touch screen (no external screen needed); • Integrated rechargeable Battery; • Advanced positioning kit (based on laser); • USB connection; • Internal data storage: at least 32 GB • Start and stop button; <p>The system should have telescopic handle > 1.5 meters long, allowing the inspection on pavement or bridges (including high wall) or area not accessible like bridge side. The telescopic handle should have a quick assembly procedure (no screwdriver needed)</p> |

The system should have a **built-in EM sensor (selectable at 50Hz or 60 Hz) to locate the powered cables.**

The system should be capable to be upgraded for augmented reality by way of **additional External Controller** to be used as:

- Wireless remote desktop to manage the data collection and system set-up.
- For wireless data transfer from the system to the External controller and also upload existing data from the controller to the system
- For data processing and representation of the results in augmented reality.

Automatic positioning and navigation systems The system should include an advanced positioning system allowing the data collection of dense data set by Virtual Pad and 3 laser sensor i.e. automatic acquisition of positioning data on concrete structure (no paper pad required or external measurement of positioning of instrument required, instrument should automatically acquire positioning).

System Features Antenna, screen and control unit should be **fully integrated with the 4-wheel cart** (including batteries and accessories). The integrated Control unit should have the following technical features:

- Sample size 16bit;
- Sample per scan: 512 or greater
- Scan rate: greater than 350 scan/sec
- Scan interval: up to 10scans/cm
- Measuring principle: Pulsed radar technology

Antenna Features The integrated antenna should have:

- Antenna frequency 2 GHz;
- Frequency Band: 2 GHz
- Antenna type: double polarization HH-VV with 2 TX and 2 RX in the antenna box working simultaneously.
- Shielded antennas
- Should be Pulse TDR
- Depth measurement range: up to 80 cm

Processing Software

- System should be provided with Post processing software for data processing & display of 3D view. Option of batch processing of GPR data according to pre-defined and user-defined macros. Capability to show in the same, Screen radar maps, tomography and other information.
- Processing software should have semi-automatic to automatic functionality of processing layer capture and marking. Thus subsequently providing differently marked layers in different colors.
- Processing software should allow the input for different pavement layers thickness based on the core information.

Physical & environmental

- The system should be drop resistant.
- The system should have a total weight of max 3.5 Kg including battery.
- The system should have working Temperature in the range of -20° C + 50° C

Accessories to be included Supply should include :

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--|---|-------------|--|--------------|---------------------------|----------------|---------------|--------------|--------|--------------------|-----|-----------------|-------|----------------|---------|----------------------|----------|--------------|-----------------|-----|---------------|----------|------|--------------|------|-------------|-------------------------------------|--------------|---------|-------------------|------------|---------------|----------|-------|------|-----|------|-------------------|----------------------|-----------------|---|------------------|-----------------|---------------------|--------|--------|-----|----------|--------------------------|-----------|-----------------------|-----------------|-------------------------------------|-------------|----|-------------|--------------------|-------------------|-------------------|-------------|--|----------|------------------------|--------------|---------------------|------------------|------------------|------------------------------|--|--------------|---------------------|-----------|------|------------|-----------|----------|--|---------|----|--|
| | | <ul style="list-style-type: none"> ➤ hard transport case, ➤ battery charger ➤ telescopic pole | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11. | Traveler Van | <p>Retrofitting for safe upkeep of various equipment and literature. There should be individual compartments/ cupboards for each equipment with facility for keeping manuals/ tests reports and charging facilities for the different equipment, laptop & printer etc. There will be seating arrangement for the drivers and technicians. There will be suitable refurbishment of interior of the van to ensure that all equipments strapped/suitably kept so that there is no damage during movement. Choice of material such as fiber/wood/steel/ any other material or combination of these is left to wisdom and expertise of the bidder.</p> <ul style="list-style-type: none"> ● Model- Force Traveler/ Tata Winger or equivalent ● Emission- BS VI ● Displacement: > 2500 cc ● Overall Length: 5100 -5700 mm ● Overall Width: 1800-2000 mm ● Overall Height: 2500-2600 mm ● Power Steering <p>Note- The van shall be well painted giving aesthetic look with a logo of Ministry of Road Transport & Highways as approved by the Authority.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. | Laptop | <table border="1"> <tr> <td>Type & Make</td> <td>Thin and Light Laptop(HP/Lenovo/Dell)</td> </tr> <tr> <td>Suitable For</td> <td>Processing & Multitasking</td> </tr> <tr> <td>Battery Backup</td> <td>Upto 10 hours</td> </tr> <tr> <td>Battery Cell</td> <td>3 cell</td> </tr> <tr> <td>MS Office Provided</td> <td>Yes</td> </tr> <tr> <td>Processor Brand</td> <td>Intel</td> </tr> <tr> <td>Processor Name</td> <td>Core i5</td> </tr> <tr> <td>Processor Generation</td> <td>10th Gen</td> </tr> <tr> <td>SSD Capacity</td> <td>256 GB or above</td> </tr> <tr> <td>RAM</td> <td>8 GB or above</td> </tr> <tr> <td>RAM Type</td> <td>DDR4</td> </tr> <tr> <td>HDD Capacity</td> <td>1 TB</td> </tr> <tr> <td>Clock Speed</td> <td>1 GHz with Turbo Boost Upto 3.6 GHz</td> </tr> <tr> <td>Memory Slots</td> <td>2 Slots</td> </tr> <tr> <td>Expandable Memory</td> <td>Upto 16 GB</td> </tr> <tr> <td>RAM Frequency</td> <td>2666 MHz</td> </tr> <tr> <td>Cache</td> <td>6 MB</td> </tr> <tr> <td>RPM</td> <td>5400</td> </tr> <tr> <td>Graphic Processor</td> <td>Intel Integrated UHD</td> </tr> <tr> <td>Number of Cores</td> <td>4</td> </tr> <tr> <td>Operating System</td> <td>Windows 10 Home</td> </tr> <tr> <td>System Architecture</td> <td>64 bit</td> </tr> <tr> <td>Mic In</td> <td>Yes</td> </tr> <tr> <td>USB Port</td> <td>2 x USB 3.1, 1 x USB 3.0</td> </tr> <tr> <td>HDMI Port</td> <td>1 x HDMI Port (v1.4b)</td> </tr> <tr> <td>Multi Card Slot</td> <td>3-in-1 Card Reader (SD, SDHC, SDXC)</td> </tr> <tr> <td>Touchscreen</td> <td>No</td> </tr> <tr> <td>Screen Size</td> <td>35.56 cm (14 inch)</td> </tr> <tr> <td>Screen Resolution</td> <td>1920 x 1080 Pixel</td> </tr> <tr> <td>Screen Type</td> <td>Full HD LED Backlit Anti-glare Display</td> </tr> <tr> <td>Speakers</td> <td>Built-in Dual Speakers</td> </tr> <tr> <td>Internal Mic</td> <td>Built-in Microphone</td> </tr> <tr> <td>Sound Properties</td> <td>Waves Maxx Audio</td> </tr> <tr> <td colspan="2">Connectivity Features</td> </tr> <tr> <td>Wireless LAN</td> <td>IEEE 803.11ac (2x2)</td> </tr> <tr> <td>Bluetooth</td> <td>v5.0</td> </tr> <tr> <td>Web Camera</td> <td>HD Webcam</td> </tr> <tr> <td>Keyboard</td> <td>English International Non Backlit Keyboard</td> </tr> <tr> <td>Backlit</td> <td>No</td> </tr> </table> | Type & Make | Thin and Light Laptop(HP/Lenovo/Dell) | Suitable For | Processing & Multitasking | Battery Backup | Upto 10 hours | Battery Cell | 3 cell | MS Office Provided | Yes | Processor Brand | Intel | Processor Name | Core i5 | Processor Generation | 10th Gen | SSD Capacity | 256 GB or above | RAM | 8 GB or above | RAM Type | DDR4 | HDD Capacity | 1 TB | Clock Speed | 1 GHz with Turbo Boost Upto 3.6 GHz | Memory Slots | 2 Slots | Expandable Memory | Upto 16 GB | RAM Frequency | 2666 MHz | Cache | 6 MB | RPM | 5400 | Graphic Processor | Intel Integrated UHD | Number of Cores | 4 | Operating System | Windows 10 Home | System Architecture | 64 bit | Mic In | Yes | USB Port | 2 x USB 3.1, 1 x USB 3.0 | HDMI Port | 1 x HDMI Port (v1.4b) | Multi Card Slot | 3-in-1 Card Reader (SD, SDHC, SDXC) | Touchscreen | No | Screen Size | 35.56 cm (14 inch) | Screen Resolution | 1920 x 1080 Pixel | Screen Type | Full HD LED Backlit Anti-glare Display | Speakers | Built-in Dual Speakers | Internal Mic | Built-in Microphone | Sound Properties | Waves Maxx Audio | Connectivity Features | | Wireless LAN | IEEE 803.11ac (2x2) | Bluetooth | v5.0 | Web Camera | HD Webcam | Keyboard | English International Non Backlit Keyboard | Backlit | No | |
| Type & Make | Thin and Light Laptop(HP/Lenovo/Dell) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Suitable For | Processing & Multitasking | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery Backup | Upto 10 hours | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery Cell | 3 cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MS Office Provided | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Processor Brand | Intel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Processor Name | Core i5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Processor Generation | 10th Gen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSD Capacity | 256 GB or above | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RAM | 8 GB or above | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RAM Type | DDR4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HDD Capacity | 1 TB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clock Speed | 1 GHz with Turbo Boost Upto 3.6 GHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Memory Slots | 2 Slots | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Expandable Memory | Upto 16 GB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RAM Frequency | 2666 MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cache | 6 MB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RPM | 5400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Graphic Processor | Intel Integrated UHD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number of Cores | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating System | Windows 10 Home | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Architecture | 64 bit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mic In | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| USB Port | 2 x USB 3.1, 1 x USB 3.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HDMI Port | 1 x HDMI Port (v1.4b) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multi Card Slot | 3-in-1 Card Reader (SD, SDHC, SDXC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touchscreen | No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Screen Size | 35.56 cm (14 inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Screen Resolution | 1920 x 1080 Pixel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Screen Type | Full HD LED Backlit Anti-glare Display | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Speakers | Built-in Dual Speakers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Internal Mic | Built-in Microphone | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sound Properties | Waves Maxx Audio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connectivity Features | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wireless LAN | IEEE 803.11ac (2x2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bluetooth | v5.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Web Camera | HD Webcam | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Keyboard | English International Non Backlit Keyboard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Backlit | No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | Keyboard Pointer Device Included Software Battery Warranty Summary | Touchpad Microsoft Office Home Li-ion Battery 1 Year Limited Hardware Warranty, In Home Service After Remote Diagnosis - Retail |
| 13. | Printer | Printer Type & Make - LaserJet;(HP/Samsung/Cannon); Functionality - Multi-Function (Print, Scan, Copy) , Scanner type - Flatbed; Printer Output - Black & White only Connectivity - USB and Bluetooth, Network; Compatible Operating Systems: Windows: 10, 8.1, 8, Ideal usage - Enterprise/Business, Frequent users (for fast, high quality printing), More than 300 pages per month Page size supported - A4, B5, A6, DL, envelope; Duplex printing - automatic Print Resolution - Up to 1200 x 1200 rendered DPI (Black) Compatible Laser Toner - Original LaserJet Toner Cartridge; Page Yield - 1500 pages Duty Cycle (Maximum monthly recommended prints) - Up to 8,000 pages per month Warranty - 1 year from the date of purchase | |