NATIONAL HIGHWAYS AUTHORITY OF INDIA (MINISTRY OF ROAD TRANSPORT & HIGHWAYS) (GOVERNMENT OF INDIA)

(Through E-Tendering Mode only)

Incident Management Services on Four Laning of Bareilly-Sitapur section of NH-24 from km.262.000 to km. 419.590 in the state of Uttar Pradesh

BID DOCUMENT

Volume-I

Aug-2021

Office of the Regional Officer- West-UP

National Highways Authority of India
Regional Officer-West-UP, 3/248, Vishal Khand, Gomti Nagar, Lucknow
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(SECTION-I)
NOTICE INVITINGTENDER
E-Tender Mode Only

Notice Inviting Tender
(National Competitive Bidding)

NIT No. NHAI/PIU-BRLY/2021-22/NH-24/02 Date: 10.08.2021

1. The National Highways Authority of India (NHAI) hereby invites bids through **"e- tendering mode"** from experienced firms/organizations (hereinafter referred to as the "Bidders") to bid for the works detailed in the table as mentioned below from the eligible bidders, excluding those firms who have been declared as non-performing by NHAI or black listed/debarred for specified period byNHAI.

Sl. No.	Section	NH-No.	Length (in km.)	State	Estimated Cost excluding 12 % GST and including labour cess @1%(inRs.)
1	Incident Management Services on Four Laning of Bareilly-Sitapur section of NH-24 from km.262.000 to km. 419.590 in the state of Uttar Pradesh	24	157.59	Uttar Pradesh	400.26

Cost of Bid documents (Non-Refundable): **Rs**. **25,000/-** in favour of Regional Officer, NHAI, RO-West-UP, Lucknow through RTGS into bank a/c no. 84811010002035 maintained in the name of NHAI Regional Office with Canara Bank, Viram Khand Gomti Nagar Branch, Lucknow, having IFSC codeCNRB018481.

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

Bid Security (Rs. In lakhs)	**Average Turn- over during last 3 years (Rs. In lakhs)**	**Work of similar nature during last 7years (Rs. In lakhs)**	**Period of Services**
'Nil' As per NHAI Circular dated 19.11.2020	120.08 Lakh	Single work of 320.21 Lakhs OR Two works of each 200.13 Lakhs OR Three works each 160.10 Lakhs	17 months

2. The currency of the contract shall be only in Indian Currency.

3. It is mandatory for all the bidders to have class-III Digital Signature Certificate (With Both DSC Components, i.e. Signing & Encryption in the name of authorized signatory (who will sign the Bid)from any of the licensed Certifying Agency(Bidders can see the list of licensed CA's from the link www.cca.gov.in) to participate in e- tendering of NHAI.

4. **The authorized signatory Holding Power of Attorney shall only be the Digital Signatory. In case the authorized signatory holding Power of Attorney and Digital Signatory are not same, the bid shall be considered as Non- Responsive.**

5. New e-procurement Portal is accessible from Central Public Procurement Portal (CPPP) i.e. http://eprocure.gov.in and https://etenders.gov.in/eprocure/app. The usercanget24X7Helpdesksupporton0120-4200462,0120-4001002andemail : support-eproc@nic.in.

6. **e-Tender ServiceProvider:**
E-Procurement portal developed by National Informatics Centre (NIC). Key Dates for download/view/submission/opening of bid.

Availability of Bid Documents (last date & time of sale of Bid documents):	From 10.08.2020 Up to 09.09.2020, 1100 Hrs
Last date & time of submission of e-bids (Bid due date):	Up to 09.09.2020, 1100 Hrs
The date of opening of bid online:	10.09.2020, 1200 Hrs

7. The complete bid document can be viewed/ downloaded from the e-tender portal i.e.http://eprocure.gov.in or https://etenders.gov.in/eprocure/app or www.nhai.gov.in free of cost. To participate for bidding, bidder have to pay **Rs**. **25,000/-** in favour of Regional Officer, NHAI, RO-West-UP, Lucknow through RTGS into bank a/c no. 84811010002035 maintained in the name of NHAI Regional Office with Canara Bank, Viram Khand Gomti Nagar Branch, Lucknow, having IFSC codeCNRB018481 on orprior to last date & time of sale of biddocument.

8. The amendments/clarifications to the Bid Document if any shall be hosted on said websites.

9. The Bids shall be submitted online only in the prescribed format given on the said websites on or before the date and time as mentioned above. **No other mode of submission is acceptable.** The Technical Bid and Financial bid shall be opened online only.

10. Representatives of the bidders (maximum up to two) who choose to attend may attend the online opening of the bids at Regional Office, Lucknow on the date and time as mentioned above. However, such representatives shall be allowed to attend the opening of the bids only if they produce letter of authority on the letter head of the bidder, at the time of opening of bids as mentioned above.

11. It is clarified that, the bidders have to upload the details of cost of bid document, on or before the last date & time of sale of bid documents mentioned above on the e- tendering portal, otherwise, it will not be possible for them to upload the e-tender documents on the e-tendering portal. Bidders are advised to upload their bids well in time, to avoid last minutes rush on the server or complications in uploading. NHAI, in any case, will not be responsible for any type of problem in uploading the bid.

12. Submission of the Bids after the Bid Due date and time shall not be permitted.Time being displayed on e-tendering portal of NHAI ("Standard Time") shall be final and binding on Bidder. Bids are required to be submitted by Bidders, only as per the Standard Time and not the time as per their location/country.

13. The Bidders are advised to submit their Bids well before the Bid Due Date. The

Authorityshallnotberesponsibleforanydelayinsubmissionof Bidsforanyreason including server and technical problems. ***NHAI reserves the right to accept or reject any or all Bids without assigning any reasonthereof.***

14. In case of any problem with the submission of the Bid, the Bidder may have the assistance of help desk or use the help manual given on the saidwebsite.

15. Address for communication/ clarification if any;

Office of the Regional Officer-West-UP
National Highways Authority of India Regional Officer-West-UP, 3/248, Vishal Khand, Gomti Nagar, Lucknow
Phone: 0522-4960291
E-mail: rowestup@nhai.org

(SECTION-II)

INSTRUCTIONS TOBIDDERS & APPENDIX TOBID

Section-II Instructions to Bidders Table of Clauses

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A.2 General

1. Scope ofBid

The Employer (i.e. Chairman, National Highways Authority of India) invites bids for "as described in these documents and referred to as "the works". The name and identification number of the works is provided in the Notice InvitingTender.

The successful Bidder will be expected to complete the Works by the intended Completion Date specified in the Contract Data (Part I General Conditions of Contract).

Throughout these bidding documents, the terms "bid" and "tender" and their derivatives (bidder/tenderer, bid/tender, bidding/tendering, etc.) aresynonymous.

2. Source ofFunds

2.1 The expenditure on this project will be met by National Highways Authority of India(NHAI).

3. EligibleBidders

This Invitation for Bids is open to all bidders meeting the qualification requirements prescribed in thisdocument.

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

4. Qualification of theBidder

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All bidders shall furnish scanned copy of the following information and documents with their bids as format provided in Section-3, Qualification Information.

(a) Scanned Copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of

attorney of the signatory of the Bid to commit theBidder;

(b) Total monetary value of Incident Management Services work performed for each of the last threeyears;

(c) Experience certificate in similar nature(Please refer clause 4.4 of section-II of RFP) and size in the last seven years with certificates from the concerned officer of the rank of Executive Engineer or equivalent; or Certificate issued by the Concessionaire shall specifically mention therein w.r.t. deployment of Alltype of vehiclesrequiredininstantbidbythefirm,Certificatemustbevettedbyrespective Project Director/ Executive Engineer, of the effect. Certificate not vetted by Concerned Project Director/Executive Engineer shall not be considered in the evaluation.

(d) Scanned copy of Evidence of availability (either owned or leased or rented) of items of construction/incident management equipment/vehicle/machinery named in Clause 4.4 B(b)(i).

(e) Scanned copy of CV of technical/paramedical/EMT personnel proposed to be employed for the Contract having the qualifications defined in Clause 4.4 B (b)(ii).

(f) Scanned copy of Reports on the financial standing of the Bidder, and a certificate from Chartered Accountant as a proof of turnover for the last threeyears;

(g) Deleted

(h) Deleted

(i) Deleted

(j) Scanned copy of Information regarding any litigation or arbitration during the last five years in which the Bidder is involved, the parties concerned, the disputed amount, and the presentstatus;

(k) Deleted

(l) Deleted.

Bids from joint ventures consortiums, combination or any sort of arrangement between two or more than two entities are notallowed.

A. To qualify for award of the contract, each bidder in its name shouldhave the following;-

(a) achieved an average annual financial turnover (in all classes of civil engineering/incident management works/ construction works) equal to

the amount indicated in NIT during last three years ending 31st March of the financial year 2020-2021 duly certified by Chartered Accountant. (Not withstanding 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 years, it shall ignore such financial year for the purpose of the bid and furnish annual financial turnover w.r.t. 3 years preceding in last financialyear).

(b) ***Satisfactorily Completed (The work shall be considered satisfactorily completed when reached a value of 90% of contract value or Incident management services have been deployed for 6 Months or more on ongoing work. For these ongoing incident management works the months of services rendered shall be calculated only till bid due date and the amount of services rendered for qualification shall bederived on the pro-rata basis from the contract amount or as certified by Certificate issuing Government Authority not below the rank of Executive Engineer or Project Director for qualification) as a prime contractor (or as a nominated/approved subcontractor, provided further that all other qualification criteria are satisfied) similar works during last Seven years ending last day of month previous to the one in which bids are invited, either of thefollowing:***

I. Three similar completed works costing not less than amount equal to 40% each of estimatedcost.

II. Two similar completed works costing not less than amount equal to 50% each of estimatedcost.

III. One similar completed work costing not less than amount equals to 80% each of estimatedcost.

The similar work constitutes experience of any work of Incident Management* on NH/SH.The work showing experience of incident management* alone / operation & maintenance work on NH/SH including items of Incident Management shall be considered as similar nature

****Deployment of any of Crane or Route Patrolling Vehicle or Ambulance shall be considered as Experience in Incident Management.***

(Escalation factor as under shall be used to bring the value of such completed works to the level of financial year i.e. **2021-22**)

Escalation factor (for the cost of works completed during the last 7 years including year 2020-2021 & financial figures required for the calculation of bid capacity) may be taken as follows: (***For the cost of work completed, the escalation factor will be corresponding to the financial year in which work was completed)***.

Year Before	Multiplying Factor
One	1.10
Two	1.21
Three	1.33
Four	1.46
Five	1.61
Six	1.77
Seven	1.95

I Deleted

(d) Deleted

(e) Deleted

B (a) Each bidder must produce:

(i) An affidavit on a Stamp Paper, duly attested from the Notary Public, that the information furnished with the bid documents is correct in all respects; and

(ii) Such other certificates as defined in Section-III.

(iii) Failure to submit the certificates/documents as specified above at (i)&(ii)shall make the bid non-responsive.

(b) Each bidder must demonstrate:

(i) Evidence of availability (either owned or leased or rented) of the key equipment for this work as stated in the Appendix to ITB.

(ii) Availability for this work of personnel with qualification & experience as stated in the Appendix to ITB.

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(d) Deleted

4.4.C Deleted

Sub-Contractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria.

Bid Capacity

Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is **more than the total bid value**. The available bid capacity will be calculated asunder:

Available Bid capacity = (A* N* 2.5 -B)

Where

A = Maximum value of Incident Management Services works executed in any one year during thelastthreeyears(escalationfactorasspecifiedinthissectionshallbeused to bring the maximum value of Incident Management Services works to the level of financial year i.e., (**2020-2021**) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bid is invited.

B = Value (escalation factor as specified in this section shall be used to bring the value to the level of current financial year i.e. (**2020-2021**) of existing commitments and on-going works to be completed during the next 5 Years (period of completion of the works for which bid is invited) Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if theyhave:

(i) made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or

(ii) record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc. or debarring from MP PWD/NHAI work etc.

(iii) tampered the bid document in any manner.

5. One Bid per Bidder

Each Bidder shall submit only one Bid for the work. A Bidder who submits more than one Bid will cause such bids to bed is qualified.

6. Cost of Bidding

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

7. Site Visit

The Bidder, at own cost, responsibility and risk, is encouraged to visit, ex amine and familiarize himself/herself with the Site of Works and its surroundings including source of earth, water, road aggregates etc. and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense. Bidder may contact The Project Director PIU-Bareilly, NHAI/Regional Office Lucknow in this regard.

B. Bidding Documents

8. Content of Bidding Documents

The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause10:

Volume- I:-

I Notice InvitingTender

II Instructions to Bidders & Appendix to BID

III QualificationInformation

IV Forms Bank Guarantee, Agreement & LOA

V Conditions of Contract & ContractData

VI Scope ofWork

VII Technical Specifications

VIII Implementation Manual, Maintenance Intervention Levels & Guidelines for e-tendering.

Volume – II:-

Bill of Quantities for works; (Should be filled in the prescribed format given in the Bid Document).
Bidders are required to quote a single rate against each item (for all items in the Bills) in BOQ.(Partially Filled/In complete Financial Bids shall be rejected unconditionally).

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The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, specifications, bill of quantities, etc. in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 26 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9. Clarifications on BidDocuments

A prospective Bidder requiring any clarification on the bid documents may notify the Employer in writing or by cable ("cable" includes facsimile) at the Employer's address indicated in the Notice Inviting Tender. The Employer will respond to any request for clarification received earlier than 10 days prior to the deadline for submission of bids. Copies of the Employer's response will be hosted on NHAI website www.nhai.gov.inor which are required in the opinion of the Employer including a description of the enquiry, but without identifying its source.

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The bidder is requested to submit any questions in writing or by cable so as to reach the Employer not later than 14 days from the date ofNIT.

The questions raise (without identifying the source of the enquiry) and the responses given will be posted without delay on website. Any modifications of the bid documents listed in Clause 8.1, which may become necessary as a result of the pre-bid clarifications or which are required in the opinion of the Employer shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause10.

10. Amendment of BiddingDocuments

Before the deadline for submission of bids, the Employer may modify the bidding documents by issuingaddenda.

Any addendum thus issued shall be part of the bidding documents and shall be hosted on web site ofNHAI.

To give prospective bidders reasonable time to take an addendum into account in preparing their bids, the Employer shall extend, as necessary, the deadline for submission of bids, in accordance with Clause20.2.

C. Preparation ofBids

11. Language ofBid

All documents relating to the Bid shall be inEnglish.

12. Documents Comprising theBid

The bid to be submitted by the bidder as Volume V of the bid document (refer Clause 8.1) shall be in two separateparts:

Part-I – This shall be named **Technical Bid** and shall comprise of information submitted in section-III to be submitted online through e-portal ofNHAI.

Part-II – It shall be named **Financial Bid** and shall comprise of Priced bill of quantities – to be submitted online through e-portal of NHAI.

Submission of Bids in Physical form has been dispensed with in the Bidding Process. The scanned copies of following documents is required to be

uploaded during submission of e-bid on the e-tendering portal of NHAI, As per clause12.1 above:

a) Bid Security Declaration
b) Bid DocumentFee
c) Delete
d) Written Power of Attorney of the signatory (whose digital signature certificate is used during e-tender submission) of the bidder to commit thebid
e) Affidavit duly notarized (as per the format provided in SectionIII)
f) Original experience certificate or notarized copy of certificate duly signed by authorizedsignatory.
g) Undertakings mentioned in Section III (Qualification Information) of this document.

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

Section	**Particulars**
1.	Notice Inviting Tender
2.	Instruction to the bidders
3.	Conditions of Contract
4.	Contract Data
5.	Scope of work
6.	Technical Specifications
7	Additional Conditions
8.	Implementation Manual and Maintenance Intervention Level
9	Additional Conditions

13. BidPrices

The Contract shall be for the whole Works, as described in Clause 1.1 based on the priced Bill of Quantities submitted by theBidder.

The bidder shall quote bid prices on appropriate format enclosed as part of tender document on e-tender portal. Bidders are required to quote a single rate against each item (for all items in the Bills) in BOQ.(Partially Filled/In complete Financial Bids shall be rejected unconditionally).

All duties, taxes (including the Goods & Service tax), royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be

included in the rate of each item , prices, and total Bid price submitted by the Bidder. The employer will perform duties in regards to the deduction of such taxes at sources as per applicable Law. Though the quote from bidder shall be inclusive GST, the GST shall be paid on reimbursement basis (as applicable) subject to production of proof of such payment by the Contractor (Proof should contain name ofwork).

The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment.

14. Currencies of Bid andPayment

The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in IndianRupees.

15. BidValidity

Bids shall remain valid for a period of 120 days after the deadline date for bid submission specified in Clause 20. A bid valid for a shorter period shall be rejected by the Employer asnon-responsive.

In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders" responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security declaration. A bidder agreeing tothe request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security declaration for a period of the extension, and in compliance with Clause 16 in allrespects.

16. Bid SecurityDeclaration

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 60 (sixty) 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 the request for bid documents, the bidder will be suspended for participation in the tendering process for the works of MoRTH/NHAI/NHIDCL and works under other Centrally Sponsored Schemes, for a period of one year from the bid due date of this work. The bid securing declaration shall be submitted as per the format at Section-IV of RFP (Format for Bid SecuringDeclaration).

I. **Deleted**

Any bid not accompanied by an acceptable Bid security Declaration, shall be rejected by the Employer asnon-responsive.

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The action stipulated in Bid Security Declaration and as per Clause 16.1 of Section-II of RFP will be taken by theAuthority:

a) if the Bidder withdraws the Bid after its submission during the period of Bid validity.

b) if the Bidder does not accept the correction of the bid price, pursuant to Clause 27;or

c) in the case of a successful Bidder, if the Bidder fails within the specified time limit

i. sign the Agreement;and/or

ii. furnish the required PerformanceSecurity.

On invocation of clause 16.6 of Section -II ofRFP, the bidder shall also be debarred from participation in MoRTH/NHAI/NHIDCL works for a period as decided by NHAI as decided by Authority or minimum of 1 year whichever is higher as per the Bid Security Declaration and as per Clause 16.6 and 16.1 of Section -II ofRFP.

17. Alternative Proposals byBidders

Bidder shall submit offers that fully comply with the requirement of the bidding documents. Conditional offer or alternate offer will not be considered further in the process of evaluation and the bid will be declarednon-responsive.

18. Format and Signing ofBid

The Bidder shall submit e-bid comprising of the documents as described in Clause 12 of theITB.

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D. Submission ofBids

19. Marking ofBids

The Bidders are advised to submit their Technical Bids well before the Bid DueDate. The Authority shall not be responsible for any delay in submission of Bids for any reason including server and technical problems. ***NHAI reserves the right to accept or reject any or all Bids without assigning any reasonthereof.***

In case of any problem with the submission of the Bid, the Bidder may have the assistance of help desk or use the help manual given on the saidwebsite.

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20. Deadline for Submission ofBids

The Bidder shall ensure that the complete e-Bid is uploaded on NHAI e-tender portal on or before the Bid Due Date before the time specified in NIT/e-portal. Complete e-Bid to be uploaded on NHAI e-tender portal before due date andtime.

NHAI assumes no responsibility for inability of a bidder to submit bids through NHAI's e-tendering portal on account of delay in submission at bidder's end. Bidder shall ensure that they submit the bid well before the "Due Date & Time of Bid-Submission". NHAI shall not be responsible if bidder is not able to submit the bid on account of failure in network/internet connection or anyotherTechnical reason.

The Employer may, at his discretion, extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline asextended.

21. Deleted

22. Modification and Withdrawal ofBids

Bidders may modify or withdraw their e-bids as directed on the e-tendering portal, before the Bid Due Date and time as prescribed in Clause20.
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No bid may be modified after the deadline for online submission ofbids.
Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 shall result in the action stipulated in clause 16.1, 16.6,16.7 of Section-II of RFP and Bid SecurityDeclaration.
Bidders may modify the prices of their bids before deadline of online submission ofbid.

No Late and delayed bids after Bid Due date/time shall bepermitted in e-tenderingportalSystem.Timebeingdisplayedonoure-TenderingPortalshallbefinalandbindingonbidderandbidshavetobesubmittedbybiddersconsideringthistime only and not the time as per their location/country.

E. Bid Opening andEvaluation

23. BidOpening

Bid opening shall be carried out in two stages. Firstly, 'Technical Bid' of all the bids received (except those received late) shall be opened on the date and time mentioned in Notice Inviting Tender (NIT) through online process of e-tendering. 'Financial Bid' of those bidders whose technical bid has been determined to be substantially responsible shall be opened on a subsequent date through online process of e-tendering, which will be notified to suchbidders.

DELETED

23.1.1DELETED

23.1.2 DELETED

In all other cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the Employer at the opening as the Employer may consider appropriate, will announce the bidders' names and such otherdetails.

TheEmployerwillprepareminutesoftheBidopening,includingtheinformation disclosed to those present in accordance with Clause 23.1.

(i) The bids accompanied with valid bid security declaration, bid document

fee, tender processing fee will be taken up for evaluation with respect to the Qualification Information and other information furnished in Part I of the bid pursuant to Clause12.1.

(ii) Deleted

(iii) Deleted

(iv) As soon as possible, the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration. However, to assist in the examination, evaluation of technical bids, the Employer may at his discretion, ask any bidder for clarification of his bid, however, no additional documents in support of clarification will be entertained.

(i) The Employer shall inform the bidders, on the website whose technical bids are found responsive, of the date, time and place of opening of the financial bids. The bidders so informed, or their representative, may attend the meeting of opening of financialbids.

(ii) Bidders may be asked to submit Originals of all the documents listed under and as per clause 12.2 of Section-II after declaration of Result of Evaluation of Technical Bid by theAuthority:-

a) Original of Bid Securitydeclaration.
b) Original Power of Attorney for Signing ofBid.
c) Original of Experience certificates apostle at Foreign Origin, ifany.
d) Affidavit duly Notarized

(iii) Allthebiddersfailingtosubmittheoriginaldocumentsrequiredasperclause 12.2 of Section-II and clause 23.5 of Section-II above shall be unconditionally debarred from Bidding in NHAI Projects for a period of 5Years.

At the time of the opening of the "Financial Bid", the names of the bidders whose bids were found responsive in accordance with clause 23.5 will be announced. The financial bids of only these bidders will be opened. The responsive bidder's names, the Bid prices, the total amount of each bid, pursuant to clause 22 and such other details as the Employer may consider appropriate will be announced by the Employer at the time of bid opening. Any Bid price, which is not read out and recorded, will not be taken into account in BidEvaluation.
The Employer shall prepare the minutes of the opening of the FinancialBids.

24. Process to beConfidential

Information relating to the examination, clarification, evaluation, and

comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other person not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Employer's processing of bids orawarddecisions may result in the rejection of his Bid

25. Clarification of Bids and Contacting theEmployer

25.1. To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of their -Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause27.

Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so inwriting.

Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders'bid.

26. Examination of Bids and Determination ofResponsiveness

During the detailed evaluation of "Technical Bids", the Employer will determine whether eachBid.

(a) meets the eligibility criteria defined in Clauses 3 and4;
(b) the required documents uploaded by the bidder are in order;and
(c) is substantially responsive to the requirements of the Bidding Documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawingsetc.

DELETED.
DELETED.

27. Correction ofErrors.

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

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

The amount started in the Financial Bid will be corrected by the Employer in accordancewiththeaboveprocedureforthecorrectionoferrorsandshallbeconsidered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the action stipulated in clause Sub-Clause 16.6 will be taken.

28. Evaluation and Comparison of FinancialBids

The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause26.

In evaluating the Bids, the Employer will determine for each bid the evaluated bid price by adjusting the Bid price after making any correction for errors pursuant to Clause27.

If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's/Employer's estimate of the cost of work of whole work, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and scheduleproposedAbid,inwhichanitemor overall financialquoteispricedunrealisticallylow(Item rate) and which cannot be substantiated satisfactorily by the bidder, may be rejected asnon-responsive.

In case the successful Bidder fails to submit the originals as per clause 12.2 of Section-II and clause 23.5 of Section-II, the bidding process shall beannulled.

29. PricePreference

There will be no price preference to anybidder.

F. Award ofContract

30. AwardCriteria

Subject to Clause 32, the Employer will award the Contract to the Bidder whose Bid has beendetermined:

i. to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bidprice.

ii. Deleted.

31. Employer's Right to accept any Bid and to Reject any or allBids

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

32. Notification of Award and Signing ofAgreement.

The bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the Part I General Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay to the Contractor in consideration of the execution, completion and maintenance of the Works, and of routine maintenance of roads by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "ContractPrice").

The notification of award will constitute the formation of the Contract, subject only to thefurnishing of a performance security in accordance with theprovisions of Clause33

The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and the successful Bidder after the performance security isfurnished.

32.4 Upon furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

33. PerformanceSecurity

Delete

34. Advances

Delete

35. Corrupt or FraudulentPractices

The bidder and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the bidding process. Notwithstanding anything to the contrary contained herein, the Employer may rejectanybidwithoutbeingliableinanymannerwhatsoevertothebidderfitdetermines that the bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the biddingprocess.

Without prejudice to the rights of the Employer under Clause 35 hereinabove, if an bidder is found by the Employer 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, such bidder shall not be eligible to participate in any tender issued by the Employer during a period of 2 (two) years from the date such bidder is found by the Employer 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, as the case maybe.

For the purposes of this Clause 35, the following terms shall have the meaning hereinafter respectively assigned tothem:

(a) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the bidding process (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Employer who is or has been associated in any manner, directly or indirectly, with the bidding process or has dealt with matters concerning the Contract or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Employer, shall be deemed to constitute influencing the actions of a person connected with the bidding process); engaging in any manner whatsoever, whether during the bidding process or after the award or after the execution of the Contract, as the case may be, any person in respect of any matter relating to the Works, who at any time has been or is a legal, financial or technical adviser of the Employer in relation to any matter concerning theWorks;

(b) "fraudulent practice" means a misrepresentation or omission of factsor suppression of facts or disclosure of incomplete facts, in order to influence the biddingprocess;

(c) "coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the biddingprocess;

(d) "undesirable practice" means establishing contact with any person connected with or employed or engaged by the Employer with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the bidding process;and

(e) "restrictive practice" means forming a cartel or arriving at any understanding or arrangement among bidder with the objective of restricting or manipulating a fulland fair competition in the bidding process.

The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to bid for any work with National Highways Authority of India, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or in itsexecution.

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

Appendix to bid

(4.4. **B**) (b) (i) The minimum no. of key equipment's to be deployed on contractwork.

S.No.	**Name of the Equipment**	**Quantity**
1.	Patrolling Vehicle fitted with GPS system, having safety equipment etc. as per scope of work and "Performance standard" of scope of work. ***(Should not be more than 2 years old)***	03 Nos.

2.	Ambulance Equipped with 2 Nos Auto Loading Stretcher, Spinal Board, Vaccum Mattress, Ducted Air Conditioning, Vehicle Tracking & surveillance system with live tracking &live footage streaming for enhanced safety, Cardiac Monitor, Suction Pump, Defibrillator. with Para medical staff, First aid facility and essential medicines etc. .***(Should not be more than 2 years old and should not have covered more than 2000 km at the time of procurement i.e from first date of registration)***	03 Nos.
2.	Removing of all types of brokendown vehicles which have met with accidents from the carriageway and toeing the same to proper locations i.e. nearest Police Station or some suitable location by using suitable capacity pick and carry crane as per scope of work. ***(Should not be more than 2 years old)***	03 Nos.
3.	Removing the dead animals lying on the highway and buying them at proper safe locations outside the ROW complete in all respect with all lead and lifts as per "Performance standard" of scope of work. ***(Should not be more than 2 years old)***	03 Nos.

Note: The bidder must upload scanned copy of the documentary evidence in support of his owning/leased/ rented of the above equipment. In case the bidder proposes to hire or take the above equipment on lease, bidder should, along with the lease/rent agreement, attach the proof of ownership of these equipment with the company/ entity from whom the equipment are proposed to be hired on lease/ rent or Bidder can submit anaffidavitasundertakingfordeploymentofnewKeyEquipmentiftheworkisawarded to the Bidder as specified in Para 2 of Section-III of RFP and in Format as specified in Format-2(iv) of Section-III of RFP. The affidavit shall enclose the Quotation of the Vendor from whom the bidder wishes to procure the Key Equipment (as per make and specification defined in the RFP)if work is awarded and the Quotation shall be in the name of both the bidder as well as Employer. Equipment and machineries must be of the adequate capacity as per MoRT&H specification, NHAI Policy Guideline No. 12.19 dated 20.03.2018(Attached in Section-VI of RFP) and up to the satisfaction of the Authority. Bid Shall be considered Non-Responsive on Non-submission of supporting documentary evidence with theBid.

B (b) (ii) The Number of Technical Personnel, Qualifications and Experience will be asfollows:

Sl. No	**Personnel**	**Qualification**	**Particular Experience (minimum requirement)**	**No. of Persons**
1.	Road/Row Enforcement Manager	Graduate in Law from a recognized University + 5 years experience	3 years of experience in dealing cases pertaining to, NH Act1956,Control of National Highways(Land and Traffic) Act-2002,Collector Guidelines, LA Procedure under RFCTLARR Act 2013	1
2.	Revenue Staff	Retired Tehsildar/Revenue Inspector/Patwari/Private Revnue Expert(Not more than 65 years in age as on Bid Submission date)		1
			Total	2

Note: The detailed signed and scanned CV's of the Key Technical Personnel at B (b)(ii), signed by the key personnel himself, must be uploaded along with the bid. The name and educational qualification of other personnel should be given. Non-compliance of the above or nonfurnishing of the CV as above or conditional deployment of any of the above personnel or proposal to employ lesser number of personnel than above shall make the bid non responsive and financial bid shall not be opened.

Format of Curriculum Vitae (CV) For Proposed Key Staff

1. ProposedPosition:_____

2. Name ofStaff:_____

3. DateofBirth:_____**(Please furnish proof ofage)**

4. **Nationality:**_____

5. EducationalQualification:
(*Summarize college/university and other specialized education ofstaffmember,givingnamesofschools,datesattendedand degrees obtained).* ***(Please furnish proof of qualification)***

Contact Address with Phone and mobile numbers:

6. Membership of ProfessionalSocieties:_____

7. Publication:
(List of details of major technical reports/papers published in recognized national and international journals)

8. **EmploymentRecord:**
(Starting with present position, list in reversed order, every employment held. List all positions held by staff member since graduation, giving dates, names of employing organization, title of positions held and location of assignments. For experience ***period of specific assignment must be clearly mentioned,*** also give client references, whereappropriate).

9. **Summary of theCV**
(Furnish a summary of the above CV. The information in the

summary shall be precise and accurate. The information in the summary will have bearing on the evaluation of theCV).

A) Education:
B) Field of Diploma/Graduationandyear

i) Field of post-graduation andyear
ii) Any otherspecific qualification

C) **Experience**
i) Total experienceinhighways:_____Yrs
ii) Responsibilitiesheld:
i) Yrs.
ii) Yrs.
iii) _____Yrs.
iii)RelevantExperience:_____Yrs.

D) PermanentEmploymentwiththeFirm (Yes/No): If yes, how many ears:
If no, what is the employment? Arrangement with the firm?

Certification:

1 I am willing to work on the project and I will be available for entire duration of the project assignment and I will not engage myself in any other assignmentduringthecurrencyofthisassignmentontheproject

2 I, the undersigned, certify that to the best of my knowledge and belief, this bio- data correctly describes myself my qualification and my experience.

SignatureoftheCandidate_____

Place_____

Date _____

Signature of the Authorized Representative of the firm

Place_____

Date _____

Note: Each page of the CV shall be signed in ink by both the staff member and the Authorized Representative of the firm.

SECTION III

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in theContract.

Qualification Information

1. For IndividualBidders

Constitution or legal status ofBidder

[Upload scanned copy of original]

Place of registration:

_____

Principal place of business:

_____

1.2 Power of attorney of signatory of Bid *[upload scanned copy & also supply either original or **duly notarized** copy in physical form ofbid]*

1.3. Total value of Civil Engineering construction work/incident management work performed in the last three years including Maintenance/Incident management work including current year (in Rs. Lakhs)
refer ITB Clause 4.4 A (a)

*[upload scanned copy & also supply either original or **duly notarized copy** in physical form of bid]*
2017-2018----------
2018-2019----------
2019-2020----------
2020-2021----------
Total----------**Average per year**

1.4 (a) Work performed as prime contractor, work performed in the past as a nominated sub- contractor will also be considered, provided further that all other qualification criteria are satisfied (in the same name) of a similar nature during the last Seven years to qualify as per ITB Clause4.4A(b).

Project Name *Upload certificate*	**Name of the Employer***	**Description of work**	**Contract No.**	**Value of Contract (Rs. Crore)**	**Date of issueof work**	**Stipulated period of completion**	**Actual date of completion***	**Remarks explaining reasons for delay & work Completed**

(s) from the Employer (to be given by an officer at the rank of Executive Engineer or equivalent & also supply original or certified/notarized cop y in physical form envelope)

Note: In case of nominated sub-contractor – a certificate from the Executive Engineer or equivalent of the Prime Employer should be obtained from whom an approval for subcontractor has been obtained.

(b) Information on Bid Capacity (works for which bids have been submitted and accepted and works which are yet to be completed) as on the date 7 days before the last date for bidsubmission(asperCl4.6oftheITB).

(i) Existing commitments and on-goingworks(B)

Description of works	Place &State	Contract No.	Name & Address of Employer	Value of Contract (Rs Cr)	Stipulated Period of Completion	Value of works * remaining to be completed(Rs Cr)	Escalation factor	Anticipated date of completion	Escalated value of remaining work during completion period of work for which bids areinvited
1	2	3	4	5	6	7	8	9	10

* Upload certificate (s) from the Engineer(s)-in-Charge of the rank of Executive Engineer or equivalent.

(ii) Details of works for which bid submitted and accepted (i.e. where contract signing ispending)

Description of works	Place &State	Name &Address of Employer	Date of issue of Letter of Acceptance (LOA) *	Value given in LOA	Stipulated period for completion	Value of work during completion period of work for which bids Are invited
1	2	3	4	5	6	7

*Upload copy of LOA

(iii) Bid Capacity (Bidder shall calculate, mention his bid capacity and enclose the supportingcalculation)

A=Rs…Lakh(enclose the details)

N = 5 Years

B = Rs ..... lakh (enclose thedetails)

Assessed available bidcapacity= A×N×2.5–B

= Rs.....lakhs

Availability of Key Equipment essential for carrying out the Works [Ref. Clause 4.4(B)(b)

(i)].The Bidder should list all the information requested below.

Item of Equipment	Requirement		Availability Proposals			PageNo of theproofattached.
	No.	Capacity	Owned/Leased rented	Nos./Capacityy	Age/Condition	

Note: The bidder must upload the documentary evidence in support of his owning/leased/ rented of the above equipment. In case the bidder proposes to hire or take the above equipment on lease then the bidder must, along with the lease/rentagreement,attachtheproofofownershipofthe company/ entity from whom the equipment are proposed to be hired on lease/rent.

Qualification and Experience of Key Personnel required for administration and execution of the Contract[Ref.Clause4.4(B)(b)(ii)].Upload biographical data for technical personnel (Refer also to Cl. 4.2 (e) of Instruction toBidders).

(Refer also to Sub Clause 9.1 of the Conditions of Contract).

Position	Name	Qualification	Total Professional Experience (Years)	Experience in the proposed position (Years)

Note: The detailed and signed CV's of all the Key Technical Personnel ,signed by the key personnel himself ,must be uploaded along with the bid as per proforma given in Appendix to ITB. Non-compliance of the above or non-furnishing of the CV as above or conditional deployment of any of the above personnel or proposal to employ lesser number of personnel than above may make the bid non-responsive and financial bid may not be opened.

1.7. Information on litigation history in which the Bidder Is involved.

Other Party (ies)	Employer	Cause of Dispute	Amount involved	Remarks showing Present Status

2. Bidder should upload the scanned copy of the following affidavits/ undertakings as per formats enclosed here in after & also send original copy of Affidavit/Undertakings:-

(i) Affidavit (it should be on stamp paper attested by Notary Public)
(ii) Undertaking regarding minimum investment of cash towards working capital.
(iii) Undertaking that the Bids shall remain valid for the period specified in Clause 15.1. of the ITB.
(iv) Affidavit (it should be on stamp paper attested by Notary Public) as undertaking for deployment of Key Equipment as defined in Appendix of ITB.

AFFIDAVIT FORMAT- 2(i)

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

2. The undersigned also hereby certifies that neither our firm M/s_____ have abandoned any work on National Highways in India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.

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

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

(Signed by an Authorised Representative of the Firm)

_____

Name of theRepresentative

_____

Name ofFirm

_____

DATE

To be notarized by Notary

UNDERTAKING (Regarding Minimum Investment)

FORMAT-2(ii)

I, the undersigned do hereby undertake that our firm M/s _____ _____would invest a minimum cash up to 25% of the value of the work during implementation of the Contract towards the working capital.

_____

(Signed by an Authorized Representative of the Firm)

_____

Name of the Representative

_____

Name of Firm

_____

DATE

UNDERTAKING (Bid Validity)

FORMAT – 2 (iii)

I, the undersigned do hereby undertake that our firm M/s ----------
_____agree to abide by this bid for a period of 120 days after the date fixed for receiving the same and it shall be binding on us and may be accepted at any time before the expiration of that period.

_____
(Signed by an Authorized Representative of the Firm)

_____
Name of the Representative

_____
Name of Firm

_____
DATE

Affidavit

I, the undersigned do hereby undertake that our firm M/s…… agree to provide and will deploy required equipment as mentioned in the Appendix to ITB of the work_____**.Further it is certified that the documents submitted as an evidence of availability of the key equipment /Quotations of Key Equipment(in the name of both Employer and Bidder)** for this work as stated in the Appendix to ITB**(with make and specifications as defined in RFP),** are genuine and correct. If anything, contrary to the details as submitted is found at any stage NHAI would be at liberty to debar/blacklist my firm for an appropriate period as decided by NHAI.

_____

(Signed by an Authorized Representative of the Firm)

_____

Name of the Representative

To be notarized by Notary

(SECTION-IV)

FORMS OF BANK GUARANTEES LOA& AGREEMENT

Format for Bid Security 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 120 (one hundred and twenty) 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 summit 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 NHAI and works under other Centrally Sponsored Schemes, for a period of one year from the bid due date of this work.

(Signature of the

Authorized

Signatory)

(Official-Seal)

FORM OF BANK GUARANTEE FOR PERFORMANCE SECURITY

To

The Chairman,
National Highways Authority of India G5 & 6, Sector – 10, Dwarka,
New Delhi – 110075

WHEREAS……contrac
t").

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

AND WHEREAS…(Name and address of bank)……. we have agreed to give the
Contractor such a Bank
Guarantee:

NOW THEREOF we hereby affirm that we are the guarantor and responsible to you on behalf of the Contractor, up to a total of Rs…… (Amountof guarantee) (Rupees…… (name and address of contractor) hereinafter called" the contractor" has undertaken, in pursuance of Letter of Acceptance No. ……..Dated…….. to execute…….. (name of Contract and brief description of Works) (hereinafter called "the …….(in words), , and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of…….. (Amount of guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

We further agree that no change or addition to or other modification of the terms of the contract or of the works to be performed there under or of any of the contract documents which may be made between you and the Contractor shall in any way

release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period Notwithstanding anything contained herein before our liability under this guarantee is restricted to Rs._____(Rs.in words) and the guarantee shall remain valid till_. Unless a claim or a demand in writing is served upon us on or before all our liability under this guarantee shall cease.

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

S. No.	Particulars	Details
1	**Name of Beneficiary**	NHAI Regional Office
2	**Beneficiary Bank Account No.**	84811010002035
3	**Beneficiary Bank**	**Canara Bank**
4	**IFSC Code**	CNRB018481

Signature and seal of the Guarantor with Name, Designation, Employee Code Number&
Telephone
Number……
Name of the Issuing Bank/ Branch ……Name of the Controlling Branch/Bank…
..
Address & Telephone Number……
Address & Telephone
Number……
….
Date……
…..

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

1……
……
(Name, Address
&Occupation)

2……
……
(Name, Address
&Occupation)

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

FORM OF LETTER OF APPLICATION

To,

The Regional Officer, RO-West-UP National Highway Authority ofIndia3/248, Vishal Khand, Lucknow-226010 (UP) E-mail: rowestup@nhai.org, Phone No. 0522-4960291, Fax No.–0522-4950680

DESCRIPTIONOFWORKS: Incident Management Services on Four Laning of Bareilly-Sitapur section of NH-24 from km.262.000 to km. 419.590 in the state of Uttar Pradesh

Dear Sir,

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

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

Thanking you

Yours faithfully,

(Authorized Signatory) for and on behalf of M/s____

FORM OF LETTER OF ACCEPTANCE

No. …… Dated ……..

To

M/s……

Sub.: …… Name of Work ……

Sir,

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

You are hereby requested to furnish Performance Security plus additional security in the form detailed in para. 33.2 of ITB for an amount equivalent to **Rs…….** (**Rupees in words……)** within 10 days as per provisions of clause 33.1 of ITB of the bid document and sign the contract agreement failing which the actions as stipulated in clause-.33.3 of ITB shall betaken.

Thanking you,

Yoursfaithfully,

(……..)

General Manager(T)

FORM OF AGREEMENT

This agreement made the _____day of _____ 20_____between the National Highways Authority of India, New Delhi (hereinafter called "the Employer" of the one part and_____(here in after called "the Contractor") of the other part.

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

AND WHEREAS pursuant to the bid submitted by the Contractor, vide____(here in after referred to as the "BID" or "ÖFFER") for the execution of works, the Employer by his letter of acceptance dated_____accepted the offer submitted by the Contractor for the execution and completion of such works and remedying of any defects thereon, on terms and conditions in accordance with the documents listed in para 2below.AND WHEREAS the Contractor by a deed of undertaking dated _____has agreed toabide by all the terms of the bid, including but not limited to theamount quoted for the execution of Contract, as stated in the bid, and also to comply with such terms and conditions as may be required from time to time.

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

NOW THIS AGREEMENT WITNESSTHE asfollows:

1. In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the conditions of contract hereinafter referred to;
2. the following documents shall be deemed to form and be read and construed as part of this agreementviz.

(a) Agreement,
(b) Letter ofAcceptance
(c) Contractor'sBid,
(d) ContractData,
(e) Conditions ofContract
(f) Technical Specifications,
(g) Drawings, ifany
(h) Implementation Manual and Maintenance InterventionLevel
(i) Scope ofWork
(j) Bill of Quantities,and
(k) Any other document listed in the ContractData.

3. Theforegoingdocumentsshallbe construedas complementaryand mutually explanatory one with another. Should any ambiguity or discrepancy be noted then the order of precedence of these documents shall be subject to the order as listed above and interpreted in theabove order of priority.

4. In consideration of the payments tobe made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and remedy any defects therein in conformity in all respects with the provisions of thecontract.

5. the employer hereby covenants to pay the contractor in consideration of the execution and completion of the works and remedying of defects therein, the contract price or such other sum as may become payable under the provisions of the contract at the times and in themanner prescribed by the contract.

IN WITNESS WHEREOF the parties here to have caused this agreement to be executed the day and year above written. Signed, sealed and delivered by the said Employer through his Authorized Representative and the said Contractor through his Power of Attorneyholder.

Binding Signature ofEmployer_____

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

Binding Signature ofContractor_____
For and on behalf ofM/s._____

In thepresence of
1. Name:
   Address:

2. Name:
   Address:

In the Presenceof
1.Name:
Address:

2.Name:
Address:

(SECTION-V)

CONDITIONS OF CONTRACTAND CONTRACTDATA

Table of Clauses

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The Apprenticeship A

Section V
Conditions of Contract

A. General

1. Definitions

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

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

Compensation Events are those defined in Clause 41 hereunder.

The Completion Date is the date of completion of the Works as certified by the Engineer, in accordance with Clause 49.1.

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

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

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

The Contractor's Bid is the completed upon the online submission of the Bid and subsequent submission of documents to be submitted in the physical form as required under the ITB..

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

Days are calendar days; months are calendar months.

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

The Defects Liability Certificate is the certificate issued by Engineer, after the

Defect Liability Period has ended and upon correction of Defects by the Contractor.

The Defects Liability Period is the period name din contact data and calculated from the Completion Date.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. Interpretation

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

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

The documents forming the Contract shall be interpreted in the following order ofpriority.

(a) Agreement,
(b) Letter ofAcceptance
(c) Contractor's Bid,
(d) Contract Data,
(e) Conditions of Contract
(f) Technical Specifications, (g) Drawings, if any
(h) Implementation Manual and Maintenance InterventionLevel
(i) Scope ofWork
(j) Bill of Quantities,and

(k) Any other document listed in the ContractData.

3. Language and Law

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

4. Engineer'sDecisions

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

5. Delegation

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

6. Communications

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

7. Subcontracting

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

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

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

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

a) The Contractor shall not sub-contract the Works more than the limit specified in Contract Data.

b) The Contractor shall not sub-contract any part of the Work without prior consent of the Employer. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsiblefortheacts,defaultsandneglectsofanyofhissub-Contractor,hisagents or workmenasfullyasiftheyweretheacts,defaultsorneglectsoftheContractor, his agents and workmen.

The Engineer should satisfy himself before recommending to the Employer whether

a) the circumstances warrant such sub-contracting; and

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

8. Other Contractors

The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the Contract Data. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

The Contractor should take up the works in convenient reaches as decided by the Engineer to ensure there is least hindrance to the smooth flow of traffic including movement of vehicles and equipment of other Contractors till the completion of the Works.

9. Personnel

The Contractor shall employ the technical personnel named in the Contract Data or other technical persons approved by the Engineer. The Engineer will approve any proposed replacement of technical personnel only if their relevant qualifications and experience are substantially equal to or better than those of the personnel stated in the Contract Data. If the personnel stated in the contract data are not deployed on site by the contractor, it will be treated as a breach of contract and action will be taken as per clause53.

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

10. Employer's and Contractor's Risks

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

11. Employer's Risks

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

12. Contractor'sRisks

All risks of loss of or damage to physical property and of personal injury and death, which arise during and in consequence of the performance of theContract other than the excepted risks, referred to in clause 11.1, are the responsibility of theContractor.

13. Insurance

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

a) loss of or damage to the Works, Plant and Materials;

b) loss of or damage to Equipment;

c) loss of or damage toproperty (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and

d) Personal injury or death.

Insurance policies and certificates for insurance shall be delivered by the

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

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

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

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

14. Site InvestigationReports

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

15. Queries about the ContractData

The Regional Office, MP shall clarify queries on contract data.

16. Contractor to Construct the Works & do maintenance

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

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

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

18. Approval by the Engineer

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

The Contractor shall be responsible for design of Temporary Works.

The Engineer's approval shall not alter the Contractor's responsibility for design of the TemporaryWorks.

The Contractor shall obtain approval of third parties to the design of the Temporary Works, whererequired.

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

19. Safety

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

20. Discoveries

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

21. Possession of theSite

The Employer shall give complete possession of the Site to the Contractor onthe date of signing ofagreement.

22. Access to theSite

The Contractor shall allow access to the Site and to any place where work in connection with the Contract is being carried out, or is intended to be carried outto the engineer and any person/persons/agency authorizedby:

a. TheEngineer
b. TheEmployer

23. Instructions

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

The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them auditedbyAuditorsappointedbytheEmployerifsorequiredbytheEmployer.

24. Deleted

25. ARBITRATION

In case of dispute or difference arising between the Employer and a Contractor relating to any matter arising out of or connected with this agreement, such disputes or differences shall be settled as set forthe below:

(i) The Dispute shall be finally referred to Society for Affordable Resolution of Disputes (hereinafter called as SAROD), a Society registered under Society's Act, 1860 vide Registration no. S/RS/SW1049/2013 duly represented by Authority and National Highways Builders Federation (NHBF). The dispute shall be dealt with in terms of Rules of SAROD. The detailed procedure for conducting Arbitration shall be governed by the Rules of SAROD and provisions of Arbitration & Conciliation Act, 1996, as amended from time to time. *The Dispute shall be governed bySubstantive Law ofIndia.*

(ii) The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of SAROD and Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time. The rules of SAROD are as per Annex-I.

(iii) Arbitration may be commenced during or after the Contract Period, provided that the obligations of Authority and the Contractor shall not be altered by reason of the Arbitration being conducted during the Contract Period.

(iv) The seat of Arbitration shall be NewDelhioraplaceselectedbygoverning body of SAROD and the language for all documents and communications between the parties shall beEnglish.

(v) The expenses incurred by each party in connection with the preparation, presentation, etc., of arbitral proceedings shall be shared by each party itself.

The arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Clause 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 withoutdelay.

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 whereversituated.

This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pendingthe Award in any arbitration proceedings hereunder.

Adjudication by Regulatory Commission orAuthority

In the event of constitution of a statutory Regulatory Commission or Authority with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 25, be adjudicated upon by such Regulatory Commission or Authority in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly.For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or High Court, as the case may be, or no such appeal has been preferred within the time specified in the ApplicableLaw.

26 Deleted

B. TimeControl

27. Programme

The Engineer shall issue the indent of work in stages specifying the time limit for the same as and when required. The C o n t r a c t o r shall submit to the Engineer for approval a programme within the time stipulated in the Contract Data showing the general methods, arrangements, order, and timing for all the activities in the Works, along with monthly cash flowforecasts.

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

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

The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the

Engineer again at any time. A revised Programme shall show the effect of Variations and CompensationEvents.

28. Extension of the Intended CompletionDate

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

The Engineer shall decide whether and by how much time to extend the Intended Completion Date within 21 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If theContractor has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Indented Completion Date.

29. Delays Ordered by theEngineer

The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works. Delay/delays totaling more than 30 days will require prior written approval of theEmployer.

30. ManagementMeetings

The Engineer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the plans for the Works.

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

C. QualityControl

31. IdentifyingDefects

The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may

have a Defect.

32. Tests

The contractor shall be solely responsiblefor:

a. Carrying out the mandatory tests prescribed in the documents forming part ofcontract.
b. For the correctness of the test results, whether preformed in his laboratory orelsewhere.

If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and anysamples.

Subject to further condition in contractdata

33. Correction of Defects noticed during the Defect LiabilityPeriod.

The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain tobe Every time notice of a defect is given, the Contractor shall correct the notified defect at his own cost within the length of time specified by the Engineer's notice. If the contractor is in default the Engineer shall cause the same to be made good by other workmen and deduct the expenses from any sums that may be due to thecontractor.

34. UncorrectedDefects

If the Contractor has not corrected a Defect/completed the work, to the satisfaction of the Engineer, within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected/completed, and the Contractor will pay thisamount.

IftheContractorhasnotcompletedtheworktothesatisfactionoftheEngineer , within the time specified in the Engineer's notice/indent, in no case exceeding one month, the Engineer will assess the cost of having the work completed and get the work completed through some other agency and the Contractor will pay this amount in addition to the damages specified as

perclause45.

D Cost Control

35. Bill ofQuantities

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

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

Change inQuantities

The Engineershall, having regard to the scope of the Works and the sanctioned estimated cost, have power to order Changes in the Quantities with the approval ofNHAI

Engineer is also empowered to order omission of any item of BOQ, after approval from Authority, for which contractor shall not make any type of claim fromNHAI.

36. Variations

36.1. All variations shall be included in updated programmes produced by the Contractor. The Authority/Employer shall, having regard to the scope of the Works and the sanctioned estimated cost shall order variation as per extent Policy Guidelines of NHAI.

Such variation may be for any change in quantity of any item in the Bill of Quantities.

Such variation may be for execution of any quantity of any new item which is not available in t h e Bill of Quantities.

37. Payments forVariations

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

The rates for any new item not specified in the Bill of Quantities, shall be derived by the Engineer from the rates of the similar items in the Bill of Quantities and if it cannot be derived from similar items in Bill of Quantities then the rate will be derived as per clause 37.3.

In case the rate for the new item cannot be determined in thea manner as specified in Clause 37.2, the rates for the new item shall be derived from, current schedule of rates of the MP PWD for Road Bridgeworks.

If the rate for new item cannot be determined in the manner specified inClause 37.2 & 37.3, the Contractor shall, within 14 days of the issue of order of Variation work, inform the Engineer the rate which he proposes to claim, supported by analysis of the rates based on data book of MORTH. The Engineer shall assess the quotation and determine the rate based on prevailing market rates within 15 days of the submission of the claim by the Contractor after seeking approval fromNHAI.

38. Cash FlowForecasts

When the Programme is updated, the Contractor shall provide the Engineer with an updated cash flowforecast.

39. PaymentCertificates

The Contractor shall submit to the Engineer monthly statements of the value

of the work executed less the cumulative amount certified previously supported with detailed measurement of the items of workexecuted.

The Engineer shall check the Contractor's monthly statement within 15 days and certify the amount to be paid to the Contractor after taking into account any credit or debit for the month inquestion.

The value of work executed shall be determined, basedon measurements by the Engineer.

The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantitiescompleted.

The value of work executed shall also include the valuation of Variations and CompensationEvents.

The Engineer / Employer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of laterinformation.

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

40. Payments

Payments shall be adjusted for deductions for, security deposit, other recoveries in terms of the Contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts Engineer had certified within 28 days of the date of eachcertificate.

The Authorized Representative of the Employer shall make the payment certified by theEngineer.

Items of the Works for which no rate or price has been entered in the Bill of Quantities, will not be paid for by the Employer and shall be deemed to be covered by other rates and prices in theContract.

41. CompensationEvents

The following shall be Compensation Events unless they are caused by theContractor:

a) The Engineer orders a delay or delays exceeding a total of 30 days. b) The effects on the Contractor of any of the Employer's Risks.

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

The contractor shall not be entitled to compensation to the extent that the Employer"sinterestsareadverselyaffectedbytheContractornothavinggiven early warning or not having cooperated with the Engineer/Employer.

42. Taxes & Currencies forpayments

All duties, taxes (including the Goods & Service tax), royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder. The employer will perform duties in regards to the deduction ofsuch taxes at sources as per applicable Law. Though the quote from bidder shall be inclusive GST, the GST shall be paid on reimbursement basis (as applicable) subject to production of proof of such payment by the Contractor (Proof should contain name ofwork).

42.2 All payments will be made in IndianRupees.

43. PriceAdjustment-

Deleted

44. Security Deposit / RetentionMoney

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

theWorks.

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

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If the contractor so desires then the Security Deposit/retention money can be released on submission of unconditional Bank Guarantee at the following Two stages: -

(a) At a point after the progress of work in financial term (gross value of work done) hasreached 50% of the contract amount.

(b) After the retention money has been deducted to the full value (5% of the ContractAmount).

45. LiquidatedDamages

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

If the Intended Completion Date is extended after liquidated damages havebeen paid, the Engineer shall correct any over payment of liquidated damages bythe

Contractor by adjusting in the next payment certificate. The contractor shall not be paid interest on the over payment of liquidated damages.

46. AdvancePayment

The Employer will make an interest-bearing advance payment to the Contractor against provision of an Unconditional Bank Guarantee in a form and from a bank acceptable to the Employer up to 10% of one- fifth of the Contract Value. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor (The Bidder shall have the option to split the Bank Guarantees so as to facilitate reducing the amount of the Bank Guarantee with the amount of advance payment repaid). The Contractor may apply to the Authority for Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an

amount equivalent to 110% (one hundred and ten per cent). The contractor shall take the above advance before 2nd running bill and thereafter the same is notpayable.

The Contractor is to use the advance payment only to pay for Equipment, plant and Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that the advance payment has been used in this way by supplying copies of invoices or other documents to theEngineer.

The advance payment shall be repaid with interest @ SBI PLR applicable plus 2% on the date of release of mobilisation advance by deducting from payments otherwiseduetotheContractor.The mobilization advancewillberecoveredfrom third running bill upto 8th running bill in six equal installments and the interest will be recovered from ninth bill. In any case, the mobilisation advance with interest must be recovered within ten months from the date of start. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, or Liquidated damages.

47. Securities

Subject to further condition in contract data, the Performance Security equal to ten percent of the contract price and additional security for unbalanced bids shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in the form given in the Contract Data and by a prescribed bank. The Performance Security shall be valid until a date 28 days after the expiry of Defect Liability Period and the additional performance security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion. The validity shall account for additional 3 months time to account for BG verification, signing of contract andstart date.

48. Cost ofRepairs

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

E. Finishing the Contract

49. Completion

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

50. TakingOver

The Employer shall take over the Site and the Works within seven days of the Engineer's issuing a certificate of Completion of all the items included in the threebills.

51. FinalAccount

The Contractor shall supply to the Engineer with a detailed account of the total amount that the Contractor considers payable under theContract before the end of the Defects Liability Period. The Engineer shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate within 56 days of receiving the Contractor"s revisedaccount.

52. Operating and MaintenanceManual

If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them within 28 days from date of issue of certificate ofcompletion.

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

53. Termination/Foreclosure

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

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

a) the Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer;
b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstitution or amalgamation;
c) the Engineer/Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
d) the Contractor does not maintain a Security, which is required;
e) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in clause45;
f) the Contractor fails to provide insurance cover as required under clause13;
g) if the Contractor, in the judgement of the Employer, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract. For the purpose of this clause, “corrupt practise” means offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in Contract execution. “Fraudulent Practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or

after bid submission) designed to establish bid process at artificial non-competitive levels and to deprive the Employer of the benefits of free and opencompetition.

h) if the Contractor has not completed at least thirty percent of the value of Work required to be completed after half of the completion period haselapsed;
i) if the Contractor fails to set up a field laboratory with the prescribed equipment, within the period specified; and
j) any other fundamental breach as specified in the Contract Data.

Without prejudice to any other right or remedies which the Employer may have under this contract, upon occurrence of a Contractor's fundamental breach of contract, the Employer shall be entitled to terminate this contract by issuing a Termination Notice to the Contractor ; provided that before issuing the Termination Notice, the Employer shall by a Notice inform the Contractor of its intention to issue such Termination Notice and grant 15 days to the Contractor to make a representation, and may after the expiry of such 15 days whether or notitisinreceiptofsuchrepresentation,issuetheTerminationNotice.

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

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

Foreclosure- NHAI may foreclose the contract before the expiry of the scheduled contract period on account of taking up the stretch for future development such as 6-laning or OMT of the highway or any such administrative decision by giving three months'Notice.

54. Payment upon Termination /Foreclosure

If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate and less the value of the work not completed, as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer and Employer may recover the same

from Performance BankGuarantee.

In case of foreclosure of contract on account of proposed future development of the highway or otherwise, as specified in Clause 53.6, within a period of 18 months from the date of start of contract, the Engineer shall issue a certificate for the value of work done till foreclosure and balance value of work left out. The agency shall be compensated 10% of the balance value of work left out beyond the Notice period, of the original contract amount, so certified by the Engineer and necessary deductions of income tax and other statutory taxes as applicable at that time will be made and the agency will not have any claim whatsoever on this account". In case, contract is foreclosed after the expiry of 18 months no such compensation will be admissible.

55. Property

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

56. Release fromPerformance

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

F. Other Conditions ofContract

57. Labour

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

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

58. COMPLIANCE WITH LABOUR REGULATIONS

During the currency of the Contract, the Contractor and his sub Contractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be notified already or that may be notified under any labour law in future either by the State or the Central Government or the local authority.Salient features of some of the major labour laws that are applicable to construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in thenotifications/byelaws/Acts/Rules/regulations
including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including from his performance security/ retention money. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point oftime.

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

a) **Workmen Compensation Act 1923**:- The Act provides for compensation in case ofinjury by accident arising out of and during the course of employment.

b) **Payment of Gratuity Act 1972**:- Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days" (say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or moreemployees.

c) **Employees P.F. and Miscellaneous Provision Act 1952**: The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:

i. Pension or family pension on retirement or death as the case maybe.
ii. Deposit linked insurance on the death in harness of theworker.
iii. Payment of P.F. accumulation on retirement/deathetc.

d) **Maternity Benefit Act 1951**: - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriageetc.

e) **Contract Labour (Regulation & Abolition) Act 1970**:- The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.

f) **Minimum Wages Act 1948**: - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways are scheduledemployment.

g) **Payment of Wages Act 1936:** - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of theworkers.

h) **Equal Remuneration Act 1979**: - The Act provides for payment of

equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotionsetc.

i) **Payment of Bonus Act 1965**: - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certaincircumstances.

States may have different number of employment size.

j) **Industrial Disputes Act 1947**: - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock- out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down theestablishment.

k) **Industrial Employment (Standing Orders) Act 1946**: - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get these certified by the designated Authority.

l) **Trade Unions Act 1926**: - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminalliabilities.

m) **Child Labour (Prohibition & Regulation) Act 1986**: - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and constructionindustry.

n) **Inter-State Migrant Workmen"s (Regulation of Employment & Conditions of Service) Act 1979**:- The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and backetc.

o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996** and **the Cess Act of 1996**:- All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first- aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by theGovernment.

p) **Factories Act 1948:-** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable topremisesemployingtheprescribedminimum(say,10)personsormore with

aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

59. Drawings and Photographs of theWorks

The contractor shall do photography/videography of the site firstly before the start of the work, secondly mid-way in the execution of different stages of work and lastly after the completion of the work. No separate payment will be made to the contractor forthis.

The Contractor shall not disclose details of Drawings furnished to him and works on which he is engaged without the prior approval of the Engineer in writing. No photograph of the works or any part thereof or plant employed thereon, except those permitted under clause 59.1, shall be taken or permitted to be taken by the Contractor or by any of his employees or any employees of his sub-Contractors without the prior

approval of the Engineer in writing. No photographs/ Videography shall be published or otherwise circulated without the approval of the Engineer inwriting.

60. The Apprenticeship Act1961

The Contractor shall duly comply with the provisions of the Apprenticeship Act 1961 (III of 1961), the rules made thereunder and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all liabilities and penalties provided by the said Act and saidRules.

Rules ANNEX-I ARBITRATION RULES OF SAROD

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PREAMBLE

In order to seek speedy, affordable, just and reasonable Redressal of Dispute/Differences between NHAI and Concessionaire/Contractor arising out of and during the course of execution of various contracts, a Society for Affordable Redressal of Disputes (SAROD) has been formed as a Society under Societies Registration Act, 1860 with registration No. S/RS/SW/l044/2013. It has been formed by National Highways Authority of India (NHAI) and National Highways Builders Federation (NHBF) with founding members as mentioned in the Memorandum of Association of SAROD.

SAROD ARBITRATION RULES

Rule 1 - Scope of Application

Where any agreement, submission or reference provides for arbitration at the Society for Affordable Redressal of Disputes ("SAROD"), or under the Arbitration Rules of the SAROD and where the case is a domestic arbitration shall be conducted in accordance with the following Rules, or such Rules as amended by the SAROD where the amendments take effect before the commencement of the Arbitration. Parties may adopt following clause for inclusion in thecontract:-

"Any dispute or difference whatsoever arising between the parties and of or relating to the construction, interpretation, application, meaning, scope, operation or effect of this contract or the validity or the breach thereof, shall be settled by arbitration in accordance with the rules of arbitration of the "SAROD" and the award made in pursuance thereof shall be final and binding on the parties subject to Provisions of The Arbitration and Conciliation Act,1996".

These rules shall come into effect from the day of approval by GoverningBody of SAROD.

Rule 2 - Definitions

These Rules shall be referred to as "the SAROD Arbitration Rules".

In these Rules:

"Act" means the 'Arbitration and Conciliation Act 1996' of India and any statutory modifications or re-enactments thereof.

"SAROD" means the Society for Affordable Redressal of Disputes.

"SAROD Arbitrator Panel" means the list of persons admitted to serve as arbitrators under these Rules.

"NHAI" means National Highways Authority of India.

"NHBF" means the National Highways Builders Federation.

"GOVERNING BODY" means Governing Body of SAROD as defined in Article 9 of Memorandum of Association.

"PRESIDENT" means President of Governing Body of SAROD as defined in Rules & Regulation ofSAROD

"**SECRETARY**"means SecretaryofSARODasdefinedinRules&RegulationofSAROD. **"TRIBUNAL"** means either a Sole Arbitrator or all arbitrators when more than one is appointed.

"PARTY" means a party to an arbitration agreement,

"**E-Arbitration**" means submission of pleadings,defence statement etc by E-mail and holding of proceedings via video conferencing.

Rule 3 - Notice, Calculation of periods of Time

For the purposes of these Rules, any notice, including a notification, communication or proposal, is deemed to have been received if it is physically delivered to the addressee or if it is delivered at his habitual residence, place of business or mailing address, or, if none of these can be found after making reasonable inquiry, then at the addressee's last known residence or place of business. Notice shall be deemed tohavebeenreceivedonthedayitissodelivered.

For the purposes of calculating a period of time under these Rules, such period shall begin to run on the day following the day when a notice, notification, communication or proposal is received. If the last day of such period is an official holiday or a non- business day at the residence or place of business of the addressee, the period is extended until the first business day which follows.Gazetted public holidays or non- business days occurring during the running of the period of time are included in calculating the period.

Without prejudice to the effectiveness of any other form of written communication, written communication may be made by fax, email or any other means of electronic transmission effected to a number, address or site of a party.

The transmission is deemed to have been received on the day of transmission.

Rule 4 - Commencement of Arbitration

Any party wishing to commence an arbitration under these Rules ("the Claimant") shall file with the Secretary and serve on the other party {"the Respondent"), a written Notice of Arbitration ("the Notice of Arbitration") which shall include the following:

a. Arequestthatthedisputebereferredtoarbitration;
b. the names, addresses, telephone numbers, fax numbers and email addresses of the parties to thedispute;

c. a reference to the arbitration clause or any separate arbitration agreement that is invoked and provide a copy of the arbitration clause or arbitrationagreement;

d. a reference to the contract out of which the dispute arises and provide a copy of the contract wherepossible;

e. abriefstatementdescribingthenatureandcircumstancesofthedispute;

f. the relief or remedy sought, including the amount of claim if quantifiable at the time the Notice or Arbitration isfiled;

g. a proposal as to the number of arbitrators (i.e.one or three), if the parties have not previously agreed on the number;and

h. thenameoftheClaimant'snominatedarbitrator.

A filing fee of Rs. 10,000/- (Ten thousand) or any amount decided by Governing Body from time to time is payable at the time of filing the Notice of arbitration

The date of filing of the Notice of Arbitration with the Secretary is the date of commencement of the arbitration for the purpose of these Rules.

Rule 5 – Response by Respondent

Within 14 days of receipt of the Notice of Arbitration, the Respondent shall file with the Secretary and serve upon on the Claimant, a Responseincluding

a. Aconfirmationordenialofallorpartoftheclaims;

b. Briefstatementofthenatureandcircumstancesofanyenvisagedcounterclaims

C A comment in response to any proposals contained in the Notice of Arbitration; and

d. The name of the respondent's nominated arbitrator.

AfilingfeeofRs.10,000/-
oranyamountdecidedbyGoverningBodyfromtimeto
timeispayableatthetimeof filingtheResponse.

In case parties have objection to the jurisdiction of Arbitral Tribunal, such objection shall be raised not later than 15 days of the commencement of Arbitration proceedings failing which it will be deemed that parties have waived their right to objection.

Rule 6 – Filing of Case Statements

Within 30 days after the filing of the Notice of Arbitration, the claimant

must file with the Secretary and serve on the Respondent, a Statement of Claimant's Case alongwith all documents to be relied upon by the Claimant.

Within 30 days after the service of the statement of Claimant's Case, the Respondent must file with the Secretary and serve on the Claimant, a statement of respondent's defense and counterclaim (if any) alongwith all documents to be relied upon by the Respondent.

Within 30 days after the service of the statement of Respondent's defense, if the Claimant intends to challenge anything in the statement of Respondent's defense and/or counterclaim, the Claimant must then file with the Secretary and serve on the Respondent, a statement of claimant's reply and if necessary, defense to counterclaim.

No further case statements may be filed without the leave of the Tribunal or if a Tribunal has not been appointed, the Secretary.

The Tribunal or if a Tribunal has not been appointed, the Secretary, may upon the written application of a party, extend the time limits provided under this Rule,

The party required to file a case statement must at the same time deposit with the Secretary for eventual transmission to the Tribunal an additional copy or additional copies of the case statement, according to the number of arbitrators constituting or who will constitute the Tribunal.

Rule 7 – Contents of Case Statements

The case statements must contain the detailed particulars of the party's claim,defenceor counterclaim and must thus contain a comprehensive statement of the facts and contentions of law supporting the party's position.

It must:

a. Set out all items of relief or other remedies sought together with the amount of all quantifiable claims and detailedcalculations.
b. Statefullyitsreasonsfordenyinganyallegationorstatementoftheotherparty.

c. State fully its own version of events if a party intends to put forward a version of eventsdifferentfromthatgivenbytheotherparty.

A case statement must be signed by or on behalf of the party making it.

Rule 8 - Default in Filing and Serving Case Statements

If the Claimant fails within the time specified under these Rules or as may be fixed by the Tribunal or by the Secretary, to submit its Statement of Case, the Tribunal or if a Tribunal has not been appointed, the Governing Body may issue an order for the termination of the arbitral proceedings or make such other directions as may be appropriate in the circumstances.

It the Respondent fails to submit a Statement of Respondent's Defense,the Tribunal may nevertheless proceed with the arbitration and make the award.

Rule 9 - Further Written Statements

The Tribunal will decide which further written statements, in addition to the case statement(s) already filed, are required from the parties and shall fix the periods of time for giving, filing and serving such statements.
All such further statements must be given to the Tribunal, filed with the Secretary and served on the Claimant or Respondent, whichever is applicable.

Rule 10 - SAROD to Provide Assistance

AttherequestoftheTribunaloreitherparty,theSecretarywillrendersuchassistance as is required for the conduct of the arbitration, including arranging for facilities, suitable accommodation for sittings of the Tribunal, secretarial assistance or interpretationoftheserules.

Any additional expenses incurred or to be incurred for any such arrangements shall be borne by the parties.

Rule 11 - Appointment of Tribunal

The disputes shall be decided by a Sole Arbitrator when the total claim of dispute is Rs. 3 Crores or less.

In all cases of disputes claimed for more than Rs. 3 Crores, the tribunal shall consist of odd number of Arbitrators to be nominated by the parties. The Presiding Arbitrator shallbeappointedbytheArbitratorsnominatedbythepartiesfromamongst thepanel maintained by SAROD. For deciding the Presiding Arbitrator, a draw of lots can be carried out from amongst the names suggested by the Arbitrators nominated by the Parties, The eligibility criteria for empanelment of Arbitrators will be decided by the GoverningBody.

If a Sole Arbitrator is to be appointed, the Governing Body will appoint the Arbitrator within 21 days from the date the Respondent's Statement of Defence and Counterclaim (if any) is filed or falls due, whichever is earlier. The Governing Body will appoint the Arbitrator from the panel of Arbitrators by draw of lots,

An Arbitrator/Presiding Arbitrator to be appointed under these Rules shall be a person on the SAROD Arbitration Panel as at the date of the appointment,

In the event of any party failing to appoint Arbitrator within 30 days of receipt of the notice of Arbitration, the Governing Body shall appoint the Arbitrator or Presiding Arbitrator as the case may be by a draw of lots.

Rule 12 - Multiparty appointment of the Tribunal

If there are more than 2 parties in the arbitration, the parties shall agree on the procedure for appointing the Tribunal within 21 days of the receipt of the Notice of Arbitration.

If the parties are unable to do so, upon the lapse of the 21 day time period mentioned herein,theTribunalshallbeappointedbytheGoverningBodyassoonaspracticable.

Rule 13 - Appointment of Substitute Arbitrator

In the event of the death or resignation of any of the arbitrators, a substitute arbitrator mustbeappointedbythesameprocedureasinRule11bywhichthearbitratorconcerned was appointed, failing which, the Governing Body will make theappointment.

Rule 14 - Independence and Impartiality of the Tribunal

TheTribunalconductingarbitrationundertheseRulesshallbeandremainatalltimes independentandimpartial,andshallnotactasadvocateforanyparty.

A prospective arbitrator shall disclose to those who approach him in connection with his possible appointment, any circumstances likely to give rise to justifiable doubts as to his impartiality or independence.

An arbitrator, once nominated or appointed, shall disclose any such circumstance referred to in Rule 14.2 to the Secretary and/ or to all parties.

Rule 15 - Code of Ethics for Arbitrators

An Arbitrator is a fountain of justice and emblem of equity, fairness and good conscience. Therefore he/she is expected to exhibit a noble conduct. The code of conduct prescribed by the Governing Body has to be adopted.

Appointment

Aprospectivearbitratorshallacceptanappointmentonlyifheisfullysatisfiedthat he is able to discharge his duties without bias, he has an adequate knowledge of thelanguageofthearbitration,andheisabletogivetothearbitrationthetimeand

attentionwhichthepartiesarereasonablyentitledtoexpect,

In this code, the masculine includes the feminine.

Disclosure

A prospective arbitrator shall disclose all facts or circumstances that may give risetojustifiabledoubtsastohisimpartialityorindependence,suchdutytocontinue thoroughoutthearbitralproceedingswithregardtonewfactsandcircumstances.

A prospective arbitrator shall disclose to the Secretary and any party who approaches him for a possibleappointment:

(a) Any past or present close personal relationship or business relationship, whether direct or indirect, with any party to the dispute, or any representative of a party, or any person known to be a potentially important witness in thearbitration;

(b) Theextentofanypriorknowledgehemayhaveofthedispute.

Bias

The criteria for assessing questions relating to bias are impartiality and independence. Partiality arises when an arbitratorfavours one of the parties or where he is prejudiced in relation to the subject matter of the dispute. Dependence arises from relationships between an arbitrator and one of the parties, or with someone closely connected with one of the parties.

Any close personal relationship or current direct or indirect business relationship between an arbitrator and a party, or any representative of a party, or with a person who is known to be a potentially important witness, will normally give rise to justifiable doubts as to a prospective arbitrator's impartiality or independence. Past business relationships will only give rise to justifiable doubts if they are of such magnitude or nature as to be likely to affect a prospective arbitrator's judgment. He should decline to accept an appointment in such circumstances unless the parties agree in writing that he may proceed.

Communications

Before accepting an appointment, an arbitrator may only enquire as to the general nature of the dispute, the names of the parties and the expected time period required for the arbitration.

No arbitrator shall confer with any of the parties or their Counsel until after the Secretary gives notice of the formation of the Tribunal to the parties.

Throughout the arbitral proceedings, an arbitrator shall avoid any unilateral communications regarding the case with any party, or its representatives.

Fees

In accepting an appointment, an arbitrator agrees to the remuneration as prescribed in the rules of SAROD, and he shall make no unilateral arrangements with any of the parties or their Counsel for any additional fees or expenses without the agreement of all the parties and the consent of the Secretary of SAROD.

Conduct

Oncethearbitrationproceedingscommence,thearbitratorshallacquainthimselfwith all the facts and arguments presented and all discussions relative to the proceedings so that he may properly understand thedispute.

[[

Confidentiality

The arbitration proceedings shall remain confidential. An arbitrator is in a relationship of trust to the parties and should not, at any time, use confidential information acquired during the course of the proceedings to gain personal advantage or advantage for others, or to affect adversely the interest of another.

This Code is not intended to provide grounds for the setting aside of any award.

Rule 16 - Challenge of Arbitrators

An arbitrator may be challenged if there are circumstances that give rise to justifiable doubts as to his impartially or independence and also if he or she has committed any misconduct.

An arbitrator may also be challenged if he does not possess the qualifications required by the agreement of the parties,
A party may challenge an arbitrator appointed on its nomination or with its agreement only for reasons of which it becomes aware after the appointment has been made.

ApartywhointendstochallengeanarbitratorshallfilewiththeSecretaryandserve on the other party or all other parties, whichever is applicable, a Notice of Challenge.

TheNoticeofchallengemustbefiledandservedwithin14daysfromtheappointment of the arbitrator or within 14 days after the circumstances mentioned in Rule 15.1 became known to thatparty.

The Notice of Challenge must state the reasons for the challenge.
The arbitration shall be suspended until the challenge is resolved or decided upon.
When an arbitrator has been challenged by one party, the other party may agree to the challenge. The arbitrator may also, after the challenge, withdraw from his office. However, it is not implied in either case that there has been an acceptance

of the validityofthegroundsforthechallenge.Inbothcases,theprocedureprovidedinRule 11 read with Rule 13, shall be used for the appointment of a substitutearbitrator.

Rule 17 - Decision on Challenge

Iftheotherpartydoesnotagreetothechallengeandthearbitratordoesnotwithdraw, thedecisiononthechallengewillbemadebytheGoverningBody.

If the Governing Body sustains the challenge, a substitute arbitrator shall be appointed or chosen pursuant to the procedure applicable to the appointment of an arbitrator as provided in Rule 11 read with Rule 13. If the Governing Body dismisses the challenge, the arbitrator shall continue with the arbitration.

Rule 18 - Removal of **the Tribunal**

The Governing Body may on the application of a party remove an arbitrator:

a. Whoisphysicallyormentallyincapableofconductingtheproceedingsorwhere therearejustifiabledoubtsastohisabilitytodoso;or
b. Whohasrefusedorfailedtouseallreasonabledispatchinconductingthe arbitration or making anaward.
c. Who has continuously absented from attending the proceedings for more than 3 sitting without prior permission of Presiding Arbitrator/Governing Body of SAROD.

The arbitrator(s) concerned is entitled to appear and be heard at the hearing of the application to remove him.

Upon the removal of the arbitrator, a substitute arbitrator shall be appointed in accordance with Rule 11 read with Rule 13.

The Governing Body's decision on the application is final and is not subject to appeal or review.

Rule 19 - Re-hearing in the Event of Replacement of the Tribunal

If the sole or presiding Arbitrator is replaced, there shall be a re-hearing. If any other arbitrator is replaced, such re-hearing may take place at the discretion of the Tribunal.

Rule 20 - Jurisdiction of the Tribunal

The Tribunal shall have the power to rule on its own jurisdiction, including any objection with respect to the existence, termination or validity of the arbitration agreement. For that purpose, an arbitration agreement which forms part of a contract shall be treated as an agreement independent of the other terms of the

contract.AdecisionbytheTribunalthatthecontractisnullandvoidshallnoten tail ipsojuretheinvalidityofthearbitrationagreement.

The plea that the Tribunal does not have jurisdiction shall be raised not later than intheStatementofDefense.ApleathattheTribunalisexceedingthescopeofits authority shall be raised promptly after the Tribunal has indicated its intention to decideonthematterallegedtobebeyondthescopeofitsauthority.Ineithercase the Tribunal may nevertheless admit a late plea under this Rule if it considers the delay justified. A party is not precluded from raising such a plea by the fact that he has nominated, or participated in the appointment of anarbitrator.

The Tribunal must rule on an objection that it lacks jurisdiction as a preliminary question upon the objection being raised. It may rule on an objection that it exceeds thescopeofitsauthorityeitherasa preliminaryquestionoriganawardonthemerits, as it deems just andconvenient.

InadditiontothejurisdictiontoexercisethepowersdefinedelsewhereintheseRules, the Tribunal shall have jurisdiction to determine any question of law arising in the arbitration; proceed with the arbitration not with sanding the failure or refusal of any party to comply with these Rules or with the Tribunal's orders or directions, or to attend any meeting or hearing, but only after giving that party written notice that it intends to do so; and to receive and take into account such written or oral evidence asitshalldeterminetoberelevant,whetherornotstrictlyadmissibleinlaw.

Rule 21 – Fees of SAROD and Arbitral Tribunal Fee Schedule

Registration Fee (Non - Refundable): Rs, 10,000/- or any amount fixed by Governing Body from time to time. The Schedule of Fees and allied expenditure shall be decided by Governing Body.

Rule 22- Transmission of File to the Tribunal

he Secretary shall, as soon as practicable transmit to the Tribunal, a file containing the Notice of Arbitration, the Response and all case statements.
The Tribunal shall as soon as practicable, after consultation with the parties, issue such orders and/or directions as are necessary for the conduct of the arbitration to conclusion,including a timetable for steps to be taken in the arbitration and for the hearing of the arbitration.

Rule 23 - Judicial Seat of Arbitration

Unless otherwise agreed by the parties, the judicial seat of arbitration shall be New Delhi.

Notwithstanding Rule 22.1 and 22.2, the Tribunal may, unless otherwise agreed by the parties, hold hearings and meetings anywhere convenient, subject to the provisions of Rule 28.2.

Rule 24 - Language of Arbitration

The language of arbitrators shall be English. In case of material existing are in any other language, other than English the same has to be translated to Englishlanguage.

Rule 25 - Conduct of the Proceedings

The Tribunal shall have the widest discretion allowed by the Act to ensure the just, expeditious, economical and final determination of the dispute. The proceedings shall be conducted from 10.AM to 5PM with a recess of one hour.

Rule 26 - Communication between Parties and the Tribunal

Where the Tribunal sends any written communication to one party, it shall send a copy to the other party or parties as the case may be.
Where a party sends any written communication (including Statements, expert reports or evidentiary documents) to the Tribunal, the same shall be copied to the other party or ail other parties, whichever is applicable, and show to the Tribunal that thesamehasbeensocopied.

The address of the parties for the purpose of all communications during the proceedings shall be those set out in the Notice of Arbitration, or as either party may at any time notify the Tribunal and the other party or parties, whichever is applicable.

A copy of correspondence between the parties and the Tribunal shall be sent to the Secretary.

Rule 27 - Party Representatives

Any party may be represented by legal practitioners or any other representatives, subject to such proof of authority as the Tribunal may require. The names and addresses of such representatives must be notified to the other party or parties. In case one party is represented by non-legal person, another party will also be

represented by non-legal person so as to maintain natural justice.

Rule 28 - Hearings

Unless the parties have agreed on documents-only arbitration, the tribunal shall hold a hearing for the presentation of evidence by witnesses, including expert witnesses, or for oral submissions.

TheTribunalshallfixthedate,timeandplaceofanymeetingsandhearingsinthe arbitrationsonthefirsthearing,andcompletetimetablepertainingtoalltheactivitie s oftheArbitratione.g.submissionofstatementofclaim,reply,counterclaim,reply therein, admission and denial of documents, visit/inspection of site if any. The tribunal shall stick to the time table with without any deviations unless there are unavoidable circumstances warranting such deviation which will be with the prior permission of thetribunal.
Prior to the hearing, the Tribunal may provide the Parties with matters or questions towhichitwishesthemtogivespecialconsideration.

In the event that a party to the proceedings without sufficient cause, fails to appear at a hearing of which the notice has been given, the Tribunal may proceed with the arbitration and may make the Award after the party present has submitted evidence to prove its case.

All meetings and hearing shall be in private unless the parties agree otherwise.

Rule 29 - Documents Only Arbitration

TheDisputesmaybedecidedwithoutanoralhearingifitissoagreedbytheparties.

Where the parties agree to dispense with oral hearing, the Tribunal must be promptly informed by either of the parties, as soon as is practicable. The Tribunal must also be promptly informed it, at a later stage, the parties or either of them intends to apply for an oral hearing.

Parties may seek discovery of documents if they are not satisfied with existence of documents annexed with statement of claim, reply and counter claim by giving self-contained request to the Tribunal justifying the necessity for such documents. Decision of tribunal shall be final and binding uponthe parties.

Rule 30 - Witnesses

The Tribunal may require each party to give notice of the names and designations of the witnesses it intends to call and reasons for legal necessity of such witness.

No party shall call any expert witness without the leave of the Tribunal.

Any witness who gives evidence may be questioned by each party or its representative subject to any rulings made by the Tribunal,
A Witness may be required by the Tribunal to testify under oath or affirmation.

Subject to such order or direction which the Tribunal may make, the testimony of witness may be presented in written form, either as signed statements or by duly sworn or affirmed affidavits,

Any party may require a witness to attend an oral examination at a hearing. If the witness fails to attend, the Tribunal may place such weight on the written testimony as it thinks fit, or may exclude italtogether,

The Tribunal shall determine the admissibility, relevance, materiality and weight of the evidence given by any witness.

Rule 31 - Experts Appointed by the Tribunal

Unless otherwise agreed by the parties, the Tribunal may:

a. AppointoneormoreexpertstoreporttheTribunalonspecificissues;
b. require a party to give any such expert any relevant information or to produce, or to provide access to, any relevant documents, goods or property for inspection by theexpert.

Unless otherwise agreed by the parties, if a party so requests or if the Tribunal deem it fit, the expert shall, after delivery of his written or oral report, participate in an oral hearing, at which the parties may question him and present expert witnesses in order to testify on the points at issue.

Rule 30.2 shall not apply to an assessor appointed by agreement of the parties, or to an expert appointed by the Tribunal to advise solely in relation to procedural matters.

Rule 32 - Rules applicable to substance of dispute- (1) Where the place of arbitration is situated in India,

In an arbitration, the arbitral tribunal shall decide the dispute submitted to

arbitration in accordance with the substantive law for the time being in force inIndia;

Rule 33 - Closure of Hearing

The Tribunal may inquire of the parties if they have any further proof to offer or witnesses to be heard or submission to make and, if there are none, declare the hearing closed.

The Tribunal may also, in view of exceptional circumstance, reopen the hearings at any time before the award is made.

Rule 34 - Additional Powers of the Tribunal

In addition to the powers conferred by the Act, the Tribunal shall also have the power to:-

a. Allow any party, upon such terms (as to costs and otherwise) as it shall determine, to amend claims orcounterclaims;
b. Extendorabbreviate anytimelimitsprovidedbytheseRules;
c. ConductsuchenquiresasmayappeartotheTribunaltobenecessaryorexpedient;
d. Orderthepartiestomakeanypropertyorthingavailableforinspection
e. Order any parties to produce to the Tribunal, and to the other parties for inspection, and to supply copies of any documents or classes of documents in their possession, custody or power which the Tribunal determines to be relevant;
f. Makeordersogivedirectionstoanypartyforinterrogatories;
g. Make orders or give directions to any party for an interim injunction or any other interim measure;
h. Make such orders or give such directions as it deems fit in so far as they are not inconsistent with the Act or any statutory re-enactment thereof or such law which is applicable or theseRules.

If the parties so agree, the Tribunal shall also have the power to add other parties (with their consent) to be joined in the arbitration and make a single Final Award determining all disputes between them.

Rule 35 - Deposits to Costs and Expenses

The Tribunal's fees and SAROD administration fees shall be ascertained in accordance with the Schedule of Fees in Force at the time of commencement of the arbitration.

The Claimant shall deposit with the SAROD half of the fees payable at the time of filing of the Statement of Case. The Respondent shall deposit with the SAROD one- half of the fees payable at the time of filing the Statement of Respondent's Defence and Counterclaim (if any). The balance of fees payable shall be paid 60 days before the date of the final hearing or on such other date that the Secretary may direct.

Where the amount of the claim or the counterclaim is not quantifiable at the time payment is due, the Secretary will make a provisional estimate. The fees will be adjusted in the light of such information as may subsequently become available.

If the arbitration is settled or disposed of without a hearing, the amount of theTribunal's feesandSARODadministrationfeesshallbefinallydeterminedbytheSecretarywho will have regard to all the circumstances of the case, including the stage of proceedingsat whichthearbitrationissettled orotherwisedisposedof.

The Secretary may from timeto time direct parties to make one or more deposit(s) towards any further expenses incurred or to be incurred on behalf of or for the benefit of the parties.

All deposit(s) shall be made to and held by the SAROD. Any interest which may accrue on such deposit(s) shall be retained by the SAROD.

If a party fails to make the payments or deposits required or directed, the Tribunal may refuse to hear the claims or counterclaims, whichever is applicable, by the non- complying party, although it may proceed to determine claims or counterclaims by any party who has complied withorders.

The parties shall remain jointly and severally liable to the SAROD for payment of all such fees and expenses until they have been paid in full even if the arbitration is abandoned, suspended or concluded, by agreement or otherwise, before the final Award is made.

Rule 36 - Decision Making by the Tribunal

Where a Tribunal has been appointed, any direction, order, decision or award of the Tribunal must be made by the whole Tribunal or a majority. If an arbitrator refuses or fails to sign the Award, the signatures of the majority shall be sufficient, provided that the reason for the omitted signature is stated.

If there is no unanimity, the same shall be made by the majority arbitrators as well as by the dissenting Arbitrator alone as if acting as a sole arbitrator.

However, in the case of a three-member Tribunal the presiding arbitrator may, after consulting the other arbitrators, make procedural rulings alone.

Rule 37 - The Award

It will be mandatory for the parties to submit written synopsis of their arguments respectively which will form part of the arbitral proceedings.

The Tribunal shall assemble at the assigned place in SAROD and shall exercise utmost secrecy and confidentiality in writing the award,

Unless the Secretary extends the time or the parties agree otherwise, the Tribunal shall make its Award in writing within 30 days from the date on which the hearings are closed and shall state the reasons upon which its award is based. The award shall contain the date and shall be signed by the arbitrator or arbitrators.

The Tribunal may make interim awards or separate awards on different issues at different times.

All Awards must be submitted by the Tribunal to the Secretary and they shall be issued through the Secretary.

The Tribunal must deliver to the Secretary number of originals of the award sufficient for the parties and for filing with the Secretary.
The Secretary shall release the award to the parties only upon receipt of sufficient deposits to cover the fees and expenses due to the Tribunal and to the SAROD.
By agreeing to have arbitration under these Rules, the parties undertake to carry out the award without delay.
Stamp duty on award shall be payable by the party in whose favor the award has been pronounced.

Rule 38 - Additional Award

Within 30 days after the receipt of the award, either party, with notice to the Secretary
andtheotherpartymayrequesttheTribunaltomakeanadditionalawardastoclaims

presented in the arbitral proceedings but omitted from the award.

If the Tribunal considers the request for an additional award to be justified and considers that the omission can be rectified without any further hearings or evidence, it shall notify all the parties within 7 days of the receipt of the request, that it will make and additional award, and complete

the additional award within 30 days after the receipt of the request.

Rule 39 - Correction of Awards

Within 30 days of receiving an Award, unless another period of time has been agreed uponbytheparties, a partymaybynoticetotheSecretaryandtheotherpartyrequest the Tribunal to correct in the Award, any errors in computation, any clerical or typographical errors or any errors of similar nature.

If theTribunalconsidersthere questtobe justfied,itshallmakethecorrections)within 30 days of receiving the request. Any correction shall be notified in writing to the parties and shall become part of the Award.

The Tribunal may correct any error of the type referred to in Rule 37.1 on its own imitative within 30 days of the date of the Award.

Rule 40 - Settlement

If, the parties arrived at amicable settlement of the dispute during the currency proceedings, the parties shall file memo of settlement before the tribunal who shall either issue an order for the termination of the arbitral proceedings or, if requested by both parties and accepted by the Tribunal, record the settlement in the form of an arbitral award on agreed terms. The Tribunal is not obliged to give reasons for such an award,

The Parties shall:

a. Notify the Tribunal and the Secretary immediately if the arbitration is settled or Otherwiseterminated:
b. Make provision in any settlement for payment of all the costs of the arbitration and fees and expenses due to the SAROD and theTribunal.

If the continuation of the arbitral proceedings becomes unnecessary or impossible for any reason not mentioned in Rule 38.1, before the award is made, the Tribunal shall inform the parties of its intention to issue an order for the termination of the

proceedings. The Tribunal shall have the power to issue such an order unless party raises justifiable grounds for objection.

Copies of the order for termination of the arbitral proceedings or of the arbitral award on agreed terms, signed by the Tribunal, shall be communicated by the Tribunal to the parties through the Secretary.

Rule 41 - Interest

The Tribunal may award interest on any sum awarded at such rate as applicable in fixed deposits of Sate Bank of India in respect of such periods ending not later than the date of the award as the Tribunal considersjust.

Rule 42 - Costs

The Tribunal shall specify in the final award, the costs of the arbitrations and decide which party shall bear them and in what proportion they shall be borne.

In this Rule, "costs of the arbitration" shall include:

a. The fees and expenses of the Tribunal and the administration fees of the SAROD asdeterminedbytheSecretaryin accordancewiththeScheduleofFees.
b. Thecostsoftribunalappointedexpertsorofotherassistancerendered:and
c. All expenses which are reasonably incurred by the SAROD in connection with thearbitration.

TheTribunalaspowertoorder nitsAward,thatallorpart ofthelegalorothercosts(suchaslegalfeesandexpenses,costsincurredinrespectofparty appointedexpertsetc)ofonepartyshallbepaidbythetherparty.

Rule 43 - Waiver

A party which is aware of non-compliance with these Rules and yet proceeds with the arbitration without promptly stating its objection in writing to such non-compliance shall be deemed to have waived its right toobject.

Rule 44 - Exclusion of Liability

The Tribunal, the President, the SAROD and any of its officers, employees or agents shall not be liable to any party for any act or omission in connection with any arbitration conducted under these Rules,

After the Award as been made and the possibilities of corrections and additional Awards have lapsed or been exhausted, neither the Tribunal nor the President shall be under any obligation to make any statement to any person about any matter concerning the arbitration, and no party shall seek to make any arbitrator

or the President or the SAROD and any of its officers a witness in any legal proceedings arising out of the arbitration.

Rule 45 - General Provisions

In all matters not expressly provided for in these Rules, the President, the Secretary andtheTribunalshallactinthespiritoftheseRulesandshallmakeeveryreasonable effort to ensure the just, expeditious and economical conclusion of thearbitration. The Secretary may from time to time issue Practice Notes on the implementation of these Rules.

Rule 46 - Amendment to Rules

These Rules may from time to time be amended by the Governing Body ofSAROD.

6ntract Data

Items marked "N/A" do not apply in this Contract.

S. No.	Description	Clause Reference

1.	The Employer is **Chairman, NHAIAddress:G-5 & 6, Sector-10, Dwarka, New Delhi** Name of authorized Representative of Employer: **The General Manager - Regional Officer-West-UP National Highways Authority of India** **3/248, Vishal Khand, Gomti Nagar-Lucknow-226010** **E-mail: rowestup@nhai.org** **Phone No. 0522-4960291**	[Cl.1.1]
2.	The Engineer: Supervision Consultant which will be intimated later	[Cl.1.1]
3.	The period of work and services is : 17 months	[Cl.1.1, 17&28]
4.	TheSiteislocatedatIncident Management on Four Lanning of Bareilly-Sitapur section of NH-24 from km.262.000 to km. 419.590 in the state of Uttar Pradesh	[Cl.1.1]
5.	The Start Date shall be 7 days after the date of issue of the Notice to proceed	[Cl.1.1]
6.	(a) The name and identification number of the Contract is: [Cl.1.1] --- "(b) The Works consist of " The Scope of Work providing incident management by way of route patrol and surveillance, Tow away crane, Ambulance, includes Asset Management of Road facilities and services created within ROW on the above mentioned sections of National Highways including up keeping of carriage way , shoulders, etc., road property management, for a period of 17 months.	[Cl.1.1]
7.	(a) The law which applies to the Contract is the law of Union ofIndia. (b) The language of the Contract documents isEnglish	[Cl.3.1]
8.	The limit of subcontracting is 50% of initial contract price	[Cl.7.1]
9.	Schedule of Other Contractor – NIL	[Cl 8.1]
10.	Technical personnel are as given in the ITB (section-II).	[Cl 9.1]
11.	Amount for insurance are:	[Cl.13.1]

	a) Rupees equivalent to Contractprice. b) Rupees equivalent to 5% of Contract price. c) Rupees equivalent to 5% of Contractprice. d) Rupees 20 lakhs for multiple incidents. As per standard industrial norms. And deductible as per premiumrate	
12.	Site Investigation Report – NIL	[Cl 14.1]
13.	(A) The period for submission of the programme for approval of Engineer shall be 3 days from the issue of Letter ofCommencement. (B) (a) Identified indented work – Weekly Indent-3 days before start ofweek (2) Emergent Indent – Within 24 hours.	[Cl.27.1]
14.	Amount to be withheld for delays in submission of updated programme: 1% of value of work corresponding to the updated programme	[Cl.27.3]
15.	The period for setting up a field laboratory with the prescribed equipment relevant toitemsofworkinBOQis7daysfromthedaysfromthedateofnoticetostartwork.	[Cl.32]
16.	There will be no defect liability period since it is for providing facilities and routine service.	
17.	(a) Amountof liquidated damages for delay in completion of works-*For identified Indented work 0.1 percent of the Indented value, rounded off to the nearest thousand, per day with the minimum of Rs. 10000/-per day*	[Cl.45.1]
	(b) Maximum limit of liquidated damages for delay in completion of work-*10 per cent of the Initial Contract Price rounded off to the nearest thousand.*	
18.	The standard form of Performance Security acceptable to the Employer Shall be an unconditional Bank Guarantee of the type as presented in the Bidding Documents.	[Cl. 47.1]
19.	Other fundamental breach is that the contractor has failed to complete 75% of value of indented work in any 3 indents issued by the Engineer.	[Cl. 53.2 (j)]
20.	The percentage to apply to the value of work not completed representing the Employer's additional cost for completing the work shall be 20%.	[Cl. 54.1]

Section-VI- SCOPEOF WORK

General

- **Road property management** – Identification of encroachments and ribbon development, enforcement of regulations, Liaoning with the relevant authorities for above including procurement of land records with ownership as per mutation from the concerned Revenue Authorities and help in mutation,etc.

- **Incident management -** Road patrols and surveillance, Ambulance facility, first aid, basic automobile assistance, tow away cranes, wireless/mobile facility and road safety works, Management and running of Medical aid post, Traffic Aid Postetc.

RoadMaintenance

The Contractor shall be required to perform all Brooming/cleaning of project Highway main carriageway service road intersection/ Minor and Major Junction, shelter lane etc., uprooting of bushes from shoulder/ Median, periodic cleaning of signage, etc as specified in BOQ. The Contractor shall be required to submit Maintenance Report for each component of the works.
The Contractor shall be required to utilize mechanized equipment and methods to perform these obligations.
All maintenance activities shall be carried out in accordance with relevant specifications and IRC codes prescribed in the contract. The requisite quality control tests as per specifications and codes are to be carried out by the Contractor at his cost as per directions of the Engineer.
Routine road maintenance means planned works and activities required to ensure public safety, repair small defects and to maintain the road in the required condition.

Ad hoc maintenance means carrying out of unscheduled maintenance occasioned by irregular events such as accidents, natural calamities, abnormal weather conditions and the like.
The routine and ad hoc Road Maintenance shall include, amongst others, activities such as:
•Brooming cleaning of projectHighway.

- uprooting of bushes from shoulder/Median
- Clearing of Litter and Debris from roads andstructures
- Clearing, clearing ofDrains.

6.2.1. HorticulturalMaintenance

Deleted

Road propertymanagement

The Contractor shall ensure the maximum availability and efficient utilization of the assets for the NHAI. This shall also include the protection of the right of way from encroachments and other unauthorized activities.
For this purpose, the Contractor with the help of the Authority Representative and Revenue Authority shall maintain Land Record RegisterforentireNHROW andshallalsodrawup comprehensive asset register detailing the condition of the entire existing road and building assets. This asset registers h a l l be maintained and continually updated after any additions to the infrastructure and after each of the required inspections.

Any damage or loss to asset of highway like signage's, delineators, boards etc. by way of theft or due to negligence of the Contractor shall be fully recoverable from the Contractor.

6.3.1. Unauthorized Encroachments

The strict enforcement of the requirements of the NHAI shall be a significant obligation under the Contract. The NHAI shall define the RightofWayandtheirrequirementswithrespecttoun-authorized accesses,encroachmentsandthelike.
The Contractor shall be required to detect report, use it's best endeavors and remove all unauthorized encroachments within the right of way as soon as possible. The Contractor shall be required to record all such encroachments and seek any assistance fromPolicelocal authorities and the NHAI as it deems fit, in order to ensure that all such encroachments areremoved.
At the start of the Contract, the Contractor shall be required to determine all encroachments and unauthorized accesses to the highway, existing at time being granted access to site. The Contractor shall list out the encroachments with a description, location and extent of each encroachment, draw up a method statement and programme for the removal of the unauthorized accesses or encroachments for approval by the NHAI. All existing encroachments shall be removed, and un authorized accesses closed within 3 months of the Contractor being granted access to

site.

IncidentManagement

The Contractor shall set up and maintain an Incident Management System (IMS) and supply regular incident statistics to NHAI.

Incident Management entails a set of coordinated activities initiated by the Contractor when an incident (an extraordinary event resulting in the reductionofroadcapacityorcreatesahazardfor users)occurs,inorder to minimize the effects of the incident and restore normal capacity and safety levels to all affected road facilities as efficiently aspossible

The Contractor has to identify relevant agencies (e.g. rescue, fire, hazardous materials, traffic, police, ambulance, hospitals, alternative routes, cleanups) and their representatives and to liaise with these representatives on behalf of the employer.

The incident management center on the project highway (shall be continuously staffed on a 24 hours basis. The Contractor shall maintain records of the details of all incidents (e.g. collision, hazardous material, breakdown,etc). After occurrence of any major incident, resulting in multiple loss of life, significant periods of road closure or major route rehabilitation work, an incident debriefing report shall be produced and forwarded to NHAI within 24 hours of occurrence. The Incident Management Centre shall monitor the location of route of incident management vehicles
/ Rescue operation vehicles through VTS on continuous basis.

Contractor will keep a record of the removed accidental/damaged vehicles by taking a dated photograph of the same and will submit the report on weekly basis to the Employer/Engineer.

Contractor will remove dead animals/birds from the carriageway and bury them at a suitable location as directed by the engineer/employer within two hours of the incident and accident vehicles/Debris within 4 hours. If contractor fails to remove the dead animals/birds from the carriageway within two hours of the incident, he will be levied a penalty of Rs. 10,000/-per such incident.

The incident management vehicles such as ambulances and patrol vehicles duly fitted with GPS/VTS shall be deployed strictly in compliance with NHAI HQ, New Delhi vide Policy No. 12.19 Dated 20.03.2018 (enclosed with the RFP Document).

RoutePatrols

The O&M contractor is required to provide 24hrs per day route patrols to assist the road users of the highway, to provide information, feedback and perform functions in relation to incident management.

Toachieve this, the Patrol vehicles fitted with VTS should be fully equipped as well as the patrol persons should be adequately trained in traffic management, road safety and primary first aid. The purpose of these patrols is to:

- Provide the users of the highway with basic mechanical help for vehicles that breakdown on the road and also protect other users from suchvehicles.
- Immediately identify traffic hazards of whatever nature, such as unauthorized parking, public transport vehicles, and obstructing traffic during passenger loading and unloading, debris, stray animals and the like. The operator shall take the necessary measures to remove suchobstructions.
- Provide emergency management at accident scenes until such time as the appropriate authorities arrive.
- Assist with the removal of damaged or mechanically impaired vehicles from the highway.
- Provide road user information and to further the image of National Highway Section.
- Maintaindailyrecordsofassistanceprovidedtoroadusers.
- Observe, record and report suspect aspects of the highway, hazards and incidental damage caused by vehicles, floods, storms or other random events, such that the highway maintenance records and database arecontinuously improved.

  Each Route Patrol vehicle shall run minimum 10000 km per month to be eligible for monthly payment.

I Patrol VehicleSpecification

Patrol Vehicle Specifications

Every Patrol Vehicle (PV) should adhere to the minimum specifications as described below:

General Vehicle

Type	Description
1. Vehicle type	• PV should be a large size Sport Utility Vehicle(SUV) or Multi Utility Vehicle(MUV) with a seating capacity of minimum 4 people • PV should have trunk with open ceiling at the rear end of the vehicle with minimum trunk dimensions of 1400mm x 1400mm x 900mm where 1400mm is the length of trunk measured from inside, 1400mm is the breadth of trunk measured from inside and 900 mm is the height measured from the surface of trunk to the top ceiling of the seating area of the vehicle • The PV should be a new vehicle and should not have covered more than 2000 km at the time of procurement (from date of first registration) • PV should be able to accelerate from 0km/ h to 80 km/ h within 20s with a top speed of 80 km/h when tested in accordance with IS: 11851-1986
2. Two-External equipments	• PV should have high intensity red and blue blinkers along with light bar mounted on top of a vehicle • PV should have 1 Portable Variable Message Sign(VMS) for large display of warning. The portable VMS Should have a single line display with the minimum height of 200 mm for each character. The overall length of signboard should be atleast 1500mm and display color should be red. VMS should be clearly readable from 50 m distance. • PV should have provision for fog lights • PV should have beacon lighting - white color flashing light mounted at the top of the vehicle
3. Branding and recognition	*The PV conspicuity code is split into three Sections* ○ Color ○ Conspicuity Improving Items ○ Recognition of personnel The Section "Color" describes the vehicle basic color. The Section "Conspicuity Improving Items" includes all Symbols,

Type	Description
	Marking and Striping defined as such by this standard. The Section "Recognition of personnel" describes the dress code and safety garments of Patrol Vehicle personnel. • **Color** – The basic color of the complete exterior of PV should be brilliant blue, front, rear and side bumpers included. The color should be weather resistant and withstand daily cleaning and washing. ○ **Conspicuity Improving Items** ○ This definition includes all marking and symbols as shown in the sketch below. The vehicle should be painted with brilliant blue on the entire body. ○ PV should have "NHAI Highway Surveillance Unit" written on all four sides of the vehicle in brilliant red color of retro reflective quality as shown in figure 5. ○ PV should have a text at the centre of all four sides of the vehicle with "Emergency Number" written on top and "1033" written right below "Emergency Number" in brilliant red color of retro reflective quality. The "Emergency Number" marking should be atleast 10 cm high and the ratio of height of "1033" and "Emergency Number" should be 2:1 ○ **Recognition of personnel** ○ All PV Personnel should wear brilliant blue color uniform including brilliant blue color jackets required in winters ○ Safety garments for PV personnel should conform to at least ISO 14116:2008.

The branding and recognition pattern of PV described above should resemble with the one shown in the sketches below:



Figure 5 : PV - Side View

Equipments

Following are the list of equipments and specification of each to be kept in working condition in every PV

Type	Description
1. **Tracking equipments**	• Automatic vehicle tracking system with GPS technology for tracking vehicle's current location; Information to be viewable on GIS software
2. **Communication Equipments**	• 1 Two- way radio device with antennae or better technology for mobile communication, for communication with Regional Command Center and with on-road units. Should have a sufficient range to communicate in the entire region(or state) & sufficient battery life (12 hours+) • 1 Public address system consisting of microphone, amplifier and loudspeaker to address the traffic in case of accident, should have minimum 100 W amplifier with loud sound • 1 Cellular phone for communication
3. **General Surveillance Equipments**	• 1 Digital Camera with minimum 5 megapixel camera quality • 2 white color high intensity torch lights with two set of spare batteries • 3 Orange color reflective safety jacket along with gum boots and helmet (1 for every attendant)

Type	Description
	• 3 Rain suit (1 for every attendant of Surveillance Unit) • 2 units of liquid containers with minimum 5 L capacity for carrying petrol/diesel along with a funnel • 1 water container • 1 rope of minimum 20 m length • 10 orange/red color reflective flags of atleast 300 mm height • 1 whistle • 2 hand signals
4. Vehicle Repairing Equipments	• 3 pairs of leather gloves • 2 ton hydraulic jack capable of lifting car, bus and light trucks, should be able to attain a maximum height of atleast 300 mm • 1 Heavy duty steel towing chain of minimum 1.5 m length • 1 Animal hook • 1 Tire gauge with minimum 0-50 psi range and tire sealant • 1 Portable tire inflator pump capable of filling tires upto a pressure of 50 psi; should be able to inflate tires of cars, buses and light trucks • 1 pair of Starter leads with multimeter: For making connections with external power source • 1 Tow bar for towing purposes • 1 Mechanical toolkit with equipment like hammer, fencing pliers, mallet, ratchet wrench set, screwdriver set, battery brush, etc.
5. Extrication & First Aid Equipments	• 1 Portable electric windshield cutter operated by battery or external power source, should be able to cut all type of windshields causing minimum glass dust • 1 Hydraulic/electric portable hand cutter and spreader combined tool, should be able to cut off vehicle parts, metal structure, steel plate. Should have maximum cutting force > 250 KN, spreading force ≥ 25KN with opening distance of Blades > 150 mm • 4 wooden wedges, 4 rectangular wooden blocks of minimum dimensions 150 * 120 * 60 mm for stabilizing light and heavy vehicles

Type	Description
	• Two struts capable of stabilizing a vehicle of minimum 1500 kg weight • 1 Long spinal board (with head immobilizer & securing straps and plastic material at high strength, should be waterproof & conforming to EN 1865 standard • 1 Cervical collar for both kids & adults (should have pre-molded chin support, locking dips and rear ventilation panel and an enlarged trachea opening, should have high density polyethylene and foam padding, should be X-ray lucent and easy to clean and dis-infect) • 1 KED extrication device for both kids and adults should be made of polymer/wooden bars in a nylon jacket • 1 Pick-up stretcher conforming to EN 1865 standard (minimum usable length of 1650 mm and extendable to a minimum of 2010 mm, minimum width of 400 mm, mass not more than 11 kilograms & should have minimum loading capacity of 150 kilograms) • 1 First aid kit • 2 woolen blankets • 1 Map locating nearest hospital, police station, fire station

6. Scene Management Equipments	• Minimum 10 Reflective cones of 750 mm each, should be orange in color with retro-reflectorised white band and a heavy rubber base with minimum possibility of being displaced by wind/vehicular traffic
	• 4 kg dry Powder Fire Extinguisher
	• 3 pairs of Rubber gloves
	• 1 Hard bristle broom
	• 1 Shovel
	• Sign boards with messages
	  ○ 3 - "Accident ahead"
	  ○ 3 - "Lane merging"- 3 units
	  ○ 3 - "Direction arrows" - 3 units
	  ○ 2 - "Speed Limit" (80, 60, 40)
	  ○ 2 - "Keep left/right"
	  ○ 2 - "Lane closure"
	  ○ 2 - "Men at work"
	  ○ All signs should be of retro reflective sheeting of High intensity grade or Prismatic grade

Type	Description
	• 9 units of Sign stand (for triangular and circular sign) for height between 1.5 m to 2 m • 2 Reflective type barricade, tape • 3 pairs of safety glasses and masks for protection of safety officers from glass debris/ airborne dust. • 10 kg sealed bucket with lime or cement inside

Manpower and Trainings

Type	Description
1. Highway surveillance in-charge	• *1 Highway surveillance in-charge should be appointed per shift per vehicle* • Employee appointed should have minimum 2 years of relevant experience in route patrolling and traffic management. • Employee appointed should be able to read/write and maintain log books. • Employee appointed should undergo trainings including fields such as o Vehicle use and maintenance o Safety policies o Radio and communication procedures o Public relations/ customer service o Defensive driving o Public relations/customer service o Maintenance of traffic o Vehicle recovery procedures o Victim extrication procedures o Extinguishing vehicles fires o Basic first aid training o Work side protection o Minor vehicle repairs
2. EMT	• *1 EMT should be appointed per shift per vehicle* • Basic qualification of EMT - Diploma in E.M.T. • B.Sc. (PCB) with certification in BLS/ ALS/ ACLS/ ITLS (or) B.Sc Nursing/ GNM/ ANM (or) B.Pharma/ D. Pharma or any other equivalent paramedical course from recognized university/institution of IMC/INC • Employee appointed should have minimum 2 years of relevant experience in first-aid and life saving emergency skills including spinal immobilization, bleeding control,

Type	Description

	oxygen therapy, defibrillation and medicine administration.
	• Employee appointed should undergo atleast one training (with duration of minimum one month) in tertiary care institution or at a recognized institute with experience in handling life-saving equipment.
	• Basic training of employee should include fields such as
	  • Vehicle and equipment use and maintenance
	  • Victim extrication from a crashed/damaged vehicle
	  • Safety policies
	  • Radio and communication procedures
	  • Public relations/customer service

3. Driver/helper	• 1 driver/ helper should be appointed per shift per vehicle
	• Employee appointed should have a valid license to drive a SUV vehicle.
	• Employee appointed should be able to read/ write & maintain log books.
	• Basic training of employee should include fields such as
	  o Vehicle driving along multiple shifts
	  o Minor repairing of vehicle
	  o Vehicle and equipment use and maintenance
	  o Radio and communication
	  o Work site protection

I Ambulance

Specification of "2 Patient Capacity Ambulance" is attached. The vehicle shall run minimum 800 km per month to be eligible for monthly payment.

Annexure - I

'2 patient capacity' Rescue Ambulance Specifications

Every '2 patient capacity' rescue ambulance should adhere to the minimum specifications as described below:

Vehicle Characteristics

General Construction

- The road rescue ambulance shall comply with homologation requirements given in standards notified under CMVR 1989 and the AIS-125 Code. Wherever, there is difference in the homologation requirements given in other standards notified under CMVR 1989 and AIS-125 code, the requirements of AIS-125 code will be applicable.
- The rescue ambulance vehicle shall be a Swaraj Mazda/ Tempo traveler or equivalent which should be a new vehicle and should not have covered more than 2000 km at the time of procurement (from date of first registration)

Performance Requirements

- The road rescue ambulance loaded to the permissible gross vehicle weight shall be able to accelerate from 0 km/h to 70 km/h within 40s, when tested in accordance with IS: 11851-1986.

Electrical Requirements

- **General**
  - Electrical installations shall comply with those Clauses of IEC 60364-7-708 which are applicable to rescue ambulances.
- **Battery and alternator**
  - Batteries shall be positioned to allow maintenance without removing the battery from its securing device. The construction of the battery and all connections to it shall be such as to prevent any possibility of an inadvertent short circuit. Additional batteries may be required to power the medical devices carried on board and the intended use of the rescue ambulance. In such cases, the manufacturer shall ensure optimal charging of the additional batteries without any impact on the primary vehicle battery. The additional circuit shall not draw current more that specified by the manufacturer.
  - Indicative Capacity / Power (These values are given as a broad guideline only. The manufacturers may alter them based on vehicle characteristics and operational requirements) should be as per the below mentioned table

Indicative capacity/ power requirements		
Additional Battery(ies) (if deployed)	Nominal Voltage 12V	80Ah
	Nominal Voltage 24V	63Ah (2x12V
Alternator Power		700W

- When the engine is idling, electrical stability should be maintained between electrical load and alternator output. In order to achieve this it may be necessary to fit an electrical load prioritization device to the vehicle.
- Manufacturer shall give declaration regarding the certified capacity of the electric system of the vehicle model in the following format:

Sr.No.	Rescue Ambulance Type	Additional Electric Load of Medical Equipment's permissible (Watts)
1	C/ Basic Life Support	XXX

- This shall be prominently displayed in the patient compartment at an appropriate location. Further each electrical socket provided in the patient compartment should be permanently labelled as regards its voltage and amperage.

- **Electrical installation**
  - Recessed externally mounted power connector to enable external power to be provided for operations such as the following:
    a) Charging battery (ies).
    b) Operating medical devices, when installed.
    c) Operating a stand-alone patient compartment heater, when installed.
    d) Operating an engine pre-heater, when installed.
  - The connector for 220/240 V, shall be a male connector and not interfere with the electrical and mechanical safety.
  - It shall be not possible to start the engine whilst it is connected to an external 220/240 V power supply unless an automatic mechanical disconnection is fitted. If no automatic mechanical disconnection is fitted, the connector shall be on the driver's side. The 220/240 V circuit shall be protected either by an "earth leakage device" with a maximum setting of 30 mA or by a separate transformer. If the protection is given only by an "earth leakage device" there shall be a label near the plug that reads as follows: "CAUTION! CONNECT ONLY TO AN AUTHORISED SOCKET."

- The patient's compartment shall be fitted with a minimum 4 number of connections. For these connections a permanent power supply shall exist.
- Any additional electrical systems fitted to the base vehicle shall be separate from the base vehicle electrical system and the body or chassis shall not be used as an earth return for additional circuits. All circuits in the additional system(s) shall have separate overload protection. Overload protection may consist of either fuses or so called Electronic Management Control systems. All circuits shall be well defined and cables clearly marked at the connection points and at a maximum of 1m intervals along its length.
- The system shall have enough circuits and be so constructed that when/if a circuit fails all illumination and medical technical equipment can be switched to an alternative power source.
- The wiring and, where applicable conduits, shall withstand vibrations. No wiring shall be located in or pass through conduit intended for medical gas installation. The wiring shall not be loaded higher than that stated by the wire manufacture.
- Where there are different voltage systems, the connections shall be non- interchangeable.

Vehicle Body

- **Fire safety**
  - All interior materials shall comply with the flammability requirements specified in IS: 15061, as notified under CMV (A) R, 1989 though the standard does not cover rescue ambulance in the scope.
- **Fitment of fire extinguisher**
  - The rescue ambulance shall be equipped with Two fire extinguishers of 2 Kg each.
- **Minimum loading capacity**
  - The minimum loading capacity of at least 2 stretcher facilities in the patient compartment. Serious casualties/ patients must not be transported on patient compartment seat without use of stretcher & proper restraining support provided to the patient.
- **Partition wall**
  - Full partition wall or a partition wall with a door or a window shall separate the driver's compartment from the patient's compartment. Where a door is fitted, it shall be secured against opening if the road rescue ambulance is in motion.

- One or two windows with a minimum separation of 100 mm shall be provided in the partition wall made of material complying with the requirements of CMVR. The windows shall allow direct visual contact with the driver. The opening area of the window shall have a maximum area of 0,12 m^2. It shall be secured against self-opening and shall have an adjustable blind or other means of preventing the driver being disturbed by the light of the patient's compartment.

- **Openings (Doors, Windows, Emergency Exits)**
  - General
    a) The driver seat shall comply with the requirements of AIS-023:2005 or IS:15546-2005 as applicable and notified under CMVR. There shall be a minimum of two openings - one at the rear (door/tailgate) and one at the side (door/window) of the patient's compartment. All openings shall have seals to protect against the ingress of water and dust.
    b) All openings shall comply with the minimum dimensions set out in the following table

		Dimensions in mm
Side Opening (Optional)	Height	1300
	Width	660
Rear Opening	Height	1300
	Width	1050

  - Doors
    a) Each external door of the patient's compartment shall be fitted with a security system which enables the following:
       - lock and unlock from inside without use of a key
       - lock and unlock from outside with use of a key
       - Unlock from the outside using a key when the door is locked from the inside.
    b) **Note:** This security system may be integrated with an optional central locking system. The patient's compartment doors shall be capable of being positively restrained in the open position.

An audible or visual signal shall warn the driver when any door is not completely closed when the vehicle is in motion. The key can be a mechanical or non-mechanical device.

- Windows

a) In the patient's compartment, there shall be a minimum of two external windows. There shall be one on each side or one on the side and other at the rear. The windows shall be positioned or screened to ensure patient's privacy when required. Windows shall be fitted with safety glasses complying with the requirements of IS:2553 specified under Rule 100 of CMV(A)R, 1989.

- Stretcher loading

a) Loading area requirements shall be in accordance with the following table.

Loading Angle (Stretcher)	**Maximum**	**16o a**
Loading Height (Stretcher)	When the patient is manually loaded or unloaded on the stretcher, the centre of the stretcher handles shall be no more than 975 mm above ground level. The maximum height of either the floor or the loading holding assembly above ground level shall not exceed 900 mm at net vehicle mass plus loose equipment.	
The loading angle should be kept as low as possible		

b) Where a ramp or lift is installed between ground level and vehicle floor level it shall be covered with a anti-slip surface and capable of taking a constant load of 350 kg. In the event of a power failure the loading device shall be capable of being operated manually.

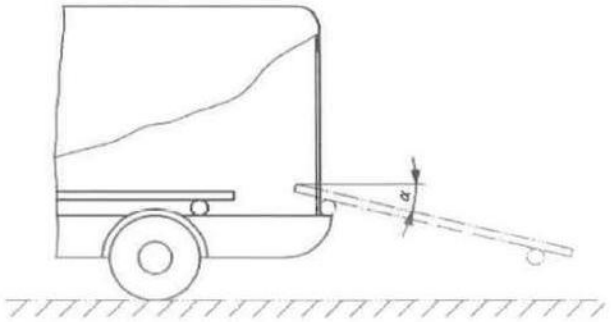


Figure 1: Loading angle for the stretcher

Patient's Compartment

- General
  - The patient compartment should have minimum internal dimensions of at least 2500 mm (length) x 1800 mm (width) x 1800 mm (height).
  - The patient's compartment shall be designed and constructed to accommodate the medical devices listed in the equipment table. The width of the patient compartment after installation of cabinets, etc. shall provide 40 ± 15 cm clear aisle walkway between the main stretcher / undercarriage and the base of squad bench / attendant seats, with the main stretcher located in the street side (non-centered) position.
  - The length of the Patient Compartment shall provide at least 64 cm and not more than 76 cm of unobstructed space at the head of the primary patient, when measured from the face of the backrest of the Doctor's/Paramedic's Seat to the forward edge of the stretcher.
  - The ceiling, the interior side walls and the doors of the patient's compartment shall be lined with a material that is non-permeable and resistant to disinfectant. The edges of surfaces shall be designed and/or sealed in such a way that no fluid can infiltrate. If the floor arrangement does not allow fluids to flow away, one or more drain with plugs shall be provided. Exposed edges that could come into contact with the occupant's hands, legs, head etc., during normal use shall have a radius of curvature of not less than 2.5 mm except in the case of projections of less than 3.2 mm, measured from the panel. In this case, the minimum radius of curvature shall not apply provided the height of the projection is not more than half its width and its edges are blunted. All installations in the patient compartment above 700 mm from floor level shall not have sharp exposed edges and shall terminate in rounded edges. Sharp edges shall meet the requirements of IS 15223 for M1 and AIS-047 for M2

as amended from time to time. Medical equipment and their holding devices (for example stretchers, platforms, suction units etc.) are excluded. Drawers should be secured against self-opening and where lockers are fitted with doors that open upwards they should be fitted with a positive hold open mechanism.

- The rescue ambulance should be equipped with a lockable drugs compartment with security lock. Floor coverings shall be chosen that will provide adequate grip for the attendant including when wet and should be durable and easy to clean.
- The rescue ambulance should also be fitted with a hand-holding device positioned above the stretcher. The hand-holding device shall be positioned along the longitudinal axis. If the patient's compartment is to be equipped with a non-foldable chair, space shall be provided with a width of at least 600 mm measured at elbow height and a ceiling height above the seat squab of at least 920 mm. Vehicle maintenance equipment (e.g. Spare wheel and Tools) shall be placed such that accessing them does not cause inconvenience to the patient

- **Patient and attendant seating**
  - The minimum number of patient and attendant seats should be as per the following table:

Minimum number		**2**
Position (s)	on one side of the stretcher	1
	on one side of the stretcher upper 2/3 end	1
Position(s) at head of stretcher		-

- **Patient and attendant seat dimensions**
  - Patient and attendant seat dimensions shall be minimum of 381 mm X 381 mm per seat. Seats fitted in the patient compartment shall be installed in either forward / sideward / rear-facing positions and shall be fitted with Two Point (Lap Belt) or Three Point Retractable Safety Belts (preferred for forward / rearward facing seats) in conformance with IS:15140-2003. Head restraints shall be fitted as applicable and in accordance with AIS-023:2005 or IS: 15546-2005. Backrests shall be constructed to a minimum dimension of 300 mm × 100 mm.
- **Patient compartment environmental equipment**

- The patient compartment shall be heated, ventilated, and air conditioned as required in accordance with the criteria specified hereto.

- **Air conditioning criteria**
  - The cooling system should be such that, given an outside and inside temperature of 32°C, the cooling down to at most 27°C in the patient's compartment should not take longer than 15 min. After 30 min a temperature of at most 25 °C should be reached.
  - The inside temperature should be measured in the centre of the patient compartment and at the mid-point from the cooling outlets (if several outlets are available). The installation of the system shall not encourage exhaust gases entering the patient's compartment.
- **Heating**
  - If the heating system is provided, the system shall be such that given an outside and inside temperature of -10°C, the heating up to at least +15°C shall not take longer than 45 min. The inside temperature shall be measured in the centre of the patient compartment and at the midpoint from the heater outlets (if several outlets are available). The installation of the system shall not encourage exhaust gases entering the patient's compartment.
- **Interior lighting**
  - Natural colour balance lighting shall be provided as set out in the table below.
  - **Note:** The colour temperature of the light will change the appearance of skin and organs. Therefore it is important that the interior lighting is suitable for patient care during transport. Although it may not be necessary in rescue ambulance use to define "daylight" or "natural colour balance" in a more exact way other than the colour temperature. The colour temperature of the interior lights should be minimum 4000 Degrees Kelvin.

Patient's compartment illumination - Minimum intensity Lux	
Patient Area (Stretcher)	150
Surrounding Area	50

  - Light levels shall be measured along the central longitudinal axis of the stretcher at the head, mid-point and foot position with the stretcher in its normal position for transportation in the rescue ambulance.
- **Interior noise level**
  - The interior noise level in the patient compartment shall comply with requirements of AIS-020. During the test, the Siren of the rescue ambulance shall be kept in the Off position.

- Ingress of dust and rain water
  - All doors, windows and hatches shall not allow ingress of dust and rain water when in the fully closed position, when tested in accordance to IS : 11739 - 1986 as amended from time to time, for recording dust ingress in automotive vehicles, and when tested in accordance to IS: 11865 - 2006 as amended from time to time, for water proofing test for automobiles.
- Mounting systems
  - Permanent seats and their anchorages in the patients' compartment, designed for use by patients and attendants when the rescue ambulance is in motion, shall comply with the requirements of IS 15546:2005 (for M1 category vehicles) and AIS-023 :2005 (for other than M1 category vehicles).
  - All items e.g. medical devices, equipment and objects normally carried on the road rescue ambulance shall be restrained, installed or stowed to prevent them becoming a projectile when subjected to accelerations/decelerations of 10 g in the forward and rearward directions.
  - When subjected to these accelerations/decelerations, the distance travelled by an equipment or an item shall not endanger the safety of persons on the road rescue ambulance.
  - After being subjected to these accelerations/decelerations:
    a) no items shall have sharp edges or endanger the safety of persons in the road rescue ambulance;
    b) the maximum distance the stretcher and any item attached to either the holding assembly or stretcher may travel shall be no more than 150 mm. The displacement of the patient during the test may exceed 150 mm;
    c) it shall be possible to release all persons in the road rescue ambulance without the use of equipment not carried on the road rescue ambulance.
  - All tested lockers, rails and non-dedicated storage locations or storage devices shall be labelled to show the total maximum permissible weight allowed.

<u>Testing of Maintain Systems and Fixations of the equipment in the Patient's Compartment</u>

- Verification of conformity to fixation and maintain systems shall be made when the stretcher(s) / medical device(s) and holding assembly is placed in the mean position of all possible positions available.
- The sample submitted for test, shall be identical to or have the same characteristics and behaviour during test as would the production item or vehicle. Note: Care should be taken that no internal / external additional reinforcement through the rig will modify the behaviour during test.
- The stretchers and chairs shall be loaded with a dummy (as specified in IS 15140 :2003) which is then secured with the restraint system.
- The head end of the stretcher shall be fixed in a position of 15° measured from the horizontal. The lying area of the stretcher tray assembly (holding assembly) shall be in a horizontal position.
- The stretcher shall be fixed on the stretcher's holding assembly. The sedan chair when provided shall also be fixed in its holder.
- The dynamic tests can be carried out with the appropriate stretcher(s) or medical device(s) installed or stowed in the holding system(s) or with weights having the mass distribution and dimensions corresponding to the mass and dimensions of the stretcher(s) and device(s) intended to be installed on or stowed in the holding system.
- In case of dynamic testing, the dynamic test shall be carried out using a patient's compartment assembly or a relevant part of the construction approved by the notified body and the following test method:
  - The test assembly shall be accelerated/decelerated in the longitudinal and transverse and vertical directions accordance with the figure below.
  - The impact speed shall be between 30 km/h and 32 km/h.
  - Test weights for use in lockers should be sand bags with masses in kg increments, with a tolerance of +10% - 0%.

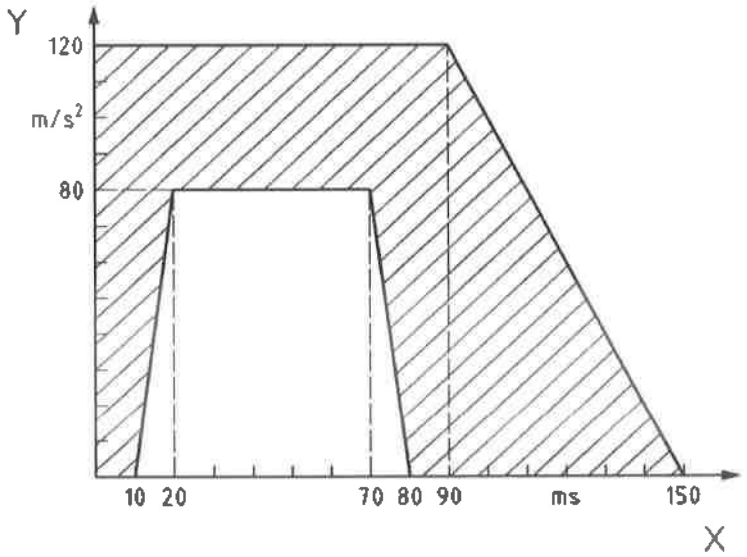


Figure 2: Acceleration impulse

Medical Devices & On-board equipment

- **Medical Devices Storage**
  - All equipment required for a set procedure shall be stored in a specified location. Essential equipment required for use outside the vehicle shall be easily accessible via normally used doors. All equipment shall be securely and safely stowed to prevent damage or injury whilst the vehicle is in motion.
- **Requirements for Medical Devices**
  - General
    - The device shall be designed for use in mobile situations and in field applications. If a medical device is designated as "portable", which is mandatory for use inside a rescue ambulance (except main stretcher, pickup stretcher, vacuum mattress & long spinal board). it shall be in accordance with IEC 60601-1 and shall
      a) be possible to be carried by one person
      b) have its own built in power supply (where relevant)
      c) be capable of use outside the vehicle
      d) be placed preferably along the street side wall of the patient compartment or along the ceiling ensuring the minimum possible distance to be connected to the patient without hindering the movement of personnel around the main stretcher
  - Temperature
    - Unless otherwise marked on the device, the device shall function as described in the following two points, when

brought back to room temperature (20°C) after storage in temperatures ranging from -30°C to 70°C.

- Unless otherwise marked on the device, the device shall function throughout the temperature range from 0°C to 40°C.
- Unless otherwise marked on the device, the device shall function for at least 20 min when placed in an environment at -5°C after storage at room temperature (20°C).

- Humidity and ingress of liquids
  - Devices shall comply with ISO 60601-1 and with particular device standards of the series ISO 60601-2 where applicable.
- Mechanical strength
  - General: Where there are not more stringent requirements for mechanical strength in particular devices standards exists, then the following mechanical strength requirements shall apply to medical devices for use in road rescue ambulances.
  - Vibration and bump: After vibration tests and bump test in accordance Vibration & Bump test, the maintain system and device shall function within the tolerances specified by the manufacturer.
  - Free fall: If the medical device is fixed, as defined in ISO 60601-1 it is exempted from the free fall test. Devices which are taken out of holders and/or carried by hand shall be submitted to the free fall test according to the Free Fall test (mentioned subsequently) and shall then function within the tolerances specified by the manufacturer. **Note:** A medical device may consist of fixed and loose components, the free fall test applies to the loose components only.
- Fixation of devices
  - The device shall be restrained by means of a fixation system.
  - The fixation system(s), maintain system(s) or storage system(s) shall hold the device to withstand accelerations or decelerations of 10 g longitudinal (forward, backward), 10 g transverse (left, right) and 10 g vertical.
  - Terminal units and electrical socket outlets shall not be used as part of the fixation system.
  - If rails systems are used, they shall comply with ISO 19054. **Note:** Rail systems consist of e.g. rail supports, rails, rail clamps, equipment mount holders, equipment mounts, equipment pin holders and equipment pins.

- Electrical safety
  - All devices shall be selected and mounted so that no harmful influence to the electrical supplies results.
- User interface
  - Buttons, switches, indicators and controls shall be easily accessible and visible. SI units (except for blood pressure and airway pressure) and standardized graphical symbols where applicable shall be used.
- Gas installation
  - All the components should be certified as per ISO/TC 121/SC6 and ISO-15001:2003 as "Compatibility of Medical Equipment with Oxygen"
  - Source of supply

    a) The source of supply shall consist of one or more of the following, as per the requirement of the source supplies in the different types of road rescue ambulances.

       i. Gas in cylinders, e.g. Oxygen

       ii. Any other compressed medical gas as required for treatment and therapy of patients.

       iii. Vacuum system

    b) **Note:** All the components of the source of supply should be certified as per ISO:7396.

    c) All compressed gas cylinders except for sizes up to 2.2 L Water Capacity, must be stored and used in an upright position with the valve end up. Only special compressed gas cylinders designed and certified for use in a horizontal position can be placed in that position.

    d) The valve of the compressed gas cylinder when is at a height of more than 1500 mm. from the ground level, the cylinder compartment should be provided with an retractable / foldable / flushed / enclosed foot step to permit the user to stand comfortably to access the cylinder valve at the time of changing the cylinders

    e) The cylinder compartment should have facility to place the regulators safely at the time of replacing empty cylinders and fitting filled ones.

    f) Rescue ambulances should never be operated with lesser number of cylinders as specified in equipment table.

- System design

a) The rescue ambulance whenever fitted with a stationary oxygen system, shall have all the essential components and accessories required for two sets of piped oxygen system which shall include as a minimum:

i. One no. Pressure Regulator for each of the supply sources (stationary as well as portable)

ii. Low pressure, electrically conductive, hose approved for medical oxygen.

iii. Oxygen piping concealed and not exposed to the elements, securely supported to prevent damage, and be readily accessible for inspection and replacement.

iv. Oxygen piped to a self-sealing duplex oxygen outlet station for the primary patient with a minimum flow rate of 100 LPM at the outlet.

In addition to the above, the ambulance shall have hospital type piped medical oxygen system (manifold) capable of storing and supplying medical grade oxygen. The system should comprise of an oxygen cylinder manifold as specified, a cylinder changing wrench, chained and clipped with/within the oxygen cylinder compartment; a pressure regulator; oxygen piping approved for medical oxygen; a duplex oxygen outlet station with quick-disconnect interface for the primary patient and a second duplex oxygen outlet station with quick-disconnect interface for the secondary patient. A medical grade oxygen pressure regulator with inlet filter & static outlet pressure of 4.12 bars / 60 psi shall be provided at the cylinder manifold. It shall include a pressure gauge, an inlet filter, a safety relief valve; a locking mechanism to prevent settings from being inadvertently changed; shall maintain accurate readings and calibrations during ambulance operation and not be affected by the temperature conditions. The manifold should have oxygen cylinders of B or D size only (minimum one D & one B type cylinder / equivalent). An adapter to refill the cylinders from a bulk cylinder should be provided.

b) The patient cabin shall have a digital display panel for oxygen supply status. The display panel should be certified for use with Medical Oxygen and should have three individual values displayed to constantly indicate the pressure level of both the cylinders as well as the distribution pressure level. The digital displays should show the actual pressure measured by three individual digital pressure sensors as per the pressure level under monitoring (one each for both the cylinders and one for the line pressure).

c) The changing from one cylinder to the other should not affect the distribution pressure in any way and this change over should occur as fully automatic operation.

d) The rescue ambulance shall be supplied with an emergency oxygen outlet for each of the stationary oxygen system available on any of the walls of the patient compartment easily accessible to the patient head end and connected directly at the output of the pressure regulator of the stationary oxygen system ensuring that any fault in the oxygen distribution system would ensure uninterrupted oxygen supply to the patient. The terminal outlets shall be of the same design and operational criteria as the self sealing duplex outlets of the distribution system.

e) Outlets shall be adequately marked and identified and not interfere with the suction outlet, whenever provided.

f) Stationary oxygen system shall be accessible from outside of the vehicle and shall be physically isolated from the patient as well as the driver compartment

- Gas piping

a) Gas piping shall not pass through cupboards and compartments, all ducts for gas installations or gas piping shall be vented.

b) The use of remote high pressure lines and gauges are not allowed.

- Stationary oxygen supply

a) The stationary oxygen supply shall comprise a source in accordance with equipment table (under normal temperature and pressure) pressure regulators and terminal units or pressure regulators with flow metering devices. Rescue ambulances should never be operated with lesser number of cylinders as that designated.

- Portable oxygen supply

a) The portable oxygen supply shall comprise a source in accordance with the equipment table (under normal temperature and pressure) and a pressure regulator with flow metering device.

- Pressure regulators and flow metering devices

a) The pressure regulators shall be directly connected to the source of supply and shall comply with the following as applicable:

b) ISO 10524-1:2006, Pressure regulators for use with medical gases - Part 1: Pressure regulators and pressure regulators with flow-metering devices.

c) ISO 10524-3:2005, Pressure regulators for use with medical gases - Part 3: Pressure regulators integrated with cylinder valves.

d) Flow metering devices for connection to terminal units and for

connection to flow-rate control units shall be of dial type without any floats and shall conform to ISO 15002.

- Terminal units

  a) Terminal units shall comply with the requirements of ISO-7396.

  b) The components of terminal unit should be cleaned as defined in "Compatibility of Medical Equipment with Oxygen" as per ISO/TC 121/SC6 and ISO-15001:2003.

  c) The terminal outlet should have an hexagonal geometrical profile to permit only geometrically matching adapters.

  d) The process of inserting the probe into the terminal unit of the distribution system as well as pressure regulators shall be:

     i. an axial force not exceeding 100N and / or

     ii. a torque not exceeding 1 N-m

  e) The process of releasing the probe from the terminal outlet should be by

     i. applying an axial force having torque not more than 1 N-m and not less than 0.1 N-m.

     ii. applying a push or pull force of not more than 110 N and not less than 20 N.

  f) When all locking provisions have been released, disconnection of the probe from the terminal unit shall require a force of not more than 100 N.

  g) Danger to personnel can occur as a result of the rapid expulsion of probes from terminal units. The design should prevent this from occurring.

  h) The terminal outlets should be colour coded as per ISO-32:1977 colour coding.

- Pneumatic power supply

  a) If the road rescue ambulance is equipped with terminal units, the range of operating pressure shall be

     i. for compressed medical gases 3.5 ± 0.5 Bar

     ii. for vacuum ≤ 0.4 Bar absolute pressure and the maximum allowable pressure change between the source of supply and the terminal units shall be

     iii. for compressed medical gases 10 % at a flow of 40 l/min;

     iv. for vacuum 20 % at a flow of 25 l/min.

- Additional outlet connectors
  a) For road rescue ambulances complying with Pneumatic power supply, one additional outlet connector (i.e. a terminal unit or a gas specific connection point) complying with the primary outlet shall be fitted in addition to the outlet connectors necessary for the devices intended to be normally used.
- Test Pressure
  a) The gas piping shall withstand a pressure of 8 Bar i.e. twice the maximum operating pressure of 4 Bar.
  b) Note: This pressure is also the maximum pressure supplied by pressure regulators in single fault condition.
- Pin-Index Cylinder Valves
  a) Pin-index outlet connections of cylinder values shall comply with IS 3224.
- Flexible Hoses
  a) Flexible hoses for connecting medical devices to outlet connectors (i.e. terminal units or a gas-specific connection points) shall comply with ISO 5359-2008. If flexible hoses are used between the pressure regulators and the terminal units, the requirements of ISO 11197 apply.
- Alarms
  a) The alarm level would be as per IEC 60601-1-8-2006.
- Marking and Instructions
  a) Marking and instructions for use shall comply with Annexure 1 of AIS 125. Operating and maintenance instructions, service records and any other appropriate regulations shall accompany the product.
  b) Standardized symbols should be used or it should be written in English or any other local language of the area where the equipment is to be used. Usage of any other local languages are not mandatory but is only advised.
- Maintenance
  a) The manufacturer shall supply instructions for carrying out preventive maintenance.

- **Mechanical Strength - Test Methods for Medical Devices for use in Road Rescue Ambulances**
  - Vibration and bump test - The medical devices shall be submitted to the following tests:
    - Vibration (sinusoidal) according to IEC 60068-2-6, Test Fc

- Frequency range: 10 Hz to 150 Hz
- Amplitude/acceleration: ±0,15 mm/2 g
- Sweep rate: 1 octave/minute
- Number of sweep cycles: 4 in each axis
- Random vibration broad-band - reproducibility medium according to IEC 60068-2-64, Test Fh
- Acceleration Spectral Density 10 Hz to 20 Hz: 0,05 g^2/Hz
- Acceleration Spectral Density 20 Hz to 150 Hz: 0,05 g^2/Hz, -3 dB/Octave
- Total RMS acceleration 1,6 grms
- Duration/axis/mounting: 30 min
- Bump according to IEC 60068-2-27, Test Ea
- Peak acceleration: 15 g
- Acceleration Spectral Density
- Pulse duration: 6 ms
- Number of bumps: 1000
- Direction: vertical, with the medical device in its normal operating position(s)

– Free fall - The medical device shall, while functioning, be submitted to the following test:
  - Free fall according to IEC 60068-2-31, Test Ec
  - Height of fall: 0,75 m
  - Number of falls: One on each of the six sides / surfaces of the device

- **List of Equipment**
  – Supplementary devices may be introduced depending on local requirements. Where applicable the equipment shall be available across the full age range of patients.
  – The minimum mass including a mass reserve required for the listed sanitary, medical and technical devices should be 225 kg.
  – The equipment shall comply with the standards mentioned against them if any. Tests conducted by notified international bodies as per the relevant standards shall be acceptable if verifiable certified copies of the test reports and certificates are available.

- All rescue ambulances must be fitted/ carry the following list of equipment with them at all times.

S No.	Equipment	Quantity
1	Main automatic loading stretcher (length 1900 mm - 1970mm, width 530 mm to 570 mm with loading capacity of 150 kg) conforming to EN 1865 standard	2
2	Scoop stretcher (lightweight aluminum stretcher, length 1600 mm - 2000 mm, width - minimum 42 cms, loading capacity - minimum 150 kgs) conforming to EN 1865 standard	2
3	Vacuum mattress (length 1900 mm - 1970 mm, width 530 mm to 570 mm with loading capacity of minimum 150 kg) conforming to EN 1865 standard	2
4	Long spinal board (with head immobilizer & securing straps and plastic material at high strength, should be waterproof & conforming to EN 1865 standard	2
5	Set of fractures/ splints made of mouldable metal or alloy (aluminum) - sizes for both children & adults and for hand & wrist, half arm, full arm, foot and ankle, half leg, full leg (all splints should be washable and reusable)	2 each
6	Cervical collar for both kids & adults (should have pre-molded chin support, locking dips and rear ventilation panel and an enlarged trachea opening, should have high density polyethylene and foam padding, should be X-ray lucent and easy to clean and dis-infect)	4 each
7	KED extrication device	1
8	Stationary oxygen - Minimum 2 Nos. of 10 L water capacity cylinders at maximum 150 kgf/ cm2 filling pressure manufactured as per IS:7285 & certified by chief controller of explosives, Nagpur along with 3/8 bull nose valve as per IS:3224	2
9	Portable oxygen - Minimum 1 Nos. of 10 L water capacity cylinders at maximum 150 kgf/ cm2 filling pressure manufactured as per IS:7285 & certified by chief controller of explosives, Nagpur along with 3/8 bull nose valve as per IS:3224	2
10	Manual resuscitator with oxygen inlet and mask	2

S No.	Equipment	Quantity
11	Airways (nasopharyngeal airways of size 6.5 mm, 7.5 mm, 7 mm, 8.5 mm & 8 mm & oropharyngeal of size 0, 1, 2, 3 & 4)	2 each
12	Electric portable suction aspirator with air flow of at least 30 L/ min and vacuum level of at least 600 mm Hg (ISO 10079-1-1999)	2
13	Manual portable suction aspirator conforming to IS 4533: 1995	3
14	Suction Catheter (12 & 16)	2 each
15	Laryngeal mask airway (for both kids & adults)	2 each
16	Infusion solutions, Litre	4
17	Equipment for injections and infusions set (IV Sets)	2
18	Infusion mounting	2
19	Tourniquet (multiple sizes) conforming to IS 7971:1987	2
20	Automatic External Defibrillator with ability to deliver shock up to 200 joules through biphasic technology; should also consist of an audio alarm	1
21	Nebulizer conforming to IS 9462: 1980	2
22	Manual B.P. Monitor (cuff size: 10 cm - 66 cm)	2
23	Portable Automatic B.P., heart rate & saturation monitor	2
24	Oximeter of ISO 9919 standards	2
25	Stethoscope conforming to IS 3391: 1965	2
26	Thermometer (min: 28 degrees to 42 degrees Celsius)	2
27	Device for blood sugar determination	2
28	Diagnostic Light	2
29	Blanket	2
30	Non woven stretcher sheet	2
31	Kidney bowl	2
32	Vomiting Bag	2
33	Non-glass urine bottle	2
34	Waste bag	2
35	Bed Pan	2
36	Sharps container	2
37	Sterile surgical gloves, pairs	5

S No.	Equipment	Quantity
38	Non-sterile gloves for single use	100
39	Basic protective clothing including high visibility reflective jacket	3
40	Safety/ debris gloves	3
41	Safety shoes	3
42	Safety helmet	3
43	Personal protection equipment against infection including disinfectants	3
44	Fire extinguishers (minimum 2 kgs) complying with IS: 13849 or IS: 2171)	2
45	Hammer	1
46	Shovel	1
47	Hydraulic Cutter/ Spreader	1
48	Warning Triangle Lights	4
49	Spotlight	1
50	Public addressal system	1
51	Two way radio transceiver or better technology for mobile communication with highway surveillance team, tow away crane & control room	1
52	Internal phone within patient compartment for communication with driver	1
53	Automated vehicle tracking system with GPS technology for continuous tracking of vehicle location	1

- **List of medicines & dressing material to be carried in rescue ambulance at all times:**

S No.	Medicines & Dressing Material	Quantity
1	Band-Aids	20
2	BETADINE SOLUTION 500ml (bottle)	1
3	Cotton roll 500gm	1
4	Crape bandage 15cm x 4mtr	2
5	Crape bandage 7cm x 4 mtr	2
6	DRESSING PAD 10CM X 10CM (pre-sterilized)	10
7	DRESSING PAD 10CM X 20CM(pre-sterilized)	10

S No.	Medicines & Dressing Material	Quantity
8	Elasto plast (dyna plaster) 10cm	2
9	Gauge cloth 80cm x 18 mtr	1
10	Gauge rolls 4 "	1
11	Gauge rolls 6 "	1
12	Plain bandage of various sizes	3
13	HYDROGEN PEROXIDE 400ML (bottle)	1
14	Micropore tape 2",4"	2
15	SURGICAL SPIRIT BOTTLE 500ML (bottle)	1
16	Glucose 100gm	2
17	I V FLUID DEXTROSE 25% (bottle)	5
18	I V FLUID NORMAL SALINE (bottle)	10
19	I V FLUID RINGER (RL) (bottle)	10
20	I V FLUID 5% GNS (bottle)	5
21	Inj adrenaline 1ml	5
22	Asthalin-neubilizing solution	5
23	Inj atropine 1ml	20
24	Inj avil 2ml	5
25	Budesonide-neubilizing solution	5
26	Inj distilled water 5ml	5
27	Inj dizazepam 2ml	5
28	Inj hydrocortisone 100 mg	5
29	Inj lasix 2ml	5
30	Inj paracitamol 2ml	5
31	Inj rantidine 2ml	5
32	Inj tramadol 2ml	5
33	Inj tranexaminic acid	4
34	Inj neostigmine	4
35	Inj haemaccel	2
36	Inj mannitol	5
37	Inj sodabicarb 7.5%	5
38	Inj metaclopromide	5
39	Inj phenytoin	5
40	Inj hyosymine bromide or dicyclomine hydrochloride	5
41	Inj methargin	5

S No.	Medicines & Dressing Material	Quantity
42	Ors 4.20gm	10
43	SYP ANTACID ANAESTHETIC GEL (bottle)	1
44	SYP PARACITAMOL 60ML (bottle)	1
45	TAB ACTIVATED CHARCOAL (strip)	1
46	TAB CLOPIDOGREL (strip)	1
47	TAB DISPRIN/ASPRIN (strip)	1
48	TAB PARACETAMOL (strip)	1
49	TAB ISOSORBRITE DINITRATE 5MG SUBLINGUAL (strip)	1
50	XYLOCAINE (WOCAINE GEL) 2% 30GM JELLY (tube)	1

Rescue Ambulance Manpower

- **1 trained EMT staff with the following qualifications/ experience**
  - Basic qualification of EMT - Diploma in E.M.T
  - B.Sc. (PCB) with certification in BLS/ ALS/ ACLS/ ITLS (or) B.Sc Nursing/ GNM/ ANM (or) B.Pharma/ D. Pharma or any other equivalent paramedical course from recognized university/institution of IMC/INC
  - Minimum 2 years of relevant experience in first-aid and life saving emergency skills including spinal immobilization, bleeding control, oxygen therapy, defibrillation and medicine administration.
  - At least one training (minimum one month) in tertiary care institution or at a recognized institute with experience in handling life-saving equipment.
  - Basic training in extrication
- **1 Driver**
  - Valid license to drive an rescue ambulance
  - Ability to read/ write & maintain log books
  - Basic training in delivering first aid & victim extrication

Rescue Ambulance Branding & Recognition

- **Recognition and visibility of rescue ambulances**

The Rescue Ambulance Conspicuity Code is split into six Sections.

i. Colour
ii. Conspicuity Improving Items (C2I)
iii. Emblems
iv. Warning Lights

v. Sirens

vi. Recognition of personnel

The Section "colour" describes the vehicles basic colour. The Section "Conspicuity Improving Items" or "C2I" includes all Symbols, Marking and Striping defined as such by this standard. The Section "Emblems" refers to every item that doesn't fall under the definition of C2I which can be private company signs or corporate identities. The Section "Warning Lights" describes colour, position, alignment, luminosity, photometric brightness, flash patterns and electrical current consumption of all used warning lights. The Section "Sirens" determines the volumes, frequencies and electrical current consumption of all used sirens and speakers.

- **Colour**
  - The basic colour of the complete exterior should be brilliant blue as per Annexure-I attached, front, rear and side bumpers included. The colour should be weather resistant and withstand daily cleaning and washing.
- **Conspicuity improving items**

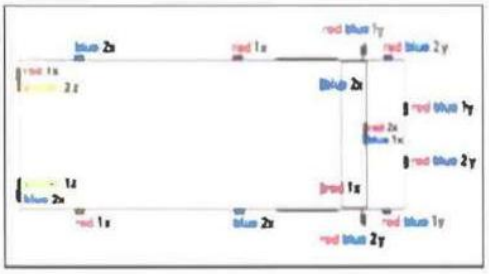
This definition includes all marking and symbols as shown in the figure 3 and 4 below. All C2I-markings should be in brilliant red, RAL- Code 3024 and in retro reflective quality. Conspicuity improving items: "AMBULANCE" markings, the Star of Life and the emergency number symbol. All "AMBULANCE" markings must follow a 7:1 ratio, length to height.

- **Front:** No less than 50% of the front side of the vehicle should be brilliant Blue in contrast to no less of 10% brilliant red. The word "AMBULANCE" on brilliant blue background, minimum of 65% of the hood width, shall be in mirror image (reverse reading) for mirror identification by drivers ahead.
- **Side:** The side of the vehicle should be equipped with a two lined red on the white ground colour as shown in figure 4. The vehicle side should be brilliant blue followed by an "AMBULANCE" marking on the same height. "Star of Life" symbol, with a size of 40cm x 40cm, and the emergency number logo, with a size of 40cm x 75cm. The vertical centre from both of them should match the vertical centre of the side windows of the driver cabin. The words "Basic Life Support" shall be marked respectively just above the word ambulance in size no less than 50% of the size of the word "AMBULANCE"

- **Emblems**
  - NHAI emblem should be placed in allowed instead of "XXX" in a non-reflecting manner and the size can't be bigger than 60% of the "AMBULANCE" markings. Ambulance Calling Number 1033 must be

displayed prominently on the side and back of the Road rescue ambulance.

- **Warning lights**
  - All warning lights have to be mounted rectangular to the horizontal ground. They must provide 100% of their intensity in a vertical angle of ±4 degrees and 50% in a vertical angle of ±8 degrees. The minimum intensity is for blue and red lights at 100cd at daylight and 200cd in the night. The horizontal minimum angle should be at least 45 degrees. All lights must flash between 2Hz and 4Hz and should be mounted as on the graphic below



Flash Pattern

1. Indicates light flashing the same time
2. Indicates light flashing
3. 180 degree out of phase with 1
4. 'x' indicates 'ON' lights in primary and secondary mode
5. 'y' indicates 'ON' light only in primary mode
6. 5 'z' indicates 'ON' light only in secondary mode

  - Lights marked with "red blue" must show red and blue in one piece one at a time. In daytime they must flash red in nighttime they must flash blue. Two lights have to be mounted in the lower middle windshield only flashing to the outside of the car. All lights should be flashing as shown in the graphic above. To switch from Primary into Secondary Mode there has to be one switch that allows only one mode.

- **Sirens**
  - All siren loudspeakers have to be mounted on the front of the vehicle. Hidden installation is allowed. The main sound direction must be in driving direction. Permitted are wail and yelp signals that cycle between 10-18 respectively 150-250 per minute at an sound pressure level of 110dB(A) to 120dB(A). The sirens should be tested in accordance with IS 1884 (though not covered in the standard). The frequency range must be at least one octave and should be between 500Hz and 2.000Hz. An additional electronic air horn can be used. Further there should be a public address system that can be worked

at all times ergonomically from the driver's seat. The siren switch can only be used if the warning lights are on.

- **Recognition of personnel**
  - Safety garments for rescue ambulance personnel should conform to at least ISO 14116:2008.



Figure 3: Rescue Ambulance - Front View

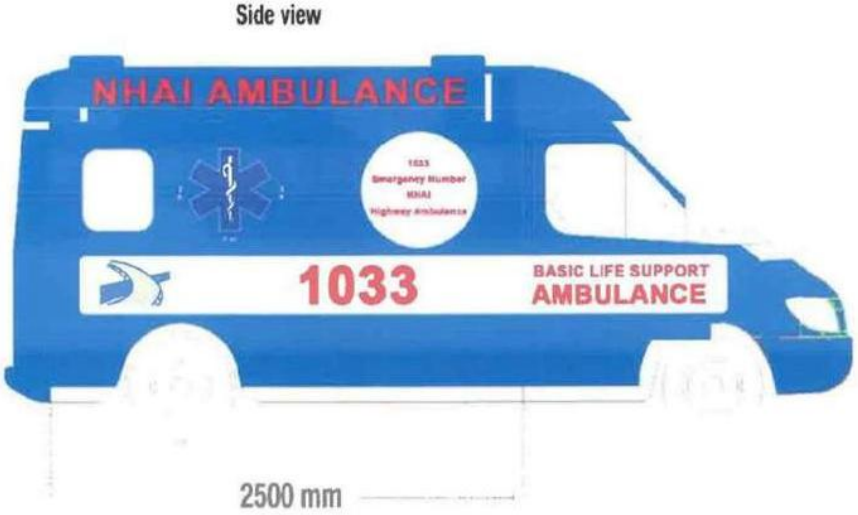


Figure 4: Rescue Ambulance Side View

Brilliant Blue Colour Code : C: 87%, M: 74%, Y: 0%, K: 0%

6.4.3 Tow Away Crane

Removing all types of broken down/vehicles which have met with accidents from the carriageway and towing the same toproper locations i.e.nearestpolicestationsorsomesuitablelocationsbyusing30tonnesorofmore capacitypickandcarry crane,asper requirementoftheincidentandasperscope of work and as per clause 6.8.3 'performance Standards' of scope ofwork.

The vehicle fitted with VTS shall be in good condition and registration number notolderthan2yearsandotherrequirementasspecifiedinRFP.Thevehicleshallbe painted with approved colour pattern with NHAI name and emblem painted sides, back and front. The Contractor must employ following manpower to work in shifts:

a) Driver, with knowledge ofvehicle repair
b) Ahelper

Crane shall run at least 25 km daily (even for dry run) to be eligible for monthly payment. No additional payment shall be claimed by the contractor till monthly run of 900Km.

Number of Tow- away Cranes :03(three)

Note:

i) In case of absence/deficiencies in respect of vehicles /manpower/ EquipmentasmentionedunderClause6.4foundduringinspectionby Engineer/Authority Representative or if the Incident Management Vehicle found to be missing while tracking the same on VTS online, a penalty of Rs. 5,000/- per item per incidence shall be levied.

i) Incident Management Vehicles may be discontinued during the period of contract by the Employer. The agency will not have any claim due to de-mobilizationofthesevehiclesatanystage.

6.5 **SafetyImprovement(EngineeringWorks)-Deleted**

Daily followed by weekly and monthly Inspections

Items to be inspected daily on regular basis followed by weekly and monthly inspections shall include:

- Userinformation-roadmarkingandroadsigns
- Blockeddrains
- Tow Away Trucks, Cranesetc.
- Frequency of HighwayPatrol
- Accidents/Incidence/RoadBlock
- Accident Analysis & Reporting on DigitalMap

Quarterly Inspections

Items to be inspected at quarterly intervals shall include :

- Blockeddrains
- Roadmarking
- Roadsigns

Repairs-Deleted

PERFORMANCESTANDARDS
PRFORMANCE STANDARDS FORMAINTENANCE:-Deleted

(B) Route operations

Sr. NO	**Serviceability indicator**	**Required Maintenance Level**	**Frequency of Inspection by Contractor to ensure required level of Service.**
1	Tow away trucks, cranes& ambulances etc	To reach the incident spot within 30 minutes of incident occurrence	Daily on Regular basis.
2	Frequency of Highway patrol	Every 4 hour on entire stretch (logging system)	Daily on Regular basis.
3	Removal of dead animals/birds	To reach the incident spot within 60 minutes of incident occurrence	Daily on Regular basis.

Performance Standards for DrainageSystem

The inspection and maintenance shall follow the guidelines specified in IRC: SP35-1990 or any modification to it by Indian Roads Congress.

- Pre-monsoon inspection and repairs shall include: detailed condition inspection of all bridges, culverts and the longitudinal drainage system. This shall be followed by repairs as required. Clearance of waterways of cross-drainage (CD) works and bridge waterways (vegetation, silt) within the right-of-way and 100 m on either side of the right-of-way, clearing the longitudinal and surface drains, repairs to flooring and

pitching and face walls which should be brought to intact condition and painting of bridge markings shall be carriedout.

- Duringthemonsoon,any blockedvent-waysshallbecleared immediately.

- After monsoon a detailed inspection shall be undertaken to identify any severe damage. One month after the cessation of rain, the structures shall be given one coat of white wash or colour wash as a protective measure.

6.8.3- Performance Standard for operation

a) For incident management system:

- Set up of Control Room Staffing – 24hrs/day and 365days/year
- Response time to a single incident – ½ an hour after receiving notification
- Multiple incidents – as soon as possible
- The facility shall be kept clear of all obstructions to traffic. Broken down vehicles, accident remnants, fallen trees, or any other obstructions should be cleared at once, after completing any legal formalities. The availability of Tow-trucks, cranes, and other equipment required for this purpose shall be ensured.
- Accident relief measures, including an ambulance, shall be available round the clock. The response time should be 30 minutes. Traffic regulation and management to minimize the disturbance due to accident to other traffic shall be taken by providing temporary traffic signs, cones, reflective tapeetc.
- The intersections at either end or in-between shall be managed such that delays to through traffic areminimized.
- Regular patrolling shall be done to ensure smooth traffic movement on the facility. The frequency of the patrol shall be at least once in 4 hours for the entire length offacility.
- In respect of route operation like patrol vehicle, ambulance and towing of vehicle, any case of non compliance as per Cl 6.8 of 'Performance Standard', apenaltyofRs.10,000/forehatchoncomplianceincidentwillbelevied.
- The log books for Route Patrol Vehicle, Ambulance and Crane shall be maintained as per "Logging System". i.e. exact time reached at particular incident and time at which the spot of incidence left out. Both vehicles should not waste time unnecessarily. From the entries of log book, if it is found that time is exhausted unnecessarily / arbitrarily, reduction in the rate of concerned BOQ item shall be made. Engineer's decision in this regard shall befinal.
- Signed muster rolls of staff pertaining to route patrols and Ambulances shall be maintained. Any absenteeism of route patrol staff shall attract a penalty asperClause6.4.ThedecisionofEngineershallbefinalinthiscontext.
- The Route PatrolVehicle, Ambulance and Crane shall be equipped (for 24 x 7 period and total duration of contract) with Vehicle Trafficking System, equipment / medicines as mentioned in Cl.no.6.4 of "Incident Management". Any shortage of equipment / medicines shall attract penalty asper Clause 6.4. The decision of Engineer shall be binding on the contractor.

- The contractor shall submit following documents along with each monthly statement of work done.

  a) The photographs (hard copies) of each incidence of damaged towed vehicle with use of crane for entire month.

  b) The undertaking of route patrol In-charge and driver of each damaged towed vehicle stating that "no charges" i.e. the services of crane made freely available to damaged vehicle.

  The claim for BOQ item, "use of crane" shall not be entitled in absence of

above-mentioned data. Reduction in rate on pro-rata basis shall be proposed in absence of above data.

- The contractor shall submit the following documents along with each monthly statements of work done.

i. The reports as per IRC 53 – 1973 and formats approved by Engineer of accidents occurred during the month.

ii. The Photographs in hard and soft copies of all accidents and in soft copies for all other incidents.

iii. The reports of incidents other than accidents shall be submitted in the format approved by Engineer.

iv. The contractor shall submit hard copies of VTS of all vehicles generated reports such as transit, / stoppage / Idle, average speed etc. for entire month along with each monthly bill.

The photographs (hard copies) supplied shall be paid under concerned BOQ item.

- The contractor shall submit the daily report of accidents / incidents occurred on each of next day. Failure of which shall attract penalty of Rs. 500 / incidence.
- Each route patrol vehicle, ambulance and crane vehicle shall be installed with precise Vehicle Tracking System (VTS) of reputed ISO 9001 company. The VTS shall be based on Global Positioning System (GPS) and GSM / GPRSM technology. The system shall also include micro, live, real time tracking web-based software by use of which GIS maps shall be accessed and transit / stoppage / idle / over speed reports of vehicles shall be generated.
- **The payment to incident management vehicle will be made based on the report of vehicle tracking system. The payment may be proportionately deducted in case route operations has not been carried outasperClause6.8.1(B)ofScopeof work.**
- For operation of this system one computer of brand approved by the Engineer along with internet facility shall be installed at "Control Room, by thecontractor.
- The contractor shall install one broad band internet connection. He shall also make necessary arrangements for uninterrupted electricity supply to Control Room.
- The contractor shall bear all expenditure involved in purchasing VIS, software's, one computer and internet connection, maintenance and operation charges (for total period of contract) inclusive of all taxes as applicable.
- The contractor shall be responsible for 24 x 7 working of VTS. The necessary liaison with Producer Company is sole responsibility ofcontractor.
- The Control Room shall be manned by a Manager 24x7 to have proper monitoring on the route operation vehicles. The Control Room shall have record of the VTS of all the vehicles, photographs of the route operations of the previous day, as mentioned above, muster roll of the staff, previous day's report of incidence, accidents details duly filled in as per format as specified above and

other reports related to route operations as defined by Engineer- in-charge.

Performance Standards for "Maintenance of existing and new plants / shrubs/hedges Grassi median".

A) Removal of weeds / vegetation and unwanted debris

i) The contractor shall keep median without any weeds, unwanted vegetation, debris etc. for the entire period of contract. For this purpose, he should deploy at least the following for each month of contract period.

a) Onelabour/day(8hours)foreveryfourKm.ofmedian.

b) Onetractorwithtrolley/day(8hours)forevery35km.stretchofmedian.

c) Onesupervisorforevery35km.stretchofmedian.

This deployment shall be made available for whole month from June to Feb of a year. From March to May one labour / day (8 hours) for every 06 km. of median and one tractor with trolley / day (8 hours) for every 50 km. of median shall bedeployed.

ii) Thecontractorshallmaintainseparatesignedmustenrollsofdeployed labours&supervisorsandlogbooksoftractors.ThemustErrollsandlog books shall be made available for inspection. Xerox copy of log books andmustenrollsshallbesubmittedalongwitheachmonthlystatement of work done by thecontractor.

iii) Thedeploymentmentionedasper(i)isminimumandshallnotrelieve contractor from his obligation to keep the median without weeds, unwanted vegetation and debris from the median. He shall increase inputs as per requirements of site conditions and Engineersin structions.

iv) If a contractor fails to keep median without weeds, unwanted vegetation, debris etc. (as per provision of BOQ) penalty of Rs. 500/ Km. / incidence to Rs. 1500/ Km / incidence shall be imposed. Engineersdecision in this context is binding on contractor.

v) Engineer/PD may ask for supporting details regarding engagement of labour to satisfy themselves before makingpayment.

B) Watering :-Deleted

C) Trimming of plantation and application of insecticides /pesticides-

Deleted

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6.10-Performance standard for "carrying out cleaning, removing of dust / silt / thrash etc from carriageway.

(i) This BOQ item is on km basis. The total length of stretch under consideration is taken under this item.Howeverwidth of carriageway to be kept clean as per BOQ provision, it includes.

a) Total width of carriageway (LHS + RHS) including median width.

b) Width of service roads (LHS+RHS) wherever service roads are in existence.

c) Width of all structures such as flyovers, major bridges, minor bridges, culverts, subways, etc.

(ii) For cleaning of carriageway contractor shall deploy mechanical broom with VTS for total period of contract. The deployment of mechanical broom shall be for atleast 20 days/month. Contractor shall maintain logbook of this

Mechanical broom and submit the Xerox of this along with each monthly statements of work done along with the report of VTS.

(iii) In addition to mechanical broom contractor shall deploy following men / machinery for each month and total duration ofcontract.

a) One unskilled labour / day (8 hours) for every three km. of stretch of road.

b) One superior for every 30 km of stretch ofroad.

c) One tractor with trolley / day (8hours) for every 30 km. of stretch of road.

(iv) The contractor shall maintain separate signed muster rolls of deployed labours & supervisors and log books of tractors. The muster rolls and log books shall be made available for inspection. Xerox copy of log books and muster rolls shall be submitted along with each monthly statement of work done by the contractor.

(v) The deployment maintained as per (ii) & (iii) is minimum and shall not relieve contractor from his obligation to keep the carriageway clean as per BOQ provisions. It is obligatory on contractor to increase inputs as per requirements of site conditions and Engineers instructions.

(vi) The contractor shall submit daily reports (on next day) of out-puts of men & machinery deployment in the formats approved by Engineer. Failure of which shall attract a penalty of Rs. 1000 /incidence.

Performancestandardfor"Removalofrankvegetation/weeds/.etc.

Indent for this work shall be issued once in year by the Engineer. After executionofthisindentedquantity,itisthesoleresponsibilityofcontractor tokeepthatparticularareawithoutanyvegetation/weeds/grassforthe remainingperiodofcontract(oneyear).Forthispurposeheshallmakeuse ofmen/machinerydeploymentasincaseofperformancestandard Cl.no. 6.10.

ADDITIONAL MAINTENANCESTANDARDS

Maintenancestandardforcleaning,clearingandroadside lineddrains
Scope

I. The work shall consist of removing material to bring them to original shape/drainage capacity.

II. Disposal of sediments, extraneous debris or vegetation growth, blocking flow.

Methods, Tools and Equipment

i. Safetydevicesandsignsshallbeplacedasper MoRT&H clauseno.112

ii. The debris, sediments, vegetation growth and excess material shall be excavated. The excavated material shall be disposal off as directed by Engineer-in-charge with all leadsand lifts.

iii. The drain slopes and sides shall be dressed up to original flow line and cross-section.

Measurements forPayment

The work shall be measured in terms of rm of drain cleaned, cleared and repaired.

Rate

The contract unit rate for cleaning and clearing roadside pucca drains shall mean payment in full for carrying out all the required operations explained above including compensation for:

a) Settingoutandprovidingsafetydevicesandsignsplacedin worker .As per MoRT&H clauseno.112.
b) Furnishing all materials to be incorporated in the work including transportation of excavated material and disposing of the same with all leads and lifts.
c) All labour, materials, tools, equipment, safety measures, testing and incidentals necessary to complete the work to specifications.

6.12.2 Maintenance standard for cleaning, clearing, deepening and reshaping of roadside unlined drains

Scope

I. The work shall consist of cleaning, clearing deepening and reshaping of roadside unlined drains and making shallow lateral drains on shoulders to drain out the rain water/surface water effectively from bituminous surface as well as from roadside berms.

Methods, Tools and Equipment

I. SafetydevicesandsignsshallbeplacedinaccordancetoMoR T&H clauseno.112
II. The unlined drains should be cleaned and cleared off the deposition of sediments, extraneous debris or vegetation blocking free flow in the drain. This work may be carried out manually.
III. In case any erosion is noticed then these drains should be deepened/ widened in proper slope as directed by Engineer in- charge.
IV. For draining out the standing water from road edges and unpaved shoulders, the shallow lateral drains at regular intervals shall be made manually as and when required.

V The drain slope and sides are neatly dressed up to required flow line and cross-section.

VI. The excess excavated material should be well dressed, watered and compacted in nearby area or transported away from the site with all leads and lifts, as directed by the Engineer in-charge.

Measurements forPavement

The work shall be measured in unit of RM. for roadside drains onlyandnoseparatepaymentshallbemadeformakingsh allow laterAL drains.

Rate

The contract unit rate for cleaning, clearing, deepening and reshapingofroadsideunlined drainsandmakinglateraldrainson shoulders shall mean payment in full for carrying out all the requiredoperationsexplainedabove includingcompensation for:

a. settingoutandprovidingsafetydevicesandsignspla cedinworkar.AsperMoRT&Hclauseno.112.
b. furnishing all materials to be incorporated in the work including all royalties, fees, rents where necessary and all leads/lifts.
c. Transporting the excavated/recovered material and disposing of the same with all heads and lifts as directed by the Engineer in- charge.
d. All labour, materials, tools, equipment, safety measures testing andincidentalnecessarytocompletetheworktospecificati ons

Maintenancestandardforroutine maintenanceofroadsignsand delineators,kerbs

Scope

The work shall consist of washing of signs, delineators, removal of posters, cleaning of kerbs etc. on a regular maintenance cycle.

Methods, Tools& Equipment

a) The road signs and delineators should be thoroughly washed using a detergent solution followed by a lean rinse and whole face of the sign shall be dried.
b) Defects in supporting structures like bullet holes, surface marksorbentpostsshallberepairedwithappropriateto ols.
c) Damagedareashallbe cleanedandloose/flakingpaintshall be removed. Bullet holes shall be filled with filler and supporting structures shall be painted with first qualityenamelpain tintwoormorecoats.

-Deleted

Monitoring

TheContractorshallsubmit thedailyreport(byemail)indicatingthe day's activities and the work executed at site. The Contractor shall also inform any changes observed at site such as road condition, structure damages/changes, damages to road-signs, crash barriers, railing, encroachments and any other unusual changesatsitebefore11.00AMeverydayforthepreceding24 hours.

The daily report should be submitted to PD and Engineer on daily basis as per proforma approved by Engineer in consultation with PD, NHAI.

The detail summary of these daily inspections and work carried out shall form part of monthly bill in the form of email extracts otherwise payment may not be admissible.

6.14 Deleted

(SECTION-VII)

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

PREAMBLE:

The Technical Specifications contained herein shall be read in conjunction with the other Bidding Documents as specified.

GENERALREQUIREMENTS

The Technical Specifications in accordance with which the entirework described hereinafter shall be executed and completed by the Contractor shall comprise of thefollowing:

PART – I – GENERAL TECHNICALSPECIFICATIONS

The General Technical Specifications shall be the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (FIFTH REVISION 2013) issued by the Ministry of Road Transport & Highways, Government of India and latest codes published by the Indian Roads Congress, hereinafter referred to as MORT&H Specifications.

PART – II – SUPPLEMENTARY TECHNICAL SPECIFICATIONS

The Supplementary Technical Specifications shall comprise of various Amendments/Modifications/Additions to the „SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" referred to in PART-I above and Additional Specifications for particular item of works not already covered in Part– I.

A particular clause or a part thereof in "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (FIFTH REVISION), referred in Part-I above, where Amended/Modified/Added upon and incorporated in Part-II, referred to above, the Amendment/ Modification/ Addition supersedes the relevant clause or part of theclause.

When an Amended/Modified/Added Clause supersedes a Clause or part thereof in the said Specifications, then any reference to the superseded clause shall be deemed to refer to the Amended/Modified/Added Clause or part thereof.

In so far Amended/Modified/Added Clause may come in conflict or be inconsistent with any of the provisions of the MOST Specifications under reference, the Amended/Modified/Added clause and the additional specifications shall alwaysprevail.

In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest codes and specifications of IRC and BIS in that order, Where even these are silent, the construction and completion of the works shall conform to soundengineering

practice as approved by the Engineer and, in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.

PART - II

AMENDMENTS/MODIFICATIONS/ADDITIONS TO EXISTING CLAUSES OF GENERAL TECHNICAL SPECIFICATIONS (PART-I).

SECTION 100 – GENERAL

Clause102 Definitions:

The following abbreviation shall be added in this Clause: "MOST" – Ministry of Surface Transport, Govt. of India
(Now "MoRT&H" - Ministry of Road Transport and Highways) "NHAI" – National Highways Authorityof India.

Clause106 ConstructionEquipment:

Clause 106 (a) Add the following sentence. "The trial run is to be carried out laying the relevant pavement material and it is not to be part of the permanent works. The trial is to be carried out on prior approval of equipment byEngineer-in-Charge."

Add Sr. No. (g)

"The Contractor shall furnish to the engineer the detailed technical literature and other relevant documents regarding the performance of plant/equipment for approval prior to its purchase or mobilization onsite."

Clause107 ContractDrawings:

Clause107.3 Deleted this Sub-Clause

entirely. Clause108.4 Add NewSub-Clause:

"Identification of quarry sites and borrow areas shall be the responsibility of the Contractor. Materials procured from quarry sites and borrow areas identified by the Contractor and to be used in Works must comply with the requirements of quality as stipulated in the Technical Specifications for particular item ofwork".

Clause109 SettingOut:

Clause 109.10 Add new sub-clause

"Before carrying out any survey work the Contractor shall submit to the Engineer for the approval a programme and methodology for the calibration of all optical and electronic survey equipment to be used on site during construction of the works. The Contractor willmaintain Calibrationrecordsforallsuch equipment in his site office, available at all times for inspection by theEngineer.

Clause110 PublicUtilities:

Clause110.1 Revise the clause asunder:

Existing services like water pipes, sewers, oil pipelines, cables, gas ducts etc. owned by various authorities including Public Undertaking and Local Authorities shall be checked and located by the Contractor prior to commencement ofwork.

Clause110.2 Revise the clause asunder:

The Contractor's programme must take into account the period of notice and duration of diversionary works of each body as existing at site. The Contractor must also allow for any effect of these services and alterations upon the Works and for arranging regular meetings with the various bodies at the commencement of the Contract and throughout the period of the Works in order to maintain the required co- ordination. During the period of the Works, the contractor shall have no objection if the public utility bodies and their decisions in the execution of their proposal in terms of programmeandconstruction. Provided that, in the opinion of the Engineer, the Contractor has received reasonable notice thereof before the relevant alterations are put inhand.

Clause111 Precautions for Safeguarding

the Environment:Clause111.1 General

Add the following after the first Paragraph:

The Contractor shall preserve existing trees, plants and other vegetation that are to remain within or adjacent to the works and shall use every precaution necessary to prevent damage or injurythereto.

On completion of the Works, all areas disturbed by the Contractor's construction activities shall be restored in their original condition, or as may be acceptable to the Engineer. The cost of this work shall be deemed to be included in the rates generally.

Clause 111.4 Add the following sentence:

"The Contractor is to ensure that there is good drainage at all construction areas, to avoid creation of stagnant water bodies especially in urban/industrial areas, including water in old waterbodies."

Clause 111.5 Pollution from Hot Mix Plants and Batching Plants

Add the following paragraph at the end of this Sub- clause.

The H.M.P. should be sited at least 500m away from the nearest habitation. The H.M.P. shall be fitted with a dust extraction unit in order that the exhaust gases comply with the requirements of the relevant current emission control legislation. "All operations at plants shall be undertaken in accordance with all current rules and regulations protecting theenvironment."

Clause 111.6 Substances Hazardous to Health

Add the following after the first paragraph as follows:

"The use of any herbicide or other toxic chemical shall be strictly in accordance withthe manufacturer's instructions. The Engineer shall be given at least 6 workingdaysnotice

of the proposed use of any herbicide or toxic chemical.

Aregisterofall herbicidesandother toxicchemicalsdelivered to the site, shall be kept and maintained up to date by the contractor. The register shall include a name physical properties and characteristics, chemical ingredients,health

and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product."

Clause111.9 Add the following sentence at the end of thepara.

Vehicles delivering materials to the site shall be covered to avoid spillage of materials on public roads.

Clause111.12 After the last sentence adds thefollowing:

"The costs of compliance with Clause 111 shall be deemed to be included in the rates for items included in the Bill of Quantities." Refer to Clause 114.2 (xv) of MOST Specification.

Clause111.14 Add newSub-Clause:

"The Discharge Standards promulgated under the Environment Protection Act, 1986 shall be adhered to strictly. All waste arising from the project is to be disposed of in a manner which is acceptable to the State Pollution Control Board and theEngineer.

All vehicles and machinery employed in the execution of the works shall be regularly maintained to ensure that pollutant emission levels comply with the relevant requirements of current pollution control legislation. During routine servicing operations, the effectiveness of exhaust silencers must be checked and if found to be defective must be replaced. Not with standing this requirement, noise levels from any item of plant must comply with the relevant legislation for levels of sound emission. Non-compliant plant is to be removed from site.

Vehicle maintenance and refueling shall be carried out in such a fashion that spillage of fuels and lubricants do not contaminate the ground or nearbywatercourse. An "oil interceptor" shall be provided for wash down and refueling areas. Fuel storage shall in proper bounded areas. All spilt and collected petroleum products shall be

disposed of in accordance with the relevantlegislation.

Clause111.15 Add the following NewSub-Clause:

All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cookingand washing. The

sewage system for the camp must be properly designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses take place compliance with relevant legislation must be strictly adhered to Garbage bins must be provided in the camp and regularly emptied and the garbage disposed of in a hygienic manner.

Construction camps are to be sited away from vulnerable people and adequate health care is to be provided for the work force.

Clause111.16 Add the following NewSub-Clause:

All works are to be carried out in such a fashion that the damage or disruption to the flora and fauna is reduced to a minimum wherever possible. Trees or shrubs will only be felled or removed that impinge directly on the permanent works or necessary temporary works, after seeking approval of theEngineer.

Clause112 Arrangement for Traffic duringConstruction:

Clause112.1 General

Delete the last sentence and add the following:

"The Contractor shall submit, for the Engineer's approval, a Traffic Control Plan 5 days prior to commencement of the temporary / permanentworks."

The plan shall include:

i. Typical drawings for temporary diversions in accordancewith

ii Clause 112.3
Typical details of arrangements for construction under traffic including details of traffic arrangement after the cessation of work eachday.

Special consideration shall be given in the preparation

of the Traffic Control Plan to the safety of pedestrians and workers atnight.

Temporary diversions will be constructed only with the approval of the Engineer.

Clause 112.2 **Passage of Traffic along a part of the Existing Carriage way underimprovement:**

Delete this clause replace asfollows:

"For strengthening of existing carriage way, where part of the existing carriage way is proposed to be used for passage of traffic & hard shoulder are not available then, treated shoulders shall be provided on the side on which work is not in progress. If the existing shoulder width less than 1.5m the same shall be extended up to 1.5m for earth work duly compacted. The top
15.0cm or as directed by the engineer including extended shoulder of 1.5m width shall be filled up by granular sub base material duly bounded with binding material and compacted. The sub base material shall conform to MOST specification Clause 401, the work of excavation and filling of granular sub- base material so carried out shall be paid under relevant items of bill of quantities. The contractor shall maintain the bypass/diversion during the period of construction by way of watering, compacting, and making good loss of sub-base material after filling up of the rutting/depression etc. by additional quantity of granular sub base material. The items operations like maintenance, making good the loss of material, watering, compacting, leveling and dressing along with additional quantity of sub-base material shall be considered as incidental to the work and no extra payment will be made for these operations. The continuous length in which such works shall be carried out would be within a range of 200 to 500m at aplace.

Clause112.6 Measurements for Payments andRate

Add "and no extra payment will be made except the treatment

of shoulders for earth work and granular sub-base as per Clause above." At the end of first paragraph.

Clause112.7 Side Roads and PropertyAccesses

Add newsub Clause:

"At all times, the Contractor shall provide safe and convenient passage for vehicles pedestrians and livestock to and from side roads and property accesses connecting to the roadway. Work which affects the use of side roads and existing accesses shall not be undertaken without providing adequate prior provisions to the satisfaction of theEngineer."

Clause112.8 Plant andEquipment

Add new sub Clause:

"During the day, plant and equipment working in a position adjacent to traffic and having a projection beyond the normal width of the item, for example, a grader blade shall have a fluorescent red marker attached to the outer end of the projection. During poor light conditions an additional traffic controller with an illuminated red marker shall direct traffic around such plant andequipment.

At night, all plant items and similar obstructions shall be removed from the normal path of vehicles, to provide a lateral clearance of at least 6m where practicable, with a minimum clearance of1.2m.

Plant and equipment, within 6m of the normal path of vehicles, shall be lit by not less than two yellow steady

lamps suspended vertically from the point of the obstructionnearest to a traffic lane and one yellow steady lamps at each end of the obstruction on the side farthest away from the traffic lane."

Clause113 for Payment: **General Rules For the Measurement of Works**

Clause113.2 **Measurements for Lead ofMaterials**

Delete this Clause and replace with:

"The rates in the Bill of Quantities are deemed to include the costs of haulage from source of supply to the site for all materials required for theWorks."

Clause114 **Scope of rates for different items ofwork:**

Add to Clause 114.2 (xix). Cost of all provisions for executing the work safely including all protective clothing, barriers, earplugsetc.

Clause115 Methodology and Sequence of Work:

Substitute "28 days" for "30 days" in the

2nd line. Clause120 FieldLaboratory:

Clause120.1 Scope

Delete this Clause and replace with:

"The work under this Clause covers the provision and maintenance ofa fully equipped laboratory." The equipment in the laboratory shall be as decided by Engineer, keeping in view of item of works prescribed inBOQ.

Clause120.2	Description Delete this Clause and replace with: "The Contractor shall construct a fully furnished and equipped field laboratory to the satisfaction of the Engineer. The laboratory will be located at a site approved by the Engineer and must be of adequate size to perform all the tests required under the contract including sufficient light, electric and water supply. The Contractor shall provide working drawings incorporating all the services based on the information given in the changes for the approval of the Engineer prior to commencement of construction. An office must be provided in the laboratory for the exclusive use of the Engineer's, Materials Engineer, adequate toilet and washing facilities must beprovided. The contractor shall provide the field laboratory within one month from the date of the commencement of the work. Prior to this, the contractor must make suitable alternative arrangements for the testing of materials, which are acceptable to the Engineer.
Clause120.3	Laboratory Equipment shall be provided as prescribed by the Engineer relevant to items of work in BOQ.
Clause120.4	Add NewSub-Clause: For Control of Profile and Surface Evenness i) Theodolite 2 sets ii) Precisionautomaticlevel 2 sets iii) Precisionstaff 4sets iv) Camber templates 2lane a) Crowntypecross-section 4sets b) Straighturncross-section 4sets Steel Tape

a)	3mlong	4sets
b)	5mlong	4sets
c)	10mlong	4sets
d)	20mlong	4sets
e)	30mlong	4sets

Clause120.5	Add NewSub-Clause:
	Inadditionclause 121.3 any equipment which is not mentioned in this clause but which is necessary for the work for complying with the provisions of the contract and Section 900 of MOST specifications or as required by the engineer shall be provided by the contractor. No extra payment shall be made to the contractor and it will be considered as incidental to thework.

Clause 120.6: Supply of Video Cassettes

The work consists of taking video films of important activities of the work as directed by the Engineer during the currency of the project and editing them and converting them to a CD (master CD+ 4 copies) film of playing time not less than 60 minutes and up to 180 minutes as directed by the Engineer. It shall containnarration of the activities in English by competent narrator. The editing of the film and the script for narration shall be as approved by the Engineer. The CD shall be acceptable quality and the film shall be capableof producing colour pictures.

SECTION 300 – EARTHWORK EROSION CONTROL AND

DRAINAGE Clause 301 Excavation for Roadway and Drains

Clause301.3.3	Excavation –General
Clause301.3.12	**Back-filling**
Clause301.9	Rates
Clause301.9.2	Delete
Clause304	Delete
Clause304.3.7	Delete

Clause305	Delete
Clause305.2	Material and General
Requirements Clause305.2.1Physical Requirements	
Clause305.2.1.2	Amend the first sentence of this Clause asunder: "Highly expansive soils such as Ch, MH or OH exhibiting marked swell and shrinkage properties („free swelling index" exceeding 50 per cent when tested as per IS 2720 – Part 40) shall not be used in construction of sub grade and embankment."
Clause305.2.1.4	Delete the second and third sentence of Clause 305.2.1.4, i.e., "However, the Engineer may……..Compacted layer thickness."
Clause305.2.2.2	Delete
Clause305.3	ConstructionOperations
Clause305.3.4	Compacting ground supporting embankment/subgrade Delete"wherenecessary"inthefirstsentenceofthe first paragraph.
Clause305.3.5.2	In Paragraph 3, delete "IS: 2720 (Part 7) or "and "as the case may be".
Clause305.3.6	Compaction The second paragraph of this Clause shall read as under: "Only vibratory rollers of not less than 8 – 10ton static weight with plain or pad foot drum shall be used for compaction."
Clause305.4	Construction of Embankment and sub-grade under specialcondition.

Clause305.4.1	Add new para after para 1 asunder: "The earthwork for widening the existing road embankment and shoulders shall be carried out in layers duly compacted. On completion of earth work to the required height the triangular portion on the sloping face of the layers shall be cut in such a manner that the specified slope is achieved. This operation is incidental to work and no extra payment shall be made forthis."
Clause305.4.7	Earthwork for highEmbankment Substitute the first paragraph of this clause as under: "In the case of high embankments, the Contractor shall use the material from the approved borrow area."
	Soil Erosion and Sedimentation Control
Clause306.4	Measurement forPayment Substitute the Clause 306.4 as follows: "All temporary sedimentation and pollution control works shall be deemed as incidental to the earthwork and other items of work and as such no separate payment shall be made for the same."
Clause306.5	Rate Deleted.

Clause 307 Turfing with sods.

Clause307.5 Add"(iii)applicationoftopsoil"after(ii). Delete "the contract unit rate for application of top soil shall be as per clause 301.9.5"

Clause309 Surface/Sub-SurfaceDrains

Clause309.2 SurfaceDrains

Add at the end of third paragraph:

Metal grates for sumps on concrete lined surface drains shall be heavy duty (trafficable by commercial vehicle) proprietary products with gaps between bars no greater than 26mm. The Contractor shall submit proposals for grating to the Engineer for approval before commencing construction of thesumps."

Clause309.4 Measurement forPayment

Delete the first sentence and replace with:

"Surface drains not lined shall be included in the items for excavation for the roadway in accordance with Clause – 301.8."

Clause309.5 Delete
Add Clause 314 as under:

Clause314 Leveling and Dressing over area:

Clause314.1 Delete
Clause314.2 Delete

Clause314.3 Measurements

Delete

Clause314.4 Rates
Delete

SECTION 400 - SUB-BASES, BASES (NON-BITUMINOUS)

AND
SHOULDERS:

Clause401.4.1 Substitute "Smooth wheeled roller" by "Vibratory Roller" or as approved by Engineer-In- charge.Clause401.4.2 Spreading and Compacting

The following shall be added to Paragraph1:

"The thickness of the loose layers shall be so regulated that the maximum thickness of the layer after compaction does not exceed 150mm."

The fifth paragraph of this Clause shall be as under:

"Immediately thereafter, rolling shall start with the help of a vibratory roller of minimum 80 to 100 KN static weight with plain drum or pad foot drum of heavy pneumatic tyre roller of minimum 200 to 300 KN weight having a minimum tyre pressure of 0.7 kN/m2 or adequate capacity capable of achieving the required compaction. Rolling shall commence at the lower edge and proceed towards the upper edge longitudinally for portions having unidirectional cross fall and super-elevation and shall commence at the edges and proceed towards the crown for portions having cross falls on bothsides."

Clause401.7 Measurementfor payment: Add paragraph 3 as under:
For carrying out full depth repair and/or reconstruction ofroad pavement, if the granular sub-base materials laid on the shoulders for diversion of traffic (as per clause 112) is required to be scarified/removed and re-laid after compensating the loss during handling and by movement of traffic on completion of Full depth repair/reconstruction of road pavement, this operation shall be considered incidental to the work of providing granular sub-base and no extra payment shall be made for thesame.

Clause404.2.1 Coarse aggregate:

Amend this clause as under:

Coarse aggregate shall be either crushed or broken stone. The aggregates shall conform to the physical requirements set-forth in Table 400-6. The type and size range of the aggregate shall be specified in the contract or shall be as specified by the Engineer. If the water absorption value of the coarse aggregates is greater than 2 percent, the soundness test shall be carried out on the material delivered to site as per IS: 2386 (part5).

Clause404.2.3 CrushedSlag:

Delete this

Clause

Clause404.2.4 Over-burnt (Jhama)brick

aggregates: Delete this Clause.

Clause404.3.4 Rolling:

Delete in first para "three wheeled ----------rollers 80 to 100kN
capacity or tandem
or"

SECTION 500 - BASE AND SURFACE COURSES (BITUMINOUS):

Clause501.8.2.4 Profile Corrective Course andits

application: Replace (ii)) with

"The material for bituminous profile corrective course shall belaid independentlyof allOthercourses,adopting such

construction procedures and using such equipment as may be appropriate to the specified type of material and thickness of the course manually/machine paid as approved by the engineer-in- charge. The method of providing profile corrective course shall be approved by the engineer-in- charge.

Clause501.8.3.1 Preparing Existing Granular Surface

Amend the Clause as under:

"The surface on which bituminous profile corrective course is to be laid shall be thoroughly swept clean of dust and any other extraneous material using mechanical broom and dust collected removed or blown of using compressed air except in places where mechanical means cannot reach.A prime coatconforming to Clause 502 shall be applied prior to laying profile corrective course."

Clause501.8.3.4 Laying the Profile Corrective

Course.Clause501.8.3.4.1 This clause shall

read asunder:

"The surface on which profile corrective course is to be laid shall be thoroughly swept clean of dust and any other extraneous material using mechanical broom and dust collected removed or blown off using compressed air except in places where mechanical mans cannot reach."

"After preparing the granular surface as in Clauses 501.8.3.1and
501.8.3.2, the profile corrective course with materials as per
Clause 501.8.2.3/501.8.2.4 shall be laid and compacted to the
requirement of particular Specification Clause."

Clause 501.8.8.2(viii) The clause shall be replaced with the rate shall include the provision of bitumen in the mix as per job mix formula approved by Engineer. No variation in the rate for this item will be admissible on account of quantity of bitumen used.

Clause502 Prime Coat Over Granular Base:

Clause502.2.3 The type of bitumen emulsion shall be CSS 1 confirming to IS
8887.

Clause503 TackCoat

Clause503.2.1 The type of bitumen emulsion shall be RSS 1 confirming toIS
8887
.

Clause504 Bituminous Macadam:

Clause504.2 Materials

Clause504..2.1 Bitumen:

The penetration grade of bitumen shall be 60/70. or the bitumen shall be of Viscosity Grade VG30

Clause 507 & 509Bitumen

The penetration grade of bitumen shall be 60/70 or the bitumen shall be of Viscosity Grade VG 30

Clause507.9 ForDBM

The last sentence of first para and the second para stands deleted.

Clause508.9 ForSDBC
The para is replaced with "The contract unit rate shall

be all as
specified in clause 507.9.

Clause509.9 ForBC
The para is replaced with " The contract unit rate shall be all as

specified in clause 507.9.

Clause801.5 Amend the clause as under: The measurement of all types of sign boards shall be measured in sq.m.

SECTION 900 – QUALITY CONTROL FOR ROAD WORKS

Clause901 General

Amend the clause 901.10 as under:

Clause 901.10 For bitumen, cutback, emulsion, mild steel, cement and other similar material where essential tests are to be carried out at the manufacture's plant or at laboratories other than the site laboratory, the cost of samples, sampling, testing, and furnishing of the test certificates shall be borne by the Contractor. The frequency of tests regarding bitumen, cutback and emulsion in respect of its quality shall be as per the Table 900-4 of MOST Specification.

SECTION 1000 – MATERIALS FOR STRUCTURES:

Clause1014 Storage ofMaterials:

Clause1014.3 Aggregates

The following shall be added at the end of the Clause: "Aggregates shall be stockpiled in a manner that will avoid segregation, contamination by foreign materials and intermixing of various sizes of aggregates."

SECTION 3002- RESTORATION OF RAIN CUTS:

Clause3002.4 Amend this asunder:

"The earth works for restoration of rain cuts shall be measured in cum."

Additional Technical Specification

Road Studs/Cat eyes

General

Reflective pavement marker (RPM) or road stud is a device, which is bonded to or anchored within the road surface for lane marking and delineation for nighttime visibility. It reflects incident light in directions close to the direction from

which it came.

Definitions

Description of Terms specific to thisstandard

a) **Coefficient of luminous intensity (CIL) or specific intensity –**the ratio of luminous intensity of the retro-reflector in the direction of observation to luminance at the retro-reflector on a plane perpendicular to the direction of the incident light expressed in terms of millicandelas per incident lux(mcd/lx).

b) **Horizontal entrance angle –** the angle in the horizontal plane between the direction of incident light and the normal to the leading edge of the marker.

c) **Observation angle –** the angle at the reflector between the illumination axis and the observationaxis.

d) **Retro-reflection** - reflection in which the radiation is returned in direction close to the directions from which it came. This property being maintained over wide variations of the direction of incident radiation.

e) **Head** – that part of a road stud, which is above the road surface when the road studis fixed in position in the road.

f) **Upper surface** – that part of the external surface of road stud, which is visible when the road stud is fixed in position in the road.

g) **Anchorage** – that part of a road stud, which is below the road surface when the road stud is fixed in position in the road.

Material

a) Plastic body of RPM/road stud shall be moulded from ASA (Acrylonitrile) or HIPS (Hi- impact Polystyrene) or ABS or any other suitable material approved by the Engineer- in-Charge. The markers shall support a load of 13635 kg tested in accordance with ASTM D4280.

b) Reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylateconforming to ASTMD 788 or equivalent.

c) Design

The slope or retro-reflecting surface shall preferably be 35+5 degree or base. The area of each retro-reflecting surface shall not be less than 13.0 sqcm.

d) OpticalPerformance

e) Unidirectional and bi-directionalstuds

Each reflector or combination of reflectors on each face of the stud shall havea C.I.L. not less than that given in Table 1 or 2 as appropriate.

Table 1 Minimum C.I.L. Values for Category „A"studs

Entrance	Observation	C.I.L. in		
		White	Amber	Red
0^0 U 5^0 L&R	0.3^0	220	110	44
0^0U 10^0 L&R	0.5^0	120	60	24

Table 2 Minimum C.I.L. Values for Category „B"studs

Entrance	Observation	C.I.L. in		
		White	Amber	Red
0^0 U 6^0 L&R	0.3^0	20	10	4
0^0U 10^0 L&R	0.5^0	15	7.5	3

Note: The entrance angle or 0^0U corresponds to the normal aspect of the reflectors when the reflecting road stud is installed in horizontal roadsurface.

A stud that incorporates one or more corner cube reflectors shall be considered to be included in category „A". A stud that incorporates one or more bi-convex reflectors shall be considered to be included in category„B".

f) Omni-directional studs

Each omni-directional stud shall have a minimum C.I.L of not less than 2 mcd/lx.

Tests

a) Coefficient of luminance intensity can be measured by procedure described in ASTME 809 "Practice for Measuring Photometric Characteristics" or

as recommended in
BS: 873 – Part 4:1973.

b) Under test conditions, a stud shall not be considered to fail the photometric requirements if the measured C.I.L at any one position of measurement is lessthan
the values specified in Table 1 or 2 provided that
(i) the value is not less than 80% of the specified minimum,and
(ii) the average of the left and right measurements for the specific angle is greater than the specified minimum.

Fixing of Reflective Markers

Requirements

a) The enveloping profile of the head shall be smooth and the studs shall not present any sharp edges in traffic.

b) The reflective portions of the studs shall be free from crevice or ledges where dirt might accumulate.

c) All road studs shall be legibly market with the name, trademark or other means of identification of the manufacturer.

d) Marker height shall not exceed 20 mm.

- e) The base of the marker shall be flat within 1.3 mm. If the bottom of the marker is configured, the outermost faces of the configurations shall not deviate more than1.3 mm from a flat surface.

Placement

a) The reflective marker shall be fixed to the road surface using the adhesives and the procedure recommended by the manufacturer. No nails shall be used to affix the marker, as nails are hazardous for the roads.
b) Regardless of the type of adhesive used, the markers shall not be fixed if the pavement is not surface dry and on new asphalt concrete surfacing until the surfacing has been opened to traffic for al period of not less than 14 hours.
c) The portions of the highway surface, to which the marker is to be bonded by the adhesive, shall be free of dirt, curing compound, grease oil, moisture, looseor
unsound layers, paint and any other material which would adversely affect the bond of the adhesive.
d) Use a wire brush, if necessary to loosen and remove dirt, then brush or blowclean.
e) The adhesive shall be placed uniformly on the cleaned pavement surface or on

the bottom of the marker in a quantity sufficient to result in complete coverage of the area of contact of the marker with no voids present and with a slight excess after the marker has been lightly pressed in place.

f) For epoxy installations, excess adhesive around the edge of the marker, excess adhesive on the pavement and adhesive on the exposed surfaces of the markers shall be immediately removed. Soft rags moistened with mineral spirits or kerosene may be used, if necessary to remover adhesive from exposed faces of pavement markers.

Warranty and durability

The contractor shall obtain from the manufacturer a two-year warranty for satisfactory field performance including stipulated retro-reflectance of the reflecting panel and submit the same to the Engineer, In addition, a twoyear warranty for satisfactory infield performance of the finished road marker shall also be given by the contractor who carried out the work of fixing of reflective road markers. In case the markers are displaced, damages, get worn out o lose their r electivity compared to stipulated standards, the contractor would be required to replace all such markers within 15 days of the intimation from the Engineer at his owncostandwithnoextra remunerationtobepaidforsuchworks.

Measurement forPayment

The measurement of reflective road markers shall be in numbers of different types of markers supplied and fixed.

Rate

The contract unit rate for reflective road markers shall be payment in full compensation for furnishing all labour, material, tools, equipment including Incidental costs necessary for carrying out the work at site conforming to the specifications complete as per approved drawings or as directed by theEngineer.

(SECTION-VIII)

IMPLEMENTATIONMANUAL

SECTION – VIII

IMPLEMENTATION MANUAL

Introduction

Incident Management work of highway through one agency is the work of typical nature, which shall continue up to the expiry of base period specified in the contract (excluding defect liability period). These works need attention, efficiency, continuous monitoring and responsive management. This implementation manual spells out detailed guide-lines for implementing the maintenance programme successfully, defining the various activities to be accomplished by the Employer and theContractor.

This package includes routine, periodic, recurrent and urgent maintenance activities to repair highway surface, shoulders, road side, drainage facilities, CD work, signs, markings and inspection facilities. The works of different nature at scattered locations within specified time frame need to be performed confirming to specifications and standards in order to keep carriageway in perfectcondition.

Maintenance Procedures

The complete maintenance programme shall be spread over the initial base period of three months. There are eight significant procedural areas:

- Planning
- ResourceEstimation
- Identification ofPriorities
- WorkScheduling
- Work Management
- Work Control and QualityAssurance
- PaymentProcedures
- Records &Documentation

Maintenance ProgrammePlanning

The maintenance programme planning shall be in twostages

a. First Stage: Within 28 days of issuance of Letter of Commencement by the Employer. Contractor & Engineer shall identify the activities of RoutineMaintenance,whichshallhavetobe taken upimmediately who check the further deterioration of paved and unpaved surface of carriageway separately.To identify these activities formal field inspection shall be carried out by technical staff of Contractor&Engineer.A management meeting shall then be called within 7 (seven) days of inspection to scrutinize the identified works and then these works shall be quantified.

Engineer shall then issue indent to contractor for execution of these works specifying quantity to be executed at different locations, amount of works calculated on the basis ofthe unit rates quoted by contractor and dateofcompletion. This part of work shall certainly be commenced not laterthenstipulated date of commencement.

b. Finalization of yearly maintenance programme: This activity shall begin with the stipulated date of commencement. The various steps proposed to be taken under this are as under:

i. to carryout present state inspection of entire stretch of Highwayby Contractor &Engineer.

ii. To identify defects as per various available engineering characteristics of road & measurement of all defects in each sub-section (lengthof subsection shall be 200 m) based on representative measurements for 25 m length in each sub section. The extent of defects shall be recordedin forms finalized in consultation with NHAI for paved road, unpaved road and structure / furniture. All Defects with its extent shall be assessed in terms of length & area of the sub section, mentioning chainage (locations) in order to have exact estimate of work.

iii. A comprehensive documentation shall be prepared separately by Engineer and Contractor mentioning their assessment of various types of defects in each km of road.

iv. Management meetings shall be called within 15 days of inspection to finalise and then to quantity the defects after comparison of measured condition of road and maintenance intervention levels set out in this Section on commonly acceptable basis. This shall be followed by identification of particular maintenance work proposed to be carried out at site to make good the defects noted above, out of various alternatives available inBOQ.

ResourceEstimation

The Engineer shall workout the yearly requirement of funds based on unit prices rates quoted by Contractor and quantities of various items proposed to be executed. A tentative programme shall be drawn on the basis of resources available with the contractor at different times of maintenance period including available establishment, equipment and labour availability with him. Cash flow available with the contractor shall also be basic input to

determine proposed maintenance programme.

Identification ofPriorities

The Engineer shall work out order of priority, judiciously in order that jobs that have the stronger claim or resources placed ahead of the list and those having least claim are placed at theend.

The maintenance activities by order of importance shall be reckoned in the following order or as deemed proper byEngineer:

a. Urgent Works: Emergency repairs, removal of road blockade, repair to road breach, removal of accidental vehicles and dead animals, immediate repairs to CDworks.
b. Recurrent Works: Blading and grading of unpaved surface, spot gravellingof unpaved surfaces, clearing of drains before rains.

c. Periodic Works: Re-gravelling shoulders, major repair to defective carriageway, road surface markings resealing and repair to CDworks.

The activities mentioned under Routine Maintenance shall be carried out on continuous basis as does not fall in order ofpriority.

Seasonal variation in the year shall also be influencing factor to decide order of priority of maintenanceworks.

WorkScheduling

The maintenance and rehabilitation work of road is of unpredictable nature so quantities shown against each item or work are only representative. It is expected that they would be consumed during the entire base period of works but employer would not be responsible to pay any compensation etc. in case there is variation to any extent in quantity of actual execution of particular item of work with respect to representative quantity shown in BOQ for that particularwork.

Scrutinized work proposals shall be negotiated by the Engineer with Contractor for quantity and time to complete those particular activities and accordingly they shall be classified into twogroups:

Group – I: Works of short duration of completion (up to 2 months)
Group – II: Works of larger duration of Completion (more then 2 months)

For works under Group I, Weekly Indent, Monthly Indent, Quarterly indents shall be issued and for works classified under Group 2, bi-annual indents shall be **issued by the Engineer**. These indents shall mean to identify, quantity the various works which contractor is expected to execute on his unit rates quoted by him at specified locations within the time period assigned in the indents. Each indent shall be treated as part of the work for

which contractor has submitted Bids. The terms & conditions applicable in bid document shall also be applicable to these indentedworks.

In case of urgency requiring immediate actions to remove road blockade, to construct temporary diversion or urgent preventive measures to reduce extent of expected damages or to make precautionary arrangements to handleemergencies,. Engineer shall issue interim indents for such works / arrangements to be complied with by the contractor in responsible manner without loss oftime.

WorkManagement

The success of Contract maintenance system lies with good work management. The contractor shall draw activities which shall be accomplished by in house crew and portion of the work to be accomplished with subcontractors.

(SECTION-IX)

ADDITIONAL CONDITIONS

ADDITIONAL CONDITIONS

1 Before tendering, the tenderer shall inspect the site of work and shall full acquaint himselftheabovetermsandconditionswithregardtosite,natureofsoil,availability of material suitable location for execution of work and time involved in the work (over the entire duration of contract) including local conditions that restrictions, obstructions and other conditions, as required for satisfactory and timely execution of the work. His rates should take into consideration all such factors like supply and storage of materials, man and machinery, land etc. and contingencies. No claim whatsoever shall be entertained by the NHAI on thisaccount.

2 The contractor must study the specifications and conditions carefully before tendering.

3 Before the start of the work, the contractor shall submit the program of execution of work, get it approved from the Engineer/NHAI and strictly adhere the same for the timely completion of the projectwork.

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

5 The contractor shall all times carryout work on the highway in a manner creating No interference in the flow of traffic as per direction ofEngineer/Employer

6 All arrangements for traffic diversion during construction including maintenance of diversion road shall be considered as incidental to the work and contractor's responsibility and nothing shall be payable to him in this respect. However, if any new diversion road is constructed by the contractor, the same shall be paid separately.

7 The work shall be carried out in such a manner so as not to interfere or effect or disturb either works, being executed by other agencies, ifany.

8 Any damage done by the contractor to any existing work shall be made good by him at his owncost.

9 The work shall be carried out in the manner complying in all respect with the requirement of relevant bye-laws of the local bodies under the jurisdiction of which the work is to be executed and nothing extra shall be paid on thisaccount.

10 For completing the work in time, the contractor might be required to work in two or more shifts including night shifts and no claim whatsoever shall be entertained on this account notwithstanding the facts that the contractor will have to pay to the labourers and other staff engaged directly or indirectly on

the work according to the provision of the law regulation and the agreement entered upon and/or extra amount for any other reason.

11 The contractor shall make his own arrangements for obtaining electric connection(s) as required and make necessary payment directly to the department concerned. The Department will however make all reasonable recommendations to the authority concerned in this regard.

12 The contractor or his authorized representative should always be available at the site of work to take instructions from Engineer or his authorized representative and

ensure proper execution of work(s) or work should not be done in the absence of such authorized representative.

13 The structural and other drawings for the work, shall at all times, be properly corrected before executing thework.

14 The contractor shall maintain in good condition all works executed till the completion of the entire work allotted to thecontractor.

15 No payment will be made to the contractor for damage caused by rains, or other naturalcalamitiesduringtheexecutionofworksandnosuchclaimsonthisaccount will beentertained.

16 Royalty at the prevalent rates and all other incidental expenditure shall have to be paid by the contractor on all the boulders, metal, earth, sand, bajri etc. collected him for the execution of the work direct to the concerned Revenue Authority of the state or central Govt. His rates are deemed to include all such expenditure and nothing extra shall bepaid.

17 The contractor shall take all necessary measures for the safety of traffic during construction period, erect and maintain such barricades, including signs, markings, flags,lightsandflagman,asnecessaryateitherendoftheexcavationembankment and at such intermediate points as directed by the Engineer for the proper identification of construction area. The Contractor's rate shall include above items of work and nothing extra shall be paid to Contractor. He shall be responsible for all damages and accidents caused due to negligence on thepart.

18 The contractor shall provide suitable barricading with suitably painted single row of the sheets about 3'0" wide (90cms) nailed or bolted with wooden poles spaced 2 to 3 meter apart and each pole 1.6m to 2m long, 8 cm to 10 cm dia. The poles will beembeddedtomobileironpedestalringssuitablyframedforgivingstablesupport without hindrances to the traffic as per direction of the Engineer/NHAI. All management (including, watch and ward) of barricades shall be the full

responsibility of the contractor. The barricade shall be removed only after completion of the work or part of the work. The contractor's rates which include all above items of work and nothing extra shall be paid to the contractor over and above his quoted rates.

19 The temporary warning lamps shall be installed at all barricades during the hours of darkness and kept lit at all times during these hours.

20 The malba/garbage, removed from the site shall be disposed off by the contractor at any suitable place as directed by theEngineer.

21 All work and materials brought and left upon the ground by the contractor or by his order for the purpose of forming part of the works are to be considered to be the property of the NHAI and the same are not to be removed or taken away by the contractor or any other person without special license and consent in writing of the Engineer/NHAI but the NHAI is not be in any way responsible for any loss or damaged which may happen to or in respect of any such work or materials either by the same being lost or damaged by weather or otherwise.

22 Thecontractorwillberesponsibletoprovidedeephandpump/tubewellatsiteof

work to make potable and safe drinking water to labour engaged in execution of work.

23 The rates for all items of work, unless clearly specified otherwise, shall include the cost of all labour, materials dewatering and other inputs involved in the execution of the items. If any reason contractor fails to quote his rate for any item provided in the schedule of quantities it will be assumed that contractor is ready to execute that item free ofcost.

24 Unless otherwise provided in the schedule of quantities the rates tendered by the contractor shall be all-inclusive and shall apply to all heights, depths, leads and lifts.

25 The contractor shall bear all incidental charges for cartage, storage and safe custody of materials.

26 The nature of work is such that contractor may have to carry out a part of work announced not less than Rs.50,000 (Fifty Thousand) or full work on short notice of 48 hours from Engineer in writing on site order book or through special messenger. Failure to comply with the instruction or delay in taking up the work as perschedule issued by the Engineer shall attract penalty clause as mentioned in the agreement. In addition a fine of Rs.1000/-per day for each day of default shall be recovered from contractor and decision of Engineer shall be final, binding and not open to arbitration.

27 Existing drains, pipes, cables, overhead wires, sewer lines, water line and similar services encountered in the course of the execution of the work shall be protected against the damages by the contractor. The contractors shall not store material or otherwise occupy any part of the site in a manner likely to hinder

the operation of suchservices.

28 The contractor will not have any claim in case of any delay by the Engineer in removal of trees or shifting, removing of telegraph, telephone or electric lines (overhead and underground), water and sewer lines and other structure etc. if any, which may come in the way of the work. However, suitable extension of time can be granted to cover suchdelay.

29 Stipulated material shall be arranged by the contractor at site of work or all the items where such materials are required.

i) Tendered rates are inclusive of all taxes and levies payment under the respective statutes. However, pursuant to the constitution (46th amendment) Act 1982, it also further tax or levy is imposed by statute, afterthedate of receiptoftendersandthecontractorthereuponnecessarilyandproperlypays such taxes/levies, the contractor shall be reimburse the amount so paid, provided such payment, if any, is not in the opinion of Chief General Manager (Tech)/ProjectDirectorwhosedecisionshallbefinalandbinding)attributable to delay in execution of the work within the control of the contractor.

ii) The contractor shall keep necessary books of account and other documents for the purpose of this condition as may be necessary and shall allow inspectionofthesamebyadulyauthorizedrepresentativeofGovt.andfurther shall furnish such other information/documents as Engineer may require.

iii) The contractor shall within a period of 30 days of imposition of any further tax or levy in pursuant to the constitution of (46th Amendment) Act 1982, given a written notice thereof to the Engineer that the same is given pursuant to this condition together with all necessary information relatingthereto.

30 Contractor may be required to execute this work under foul position. The decision of the Engineer whether the position is foul or not shall be final and the binding of the contractor and nothing extra for executing the work in foul position is payable, beyond what is provided in the schedule ofquantities.