



National Highways & Infrastructure Development Corporation Limited
(Ministry of Road Transport & Highway)
Government of India

Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

Request for Proposal

April, 2017

Corporate Office: 3rd Floor, PTI Building, 4 Parliament Street, New Delhi-110001

CONTENTS

Sl. No.	Content
1	Notice Inviting Tender (NIT)
2	Letter of Invitation
3	Appendix - I : Terms of Reference
4	Supplement -I: Additional Requirements for Hill Roads
5	Supplement - II: Additional Requirements for Bridges
6	Supplement - III : Additional requirement for safety audit
7	Enclosure - I : Manning Schedule
8	Enclosure - II : Qualification Requirements of Key Personnel
9	Enclosure - III: Schedule for Submission of Reports and Documents
10	Appendix - II : Formats for Eligibility
11	Appendix - III : Formats for Technical Proposals
12	Appendix - IV: Formats for Financial Proposals
13	Appendix - V: Deleted
14	Appendix - VI: Draft Contract Agreement

NOTICE INVITING E-TENDER

National Highways & Infrastructure Development Corporation Ltd.
(Ministry of Road Transport & Highways)
Government of India
NOTICE INVITING TENDER (NIT)

NHIDCL has been assigned the work of upgradation of National Highways by the Ministry of Road Transport & Highways, Govt. of India in the North East Region (NER).

2. Proposals are hereby invited from eligible Consultants for “**Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura**” (hereinafter called as ‘Assignment’). The Letter of Invitation (LOI) and Terms of Reference (TOR) including Request for Proposal (RFP) are available online on e-tender portal of NIC i.e. <https://eprocure.gov.in> .

3. The document can also be viewed at NHIDCL website <https://www.nhidcl.com>. The cost of the bid document in the form of a non- refundable document fee of Rs. 5,000 (Rupees Five Thousand only) in the form of Demand Draft favoring ‘**National Highways & Infrastructure Development Corporation Ltd.**’ and payable at New Delhi must be furnished in a separate envelop while submitting the proposal.

4. Bid must be submitted online at e-tender portal <https://eprocure.gov.in> on or before as per schedule given hereunder.

S.No	Description	Period
1.	Date of issue of NIT	27.04.2017
2.	Date of issue of Sale of Tender Documents	27.04.2017
3.	Date of receipt of pre-bid queries	11.05.2017
4.	Date of Pre-Bid meeting	12.05.2017 (at 11 hrs)
5.	Date of uploading of reply to the pre-bid queries	17.05.2017
6.	End date of submission of Tender/Bid (online& hard copy)	30.05.2017 (upto 1500 hrs)
7.	Date of opening of Technical Bid	31.05.2017 at 1530 hrs
8.	Validity of Bid	120 Days

5. The IEM, NHIDCL is Dr.Satyanarayana Dash, IAS (Retd.).

Sandeep Kumar
General Manager (Technical)
National Highway & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001
Ph. 011-23461616;
Email: gmt1@nhidcl.com

**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION
LIMITED**

(A Govt. of India Undertaking)

NIT No. NHIDCL/Tripura/NH-44/2017

Dated 27.04.2017

Letter of Invitation

Dear Sir,

Sub: Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

1. NHIDCL invites online bids from Consultancy firms as per schedule given hereunder:-

Name of the work: Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

NHIDCL will be the employer and executing agency for the Consultancy Services sought and the standard of output required from the appointed Consultants are expected to be of high standard both in terms of quality and adherence to the agreed time schedules. The Letter of Invitation (LOI) and Terms of Reference (TOR) including Request for Proposal (RFP) are available online on e-tender portal of NIC i.e. <https://eprocure.gov.in> and also can be viewed on NHIDCL website www.nhidcl.com.

2. **Brief Scope of Work-** The scope of services shall be as per TOR.
3. **Time for completion:** The Consultant shall complete and submit the study/detailed report as per scope of work in **6 months** from the date of letter to proceed.
4. **Cost of Bid Document:** The cost of the bid document in the form of a non- refundable document fee of Rs. 5,000 (Rupees Five Thousand only) in the form of Demand Draft favouring “National Highways & Infrastructure Development Corporation Ltd.” and payable at New Delhi must be furnished in a separate envelope while submitting the proposal.
5. **Cost of e-tender processing fee:** As per the CPPP norms. The Bidders are requested to visit the website <https://eprocure.gov.in>. The bid document can be downloaded from the <https://eprocure.gov.in>. Corrigendum, if any, would appear on this web site only and shall not be published elsewhere.
6. The intending bidder(s) must read the General Conditions of this contract carefully. He/ She should only submit his/her bid if eligible and in possession of all the documents required.

7. Information and instructions for bidders posted on website shall form part of the bid document.
8. The bid document consisting of scope of work and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and can be downloaded from website <https://eprocure.gov.in> and can also be viewed at www.nhidcl.com
9. The intending bidder(s) must have valid class-III Digital Signature Certificate to submit the bid.
10. Notwithstanding anything stated above, NHIDCL reserves the right to assess the capabilities and capacity of the bidder to perform the contract in the overall interest of NHIDCL.
11. The bidder(s) is/are required to quote strictly as per the terms and conditions, given in the tender documents and not to stipulate any deviations.
12. NHIDCL reserves the right to reject any or all tenders or cancel/withdraw the invitation for bids without assigning any reason whatsoever and in such case no bidder/intending bidder shall have any claim arising out of such action.
13. Deleted.
14. Bid Security:
 - 14.1 The applicant shall furnish as part of its proposal, a Bid Security of Rs 100,000 (Rupees One Lakh only) in the form of Demand Draft/Banker's Cheque in favour of "National Highways & Infrastructure Development Corporation Ltd. payable at New Delhi (the "Bid Security")
 - 14.2 This Bid Security is returnable not later than 30 (thirty) days from the date of Opening of the financial proposals. Bid Security of L-1 bidder shall be returned upon the signing the Agreement after receipt of Performance Bank Guarantee. Bid Security of all other bidders shall be returned in 15 days from the date of issuing LoA to the L1 bidder.
 - 14.3 Any Bid not accompanied by the Bid Security of the required value and minimum required validity shall be rejected by the Client as non responsive.
 - 14.4 The NHIDCL shall not be liable to pay any interest on the Bid Security and the same shall be interest free.
 - 14.4.1 The Consultant by submitting its proposal pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the NHIDCL's any other right or remedy hereunder or in law or otherwise, the Bid Security shall be forfeited and appropriated by NHIDCL as the mutually agreed pre-estimated compensation and damage payable to NHIDCL for, *inter alia* the time, cost and effort of the NHIDCL in regard to RFP including the consideration and evaluation of the Proposal under the following conditions:
 - (a) If a Consultant withdraws its proposal during the period of its validity as specified in this RFP;
 - (b) Deleted.
 - (c) In the case of a selected Consultant, if the Consultant fails to sign the Agreement.

15. Set of Tender Documents:

The following documents will constitute the set of tender documents:

- a) Notice inviting e-Tender
- b) RFP

- c) Technical Proposal.
- d) Financial Proposal.
- e) Deleted.
- f) Corrigendum, if any
- g) Other documents, if any

16. Mode of Submission

The bidder must submit the Technical Bid in sealed envelope addressed to **General Manager (Technical-1), National Highways & Infrastructure Development Corporation Ltd, PTI Building, 3rd Floor, Parliament Street, New Delhi-110001. The envelope shall contain the following documents:**

- a. Demand Draft/Banker's Cheque of any Scheduled Bank against BID SECURITY.
- b. Demand Draft or Banker's Cheque of any Scheduled Bank towards cost of Bid Document.
- c. Deleted.
- d. Letter of Acceptance of tender conditions in the prescribed format as enclosed in the section 2 of RFP.
- e. Power of Attorney
- f. Proof of Empanelment
- g. Proof of average turnover of Rs. 50 lakh during past three years in the Infrastructure Consultancy Business/Services duly certified by chartered accountant.
- h. Copy of Debarment/Enforcement, litigation history, if any, as per clause 27 & 28.

The envelope containing Technical Proposal (bid) should also indicate clearly the name of the bidder and his/her address. In addition, the left hand top corner of the envelope or container should indicate the name of the work, name of the document in the envelope with bid opening date and time and the addressed to the address mentioned above and shall reach on 30.05.2017 by 1500 hrs. The on line bids shall be opened at 1530 hrs on 31.05.2017.

Online technical bid documents submitted by intending bidders shall be opened only of those bidders, whose Bid Security, Cost of Bid Document and other documents placed in the envelope are found in order. **The Financial Proposal (bid) of those bidders whose documents are found to be in order and who qualify in the technical evaluation shall be opened. The date of opening of Financial Bid shall be informed to the bidder on CPP Portal.**

The following documents are to be submitted online as Technical Bid.

- a) Scan Copy of Demand Draft or Banker Cheque of any Scheduled Bank against BID SECURITY.
- b) Scan Copy of Demand Draft or Banker's Cheque of any Scheduled Bank towards cost of Bid Document.
- c) Deleted.
- d) Scan Copy of Letter of Acceptance of tender conditions in the prescribed format as enclosed in the section 2 of RFP.
- e) Scan Copy of Power of Attorney
- f) Scan Copy of Proof of Empanelment
- g) Proof of average turnover of Rs. 50 lakh during past three years in the Infrastructure

Consultancy Business/Services duly certified by Chartered Accountant.

h) Scan Copy of Debarment/Enforcement (if any).

17. Before the last date and time of submission of bid as notified, the bidder can submit revised bid any number of times.
18. Deleted.
19. Proposal Evaluation will be done as given in Clause 38.2 of LoI.
20. The bid for the works shall remain open for acceptance for a period of 120 days from the last date of submission of bid including the extension given, if any. In case any bidder withdraws his/her bid before the said period or issue of Letter of Award, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to NHIDCL, then NHIDCL shall, without prejudice to any other right or remedy, would be at liberty to forfeit the said bid security as aforesaid. Further the bidders shall not be allowed to participate in the re-bidding process, if any.
21. The acceptance of any or all tender(s) will rest with the NHIDCL which does not bind itself to accept the lowest tender and reserves to itself the right to reject any or all of the tenders received without assigning any reason thereof.
22. On acceptance of tender, the name of the authorized representative(s) of the Consultant firms (who would be responsible for taking instructions from Engineer-in-charge / GM, NHIDCL or its authorized representative) shall be intimated within 07 days of the issue of Letter of Award by NHIDCL.
23. Date of start of work shall be reckoned from the date of Letter to Proceed which shall be issued upon signing of the contract agreement.
24. The award of consultancy work, execution and completion of work shall be governed by tender documents consisting of (but not limited to) Letter of Award, Financial Bid, TOR, Conditions of Contract etc. The bidders shall be deemed to have gone through the various conditions while making/preparing their technical & financial proposals & submitting the Bid(s) including site conditions, topography of the land, drainage and accessibility etc. or any other condition which in the opinion of bidder will affect his/her price/rates before quoting their rates.
25. Any entity which has been barred by the Central/ State Government, or any entity controlled by it, from participating in any project, and the bar subsists as on the date of Application, would not be eligible to submit the BID.
26. The Bidder should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, as the case may be, nor should have been expelled from any project or contract by any public entity nor should have had any contract terminated by any public entity for breach by such Bidder.
27. The Bidder shall provide details of all such on-going projects where litigation is on going along with updated stage of litigation, if so, against the Authority / Governments.
28. The Bidder shall also provide details of updated on-going process of blacklisting if so, under any contract with Authority / Government.
29. The Authority reserves the right to reject an otherwise eligible bidder on the basis of the information provided under clause 26, clause 27 & clause 28. The decision of the Authority in this case shall be final.
30. **Introduction**

- 30.1 The Consultant firms are invited to submit Technical bid together with a Financial Bid. The tender will be the basis for technical discussions /negotiations if required and ultimately for a signed Contract with the selected Consultant firms.
- 30.2 Consultant firms should familiarize themselves with local conditions and take them into account while preparing their Proposals. To obtain first-hand information on the assignment and local conditions, Consultant firms may visit the site before submitting their proposal. Consultant firms or their authorized representatives should contact the following regarding site specific information and site visit enquiry.

Sandeep Kumar

GM (Tech)

National Highways & Infrastructure Development Corporation Ltd.

Head Office:3rd Floor PTI building, 4 Parliament Street

New Delhi-110001

Phone No. 011-23461616

Email: gmt1@nhidcl.com

- 30.3(a) The NHIDCL will provide the inputs to the consultant firms, if available. However, NHIDCL does not assume any responsibility for any loss or financial damages on account of use of such information by consultant & consultants are advised to collect their own information for preparation, submission of bids & execution of services after award of work.
- 30.3(b) The Consultant firms shall be responsible for obtaining licenses and permits to carry out the services.
- 30.4 Consultant firms shall bear all costs associated with the preparation and submission of their proposals and contract negotiation, site visits etc.
- 30.5 The NHIDCL is not bound to accept any proposal and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Consultant firms.

31 Conflict of Interest

- 31.1 NHIDCL policy requires that Consultant Firms provide professional, objective, and impartial advice and at all times hold the NHIDCL interests paramount, strictly to avoid conflicts with other assignments or their own corporate interests and act without any consideration for future work.
- 31.2
- (i) Without limitation on the generality of the foregoing, Consultants, and any of their affiliates, shall be considered to have a conflict of interest and shall not be recruited, under any of the circumstances set forth below:

Conflicting assignments

- (ii) A Consultant firm (including its Personnel and Sub Consultants) or any of its affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Consultant to be executed for the same or for another Employer.

Conflicting relationship

- (iii) A consultant (including its Personnel and Sub Consultants) that has a business or family relationship with a member of the NHIDCL staff who is directly or indirectly involved in any part of (a) the preparation of the Terms of Reference of the assignment, (b) the selection process for such assignment, or (c) supervision of the Contract, may not be awarded a Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable to NHIDCL throughout the selection process and the execution of the Contract.
- 31.3 Consultant firms have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the NHIDCL, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Consultant firms or the termination of its Contract any time, throughout currency of the work.
- 31.4 No current employees of the NHIDCL shall work at Consultant's firm. Recruiting former employees of the NHIDCL to work is acceptable, provided no conflict of interest exists.

32 Fraud and Corruption

- 32.1 The NHIDCL requires that the Consultant firms participating in selection process adhere to the highest ethical standards, both during the selection process and throughout the execution of a contract. In pursuance of this policy, the NHIDCL:
- (a) defines, for the purpose of this paragraph, the terms set forth below:
 - (i) "corrupt practice" means the offering, promising, giving, receiving, or soliciting, directly or indirectly, of anything of value to a public official which he/she is not legally entitled to, to influence their action(s) in the selection process or in contract execution;
 - (ii) "fraudulent practice" means a willful misrepresentation or omission of facts or submission of fake/forged Documents in order to influence a selection process or the execution of a contract;
 - (iii) "collusive practices" means a scheme or arrangement whether formal or informal, between two or more consultants with or without the knowledge of the NHIDCL, designed to establish prices at artificial, non competitive levels, submission or non submission of Bids;
 - (iv) "Coercive practices" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract.
 - (b) will reject a proposal for award if it determines that the Consultant firm recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question; and
 - (c) will impose a sanction on the consultant firm, including declaring the consultant ineligible, either indefinitely or for a stated period of time, for award of a contract if at any time determines that the consultant firms has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing a contract.
- 32.2 The consultants firms should be aware of the provisions on fraud and corruption stated in the specific clauses in the General Conditions of Contract.

33 Only One Proposal

The consultant firm shall only submit one proposal. If a Consultant submits or participates in more than one proposal, such proposals shall be disqualified. However, this does not limit the

participation of the same Sub-Consultant, including individual experts, to more than one proposal.

34 Proposal Validity

The Proposal (bid) must remain valid for 120 days after the last date fixed for submission of bid including the extension(s) given, if any.

35. Clarification and Amendment of Bid Documents

35.1 Consultant firms may request for a clarification on any clause(s) of the Bid documents as per the schedule mentioned in the Critical Date Sheet in Section – 1. Any request for clarification must be sent in writing, or by standard electronic means to the NHIDCL's address. The NHIDCL will respond in writing, or by standard electronic means and will send written copies of the response (including an explanation of the query but without disclosing the Source of query) to all Consultant firms. Should NHIDCL find it necessary to amend the bid document as a result of a clarification or any other reasons it shall do so following the procedure under para 35.2. However NHIDCL reserves the right to respond to the queries after cutoff date as mentioned above.

35.2 At any time before the submission of tender, NHIDCL may modify/ amend the bid document and extend the last date of submission/ opening of the tender by issuing a corrigendum/addendum. Any Corrigendum/Addendum thus issued shall form part of tender document and shall be posted only on <https://eprocure.gov.in> and the consultants are thus advised to update their information by using said website. To give the consultant reasonable time to take such amendments into account in their bids, and on account of any other reasonable circumstances, NHIDCL may at its discretion, extend the deadline for the submission/opening of the tender.

36 Preparation of Bid Proposal

36.1 In preparing their Proposal/tender, Consultant firms are expected to examine in detail the RFP document. The Proposal shall contain technical & financial Bids.

36.2 The bid proposals, all related correspondence exchanged by the Consultant firms & NHIDCL and the contract to be signed with the winning consultant shall be written in English language.

36.3 Technical Bid Proposal

a) The Technical bid shall not include any financial information. A Technical bid containing financial information shall be declared non responsive/invalid.

b) The Technical bid will be declared non responsive/ invalid, if the bid is not accompanied by the requisite documents as stipulated under clause 16 above.

36.4 Financial Bid Proposals

The Financial bid shall not include any commercial or technical condition/information.

37 Submission, Receipt and Opening of bids

37.1 The original bids (Technical bid and Financial bid) shall contain no interlineations or overwriting, except as necessary to correct errors made by the Consultants themselves. The person who signed tender documents must initial such corrections. Letter for acceptance of

tender condition should be submitted in the prescribed format of Annexure-I.

- 37.2 An authorized representative of the Consultant firms shall sign the Technical & Financial bids. The authorization shall be in the form of a legally enforceable written power of attorney executed on non-judicial stamp paper of appropriate value duly notarized and shall be submitted along with bid.
- 37.3 The NHIDCL shall open the Technical bid after the deadline for the submission of original in hard form as per NIT. The Financial bid shall remain securely stored.

38 Tender Evaluation

- 38.1 If required, the NHIDCL may seek clarifications on the technical bid of the applicants. If the clarifications sought by the NHIDCL are not received in stipulated period, technical evaluation then will be done based on available data in the technical bid. Evaluators of Technical bid shall have no access to the financial bid until the technical evaluation is concluded.

38.2 Evaluation of Technical Bid

Technical bid shall be evaluated only of those bidders who have submitted following documents. Otherwise bid shall be considered as Non-Responsive.

1. Demand Draft or Banker's Cheque of Rs. 100000/-issued from any Nationalized or approved Scheduled Bank towards bid security.
2. Demand Draft or Banker's Cheque of Rs. 5,000/- issued from any Scheduled Bank towards cost of Bid Document.
3. Deleted.
4. Letter of Acceptance of tender conditions, in the prescribed format as enclosed.
5. Power of Attorney.
6. Proof of Empanelment and Proof of average turnover of Rs. 50 lakh in last three years in the Infrastructure Consultancy Business/Services duly certified by chartered accountant.
7. Copy of Debarment/Enforcement.(if any).

- 38.3 Bidders fulfilling clause 38.2 above shall be technically evaluated as given hereunder.

i) Consultants empanelled with the MORTH under Category II, vide Ministry's letter No. RW/NH-34054/1/2014-S& R(B) dated 03.05.2016. and letter no. RW/NH-34054/1/2006-S& R(B)-Part IV dated 01.08.2014, 15.01.2015 and 23.12.2013

ii) The firm should have a minimum average turnover of Rs. 50 lakh during past three years in the infrastructure consultancy services/ business (duly certified by chartered accountant).

The bidders fulfilling these criteria shall be eligible for opening of financial bids.

39 Evaluation of Financial Bid:

The eligible Consultancy firms quoting the lowest rate in its Financial Proposal will be declared as L-1 Bidder.

40 Award of Contract

The participating bidders are required to quote Lump Sum Amount separately for each Bridge under the assignment in the financial bid format through online mode only. The quoted rate shall

include all taxes except service tax which should be paid extra as applicable. The bidder making lowest quote shall be the selected bidder.

41 Confidentiality

Information relating to evaluation of tenders and recommendations concerning awards shall not be disclosed to the Consultant firms who submitted the tender or to other persons not officially concerned with the process, until the publication of the award of Contract. The undue use by any Consultant of confidential information related to the process may result in the rejection of its tender and debarment of the bidder from participating in future tenders.

42 Proposal/Tender/Bid

The words Proposal, Tender and Bid shall be construed as synonyms wherever existing in this RFP document.

ACCEPTANCE OF TENDER CONDITIONS

From: (On the letter head of the company by the authorized signatory having power of attorney)

To

**Managing Director,
NHIDCL**

Sub: Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

Sir,

This has reference to above referred tender. I/We are pleased to submit our tender for the above work and I/We hereby unconditionally accept the tender conditions and tender documents in its entirety for the above work.

2. I/we are eligible to submit the bid for the subject tender and I/We are in possession of all the documents required in support of our eligibility.

3. I / We have viewed and read the terms and conditions of RFP document carefully. The following documents forming part of the tender document are being enclosed herewith in accordance with clause 16 of Letter of Invitation:

- a. Demand Draft or Banker Cheque of any Scheduled Bank against BID SECURITY.
- b. Demand Draft or Banker's Cheque of any Scheduled Bank towards cost of Bid Document.
- c. Power of Attorney.
- d. Proof of Empanelment as per clause 38.3 of LoI
- e. Proof of average turnover of Rs. 50 lakh during past three years in the Infrastructure Consultancy Business/Services (duly certified by chartered accountant).
- f. Copy of Debarment/Enforcement/Litigation History, if any.

4 I/we have also uploaded the mandatory scanned documents in response to Clause 16 of LoI.

Encl.: As above.

Yours faithfully,

(Sign of the bidder)

With rubber stamp

Dated:_____

(Annexure-I of Acceptance of Tender Conditions)

Form - A

General Information

1.	Name of Applicant / Company	
2.	Address for correspondence	
3.	Contact Person: Telephone Nos. Fax Nos. Mobile	
3	Type of Organisation: (a) An individual (b) A proprietary firm (c) A firm in partnership (Attach copy of partnership) (d) A Limited Company (Attach copy of Articles of Association) (e) Any other (mention the type)	
5.	Place and Year of Incorporation	
6.	Details of registration/membership with Institute of Engineers or such other Institute. (Attach copy)	
7.	Name of Director/Partners in the organisation and their status along with their qualifications.	
8.	Name(s) of the persons along with their qualification and designation, who is authorised to deal with NHIDCL.(Attach copy of power of Attorney)	
9.	Organisation Chart of Key Personnel	
10.	Details of Awards/ Appreciations supported with document to be submitted.	
11.	Any other Information	

(Annexure II of Acceptance of Tender Conditions)

Form – B

Turn over for last three years (duly certified by Chartered Accountant):

S. No.	Financial Year	Fees Earned from Infrastructure Consultancy Business/Services
1	2013-14	
2	2014-15	
3	2015-16	

**(Annexure III of Acceptance of Tender Conditions)
Form - C**

AFFIDAVIT

(TO BE SUBMITTED ON NON-JUDICIAL STAMP PAPER OF MINIMUM Rs. 10/- DULY
CERTIFIED BY NOTARY PUBLIC)

Affidavit of Mr....., S/o..... R/o.....

I, the deponent above named do hereby solemnly affirm and declare a under:

1. That I am the Proprietor/Authorised Signatory of M/s.....having its Head Office / Regd. Office at.....
2. That the information / documents/ experience certificates submitted by M/s.....along with this tender to NHIDCL are genuine and true and nothing has been concealed.
3. I shall have no objection in case NHIDCL verifies them from issuing Authority (ies). I shall also have no objection in providing the original copy of the documents(s), in case NHIDCL demands so for verification.
4. I hereby confirm that in case, any document, information &/or certificate submitted by me are found to be incorrect/false/fabricated, NHIDCL at its discretion may disqualify / reject my application for pre-qualification out rightly and also debar me / M/s.....from participating in any future tenders / PQ.

DEPONENT

I,....., the Proprietor / Authorised Signatory of M/s....., do hereby confirm that the contents of the above Affidavit are true to my knowledge and nothing has been concealed there from and that no part of it is false.

Verified at.....this.....day of

DEPONENT

(Annexure IV of Acceptance of Tender Conditions)

Form – D

AFFIDAVIT (original to be submitted in the envelope containing originals)

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 with National Highways & Infrastructure Development Corporation Ltd. 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 NHIDCL 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 NHIDCL and within the prescribed time.

(Signed by an Authorised Representative of the Firm)

Name of the Representative

Name of Firm

DATE

(To be notarized by Notary)

(Annexure V of Acceptance of Tender Conditions)

Form – E

UNDERTAKING

(Original to be submitted in the envelope containing originals)

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 Authorised Representative of the Firm)

Name of the Representative

Name of Firm

DATE

(To be notarized by Notary)

INSTRUCTIONSTO BIDDERS

1. Central Procurement Portal

Instructions to the Bidders to submit the bids online through the Central Public Procurement Portal website for e-Procurement at **<https://eprocure.gov.in>**:-

- (i.) Possession of valid Digital Signature Certificate (DSC) and enrollment/registration of the Consultants/bidders on the eProcurement/eTender portal is a prerequisite for e-tendering.
- (ii.) Bidder should do the enrollment in the e-Procurement site using the “Click here to Enroll” option available on the home page. Portal enrollment is generally free of charge. During enrollment/registration, the bidders should provide the correct/true information including valid email ID. All the correspondence shall be made directly with the Consultants/bidders through email id provided.
- (iii.) Bidder need to login to the site through their user ID/ password chosen during enrollment/ registration.
- (iv.) The Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by SIFY/TCS/nCode/eMudra or any Certifying Authority recognized by CCA India on eToken/SmartCard, should be registered.
- (v.) The DSC that is registered only should be used by the bidder and should ensure safety of the same.
- (vi.) Consultant/Bidder may go through the tenders published on the site and download the required tender documents/schedules for the tenders he/she is interested.
- (vii.) After downloading / getting the tender document/schedules, the Bidder should go through them carefully and then submit the documents as asked, otherwise bid will be rejected.
- (viii.) If there are any clarifications, this may be obtained online through the tender site, or through the contact details. Bidder should take into account the corrigendum published before submitting the bids online.
- (ix.) From “my tender” folder, select the tender to view all the details indicated.
- (x.) Bidder can then log in to the site through the secured login by entering the user id/ password chosen during enrolment/registration and then by entering the password of the eToken/SmartCard to access DSC.
- (xi.) Bidder can then select the tender which he/she is interested in by using the search option & then moving it to the ‘my tenders’ folder.
- (xii.) It is construed that the bidders have read all the terms and conditions before submitting their offer. Bidders should go through the tender schedules carefully and upload the documents as asked; otherwise, the bid will be rejected.
- (xiii.) Bidders should ready the bid documents to be submitted, in advance, as indicated in the tender document/schedule and generally, they can be in PDF/xls/rar/zip/dwf formats. If there is more than one document, they can be clubbed together and can be provided in the requested format. Each document to be uploaded through online portal for the

- tenders should be less than 2 MB. If any document is more than 2MB, it can be reduced through zip/rar and the same can be uploaded, if permitted. Bidders' Bid documents may be scanned with 100 dpi with black and white option. However if the file size is less than 1 MB the transaction uploading time will be very fast.
- (xiv.) If there are any clarifications, they may be obtained through the site, or during the pre-bid meeting, if any. Bidders should take into account the corrigendum published from time to time before submitting their online bids.
 - (xv.) The Bidders can update well in advance, the documents such as certificates, annual report details etc., under "My Space" option and these can be selected as per tender requirements and sent along with bid documents during bid submission. This will facilitate faster bid submission process by reducing upload time of bids.
 - (xvi.) Bidders should submit the Tender Fee/ EMD as specified in the tender. The original should be posted/couriered/given in person to the Tender Inviting Authority (TIA), at least one working date prior to bid submission due date & time for the tender. Scanned copy of the instrument should be uploaded as part of the offer.
 - (xvii.) While submitting the bids online, the bidder reads the terms & conditions and accepts the same to proceed further to submit the bid packets.
 - (xviii.) The bidder has to select the payment option as offline to pay the Tender FEE/ EMD as applicable and enter details of the instruments.
 - (xix.) The details of the DD/ any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise submitted bid will not be acceptable.
 - (xx.) The bidder has to digitally sign and upload the required bid documents one by one as indicated. Bidders to note that the very act of using DSC for downloading the bids and uploading their offers shall be deemed to be a confirmation that they have read all sections and pages of the bid document including General conditions of contract without any exception and have understood the entire document and are clear about the requirements of the tender requirements.
 - (xxi.) The bidder has to upload the relevant files required as indicated in the cover content. In case of any irrelevant files, the bid will be rejected.
 - (xxii.) If the Financial Bid format is provided in a spread sheet file like BoQ_xxxx.xls, the rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Financial Bid/BOQ template must not be modified/replaced by the bidder; else the bid submitted is liable to be rejected for this tender.
 - (xxiii.) The bidders are requested to submit the bids through online e-tendering system to the TIA well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.
 - (xxiv.) After the bid submission (ie after Clicking "Freeze Bid Submission" in the portal), the acknowledgement number, given by the system should be printed by the bidder and kept as record of evidence for online submission of bid for the particular tender and will also act as an entry pass to participate in the bid opening date.

- (xxv.) The time settings fixed in the server side & displayed at the top of the tender site, will be valid for all actions of requesting, bid submission, bid opening etc., in the e-tender system. The bidders should follow this time during bid submission.
- (xxvi.) All the data being entered by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission & not be viewable by any one until the time of bid opening.
- (xxvii.) Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- (xxviii.) The confidentiality of the bids is maintained since the secured Socket Layer 128 bit encryption technology is used. Data storage encryption of sensitive fields is done.
- (xxix.) The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.
- (xxx.) For any queries regarding e-tendering process, the bidders are requested to contact as provided in the tender document. Parallely for any further queries, the bidders are asked to contact over phone@ 1-800-233-7315 or send a mail over to cppp-nic@nic.in.

APPENDIX I

Terms of Reference for Consultancy Services (TOR)

(As relevant to nature of the assignment)

1. General

- 1.1 The National Highways & Infrastructure Development Corporation Pvt. Ltd. (NHIDCL) has been entrusted with the assignment of **Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.**

NHIDCL now invites proposal from Technical consultants for carrying out detailed project report as per details given in **Annexure-1**.

- 1.2 NHIDCL will be the employer and executing agency for the consultancy services and the standards of output required from the appointed consultants are of international level both in terms of quality and adherence to the agreed time schedule.
- 1.3 Ministry has recently awarded works of consultancy services for construction of ROBs for replacing level crossings in various states. In case a level crossing exists in a project reach, consultant is required to co-ordinate with those consultants and finalise the alignment & configuration of road accordingly. However, if the same is not covered in the above assignment of DPR/feasibility study awarded by Ministry, the consultant under this assignment shall be responsible for preparing DPR for such level crossings.

2. Objective

- 2.1 The main objective of the consultancy service is to establish the technical, economical, and financial viability of the project and prepare detailed project reports for rehabilitation and upgrading of the existing road to 2 lane with paved shoulder configuration.
- 2.2 The viability of the project shall be established taking into account the requirements with regard to rehabilitation, upgrading and improvement based on highway design, pavement design, provision of service roads wherever necessary, type of intersections, rehabilitation and widening of existing and/or construction of new bridges and structures, road safety features, quantities of various items of works and cost estimates and economic analysis.
- 2.3 The Detailed Project Report would inter-alia include detailed highway design, design of pavement and overlay with options for flexible or rigid pavements, design of bridges and cross drainage structures and grade separated structures, design of service roads, quantities

of various items, detailed working drawings, detailed cost estimates, economic and financial viability analyses, environmental and social feasibility, social and environmental action plans as appropriate and documents required for tendering the project on commercial basis for international / local competitive bidding.

- 2.4 The DPR consultant should ensure detailed project preparation incorporating aspects of value engineering, quality audit and safety audit requirement in design and implementation.
- 2.5 The consultant should, along with Feasibility Report, clearly bring out through financial analysis the preferred mode of implementation on which the Civil Works for the stretches are to be taken up. The consultant should also give cost estimates along with feasibility report/ detailed Project Report.
- 2.6 If at feasibility stage, employer desire to terminate the contract, the contract will be terminated after payment up to that stage.

3. Scope of Services

- 3.1 As far as possible, the widening/improvement work to 2 lane with Paved Shoulder shall be within the existing right of way avoiding land acquisition, except for locations having inadequate width and where provisions of short bypasses, service roads, alignment corrections, improvement of intersections are considered necessary and practicable and cost effective. However bypasses proposals should also be considered, wherever in urban areas, improvement to 2 lane with Paved Shoulder of the existing road is not possible. The Consultant shall furnish land acquisition details as per revenue records/maps for further processing of land acquisition. Consultant shall also submit 3a, 3A and 3D draft notification for acquisition of land.
- 3.2 The Consultant shall study the possible locations and design of toll plaza, if applicable to the project. Wayside amenities required on tolled highway shall also be planned. The local and slow traffic may need segregation from the main traffic and provision of service roads and fencing may be considered, wherever necessary to improve efficiency and safety.
- 3.3 The general scope of services is given in the sections that follow. However, the entire scope of services would, inter-alia, include the items mentioned in the Letter of Invitation and the TOR. The Consultant will also make suitable proposals for widening/improvement of the existing road and strengthening of the carriageways, as required at the appropriate time to maintain the level of service over the design period. The Consultants shall prepare documents for EPC contracts for each DPR assignment

- 3.4 All ready to implement 'good for construction' drawings shall be prepared.
- 3.5 Environmental Impact Assessment, Environmental Management Plan and Rehabilitation and Resettlement Studies shall be carried out by the Consultant meeting the requirements of the lending agencies like ADB/ World Bank/JICA, etc.
- 3.6 *Wherever required, consultant will liaise with concerned authorities and arrange all clarifications. Approval of all drawings including GAD and detail engineering drawings will be got done by the consultant from the Railways. However, if Railways require proof checking of the drawings prepared by the consultants, the same will be got done by NHIDCL and payment to the proof consultant shall be made by NHIDCL directly. Consultant will also obtain final approval from Ministry of Environment and Forest for all applicable clearances. Consultant will also obtain approval for estimates for shifting of utilities of all types from the concerned authorities and competent authority within MoRTH and its implementation agencies, as applicable. Consultant is also required to prepare all Land Acquisition papers (i.e. all necessary schedule and draft 3a, 3A, and 3D, 3G notification as per L.A. act) for acquisition of land either under NH Act or State Act.*
- 3.7 The DPR consultant may be required to prepare the Bid Documents, based on the feasibility report, due to exigency of the project for execution if desired by NHIDCL.
- 3.8 Consultant shall obtain all types of necessary clearances required for implementation of the project on the ground from the concerned agencies. The client shall provide the necessary supporting letters and any official fees as per the demand note issued by such concerned agencies from whom the clearances are being sought to enable implementation.
- 3.9 The consultant shall prepare separate documents for BoT as well as EPC contracts at Feasibility stage / DPR stage. The studies for financing options like BoT, Annuity, EPC will be undertaken in feasibility study stage.
- 3.10 The consultant shall be guided in its assignment by the Model Concession/ Contract Agreements for EPC projects, as applicable and the Manual of Specifications and Standards for two/ four/ six laning of highways published by IRC (IRC:SP:73 or IRC:SP:84 or IRC:SP:87, as applicable) (the "Manual") along with relevant IRC codes for design of long bridges.

- 3.11 The consultant shall prepare the bid documents including required schedules (as mentioned above) as per EPC documents. For that it is suggested that consultant should also go through the EPC documents of ministry before bidding the project. The Consultant shall assist the NHIDCL and its Financial Consultant and the Legal Adviser by furnishing clarifications as required for the financial appraisal and legal scrutiny of the Project Highway and Bid Documents.
- 3.12 Consultant shall be responsible for sharing the findings from the preparation stages during the bid process. During the bid process for a project, the consultant shall support the authority in responding to all technical queries, and shall ensure participation of senior team members of the consultant during all interaction with potential bidders including pre-bid conference, meetings, site visits etc. In addition, the consultant shall also support preparation of detailed responses to the written queries raised by the bidders.

4. General

4.1 Primary Tasks

General Scope of Services shall cover but be not limited to the following major tasks (additional requirements for Preparation of Detailed Project Report for Hill Roads and Major Bridges are given in **Supplement I** and **II** respectively):

- i. *review of all available reports and published information about the project road and the project influence area;*
- ii. *Environmental and social impact assessment, including such as related to cultural properties, natural habitats, involuntary resettlement etc.*
- ii (a). *Public consultation, including consultation with Communities located along the road, NGOs working in the area, other stake-holders and relevant Government departments at all the different stages of assignment (such as inception stage, feasibility stage, preliminary design stage and once final designs are concretized).*
- iii. *Detailed reconnaissance;*
- iv. *identification of possible improvements in the existing alignment and bypassing congested locations with alternatives, evaluation of different alternatives comparison on techno-economic and other considerations and recommendations regarding most appropriate option;*
- v. *traffic studies including traffic surveys and Axle load survey and demand forecasting for next thirty years;*
- vi. *Inventory and condition surveys for road;*

- vii. *Inventory and condition surveys for bridges, cross-drainage structures, other Structures, river Bank training/Protection works and drainage provisions;*
- viii. *Detailed topographic survey using mobile/ aerial LiDAR or equivalent technology*
- ix. *Pavement investigations;*
- x. *Sub-grade characteristics and strength: investigation of required sub-grade and sub-soil characteristics and strength for road and embankment design and sub soil investigation;*
- xi. *Identification of sources of construction materials;*
- xii. *Detailed design of road, its x-sections, horizontal and vertical alignment and design of embankment of height more than 6m and also in poor soil conditions and where density consideration require, even lesser height embankment. Detailed design of structures preparation of GAD and construction drawings and cross- drainage structures and underpasses etc.*
- xiii. *Identification of the type and the design of intersections;*
- xiv. *Design of complete drainage system and disposal point for storm water*
- xv. *Value analysis / value engineering and project costing;*
- xvi. *Economic and financial analyses;*
- xvii. *Contract packaging and implementation schedule.*
- xviii. *Strip plan indicating the scheme for carriageway widening, location of all existing utility services (both over- and underground) and the scheme for their relocation, trees to be felled, transplanted and planted and land acquisition requirements including schedule for LA: reports documents and drawings arrangement of estimates for cutting/ transplanting of trees and shifting of utilities from the concerned department;*
- xix. *To find out financial viability of project for implementation and suggest the preferred mode on which the project is to be taken up.*
- xx. *Preparation of detailed project report, cost estimate, approved for construction Drawings, rate analysis, detailed bill of quantities, bid documents for execution of civil works through budgeting resources.*

- xxi. Design of toll plaza and identification of their numbers and location and office cum residential complex including working drawings*
- xxii. Design of weighing stations, parking areas and rest areas.*
- xxiii. Any other user oriented facility en-route toll facility.*
- xxiv. Tie-in of on-going/sanctioned works of MORT&H/ NHAI/ other agencies.*
- xxv. Preparation of social plans for the project affected people as per policy of the lending agencies/ Govt. of India R & R Policy.*

- 4.2 While carrying out the field studies, investigations and design, the development plans being implemented or proposed for future implementation by the local bodies, should be taken into account. Such aspect should be clearly brought out in the reports and drawings.
- 4.3 The consultant shall study the possible locations and design of toll plaza, wayside amenities required and arboriculture along the highway shall also be planned.
- 4.4 The local and slow traffic may need segregation from the main traffic and provision of service roads and physical barrier including fencing may be considered, wherever necessary to improve efficiency and safety.

4.5 Standards and Codes of Practices

- 4.5.1 All activities related to field studies, design and documentation shall be done as per the latest guidelines/ circulars of MoRT&H and relevant publications of the Indian Roads Congress (IRC) and Bureau of Indian Standards (BIS). For aspects not covered by IRC and BIS, international standards practices, may be adopted. The Consultants, upon award of the Contract, may finalize this in consultation with NHIDCL and reflect the same in the inception report.
- 4.5.2 All notations, abbreviations and symbols used in the reports, documents and drawings shall be as per IRC:71.

4.6 Quality Assurance Plan (QAP)

4.6.1 The Consultants should have detailed Quality Assurance Plan (QAP) for all field studies including topographic surveys, traffic surveys, engineering surveys and investigations, design and documentation activities. The quality assurance plans/procedures for different field studies, engineering surveys and investigation, design and documentation activities should be presented as separate sections like engineering surveys and investigations, traffic surveys, material geo-technical and sub-soil investigations, road and pavement investigations, investigation and design of bridges & structures, environment and R&R assessment, economic & financial analysis, drawings and documentation, preparation, checking, approval and filing of calculations, identification and tractability of project documents etc. Further, additional information as per format shall be furnished regarding the details of personal who shall be responsible for carrying out/preparing and checking/verifying various activities forming part of feasibility study and project preparation, since inception to the completion of work. The detailed Draft QAP Document must be discussed and finalised with the concerned NHIDCL officers immediately upon the award of the Contract and submitted as part of the inception report.

4.6.2 It is imperative that the QAP is approved by NHIDCL before the Consultants start the field work.

4.7 Review of Data and Documents

4.7.1 The Consultants shall collect the available data and information relevant for the Study.

The data and documents of major interest shall include, but not be limited to, the following:

- i. *Climate;*
- ii. *Road inventory*
- iii. *Road condition, year of original construction, year and type of major maintenance/rehabilitation works;*
- iv. *Condition of bridges and cross-drainage structures;*
- v. *sub-surface and geo-technical data for existing bridges;*
- vi. *Hydrological data, drawings and details of existing bridges;*
- vii. *Existing geological maps, catchment area maps, contour plans etc. for the project area*
- viii. *Condition of existing river bank / protection works, if any.*
- ix. *Details of sanctioned / on-going works on the stretch sanctioned by MoRT&H/other agencies for Tie-in purposes*
- x. *Survey and evaluation of locally available construction materials;*

- xi. Historical data on classified traffic volume (preferably for 5 years or more);*
- xii. Origin-destination and commodity movement characteristics; if available*
- xiii. Speed and delay characteristics; if available;*
- xiv. Commodity-wise traffic volume; if available;*
- xv. Accident statistics; and,*
- xvi. Vehicle loading behavior (axle load spectrum), if available.*
- xvii) Type and location of existing utility services (e.g. Fibre Optical Cable, O/H and U/G Electric, Telephone line, Water mains, Sewer, Trees etc.)*
- xviii) Environmental setting and social baseline of the project.*

4.8. Social Analysis

The social analysis study shall be carried out in accordance with the MORT&H/World Bank/ADB Guidelines. The social analysis report will, among other things, provide a socio- economic profile of the project area and address in particular, indigenous people, communicable disease particularly HIV/AIDS poverty alleviation, gender, local population, industry, agriculture, employment, health, education, health, child labor, land acquisition and resettlement .

4.9 Traffic Surveys

All traffic surveys and studies will be completed in feasibility studies.

4.9.1 Number and Location of Survey Stations

1. The type of traffic surveys and the minimum number of survey stations shall normally be as under, unless otherwise specifically mentioned.

Sl.NR.	Description	Number of Survey Stations
1.	Classified Traffic Volume Count	3
2.	Origin-Destination and Commodity Movement Characteristics	Minimum 2
3.	Axle Loading Characteristics	2
4.	Intersection Volume Count	All Major Intersections
5.	Speed-Delay Characteristics	Project Road Section
6.	Pedestrian/animal cross traffic count	All major inhabitations along the highway

2. The number of survey locations indicated in the table above are indicative only. The Consultants shall, immediately upon award of the work, submit to NHIDCL proposals regarding the total number as well as the locations of the traffic survey stations as put of inception report. Suitable maps and charts should accompany the proposals clearly indicating the rationale for selecting the location of survey Station
3. The methodology of collection and analysis of data, number and location of traffic survey stations shall be finalized in consultation with NHIDCL.

4.9.2 Classified Traffic Volume Count Survey

1. Consultant shall make use of traffic survey done by Indian Highways Management Company Limited (IHMCL) using ATCC systems. If required, especially in cases where a particular stretch is not covered by IHMCL, DPR consultant should carry out classified traffic volume count survey using ATCC systems or equivalent technologies.
2. Consultant shall use ATCC systems that can meet the following accuracy levels after validation/ correction:
 - (a) Classification of vehicles: better than 95%
 - (b) Counting of vehicles: better than 98%

Before validation and correction, the ATCC system shall meet the following accuracy levels:

- (a) Classification of vehicles: better than 90%
- (b) Counting of vehicles: better than 95%

For verification of above accuracy levels, audit of raw ATCC shall be done on a sampling basis.

3. ATCC systems such as Pneumatic Tube Detector, Inductive Detector Loop, Video Image Detection, and Infrared Sensor or equivalent technologies shall be adopted.
4. The classified traffic volume count surveys shall be carried out for 7 days (continuous, direction-wise) at the selected survey stations. The vehicle classification system as given in relevant IRC code may be followed. However, the following generalised classification system is suggested in view of the requirements of traffic demand estimates and economic analysis:

Motorised Traffic		Non-Motorised Traffic	
2-Wheeler		Bi-Cycle	
3-Wheeler		Cycle-Rickshaw	
Passenger Car		Animal Drawn Vehicle (ADV)	
Utility Vehicle (Jeep, Van etc.)		Hand Cart	
		Other Non-Motorised Vehicle	
Bus	Mini Bus Standard Bus		
LCV	LCV-Passenger LCV-Freight		
Truck	MCV : 2-Axle Rigid Chassis		
	HCV : 3-Axle Rigid Chassis		
	MAV		Semi Articulated
			Articulated

5. All results shall be presented in tabular and graphical form. The survey data shall be analysed to bring out the hourly and daily variations. The traffic volume count per day shall be averaged to show a weekly average daily traffic (ADT) by vehicle type. The annual average daily traffic (AADT) shall be worked out by applying seasonal factors.
6. The consultant shall compile the relevant traffic volume data from secondary sources also. The salient features of traffic volume characteristics shall be brought out and variations if any, from the traffic census carried out by the State PWD shall be suitably explained.

4.9.3. Origin-Destination and Commodity Movements Surveys

4.9.3.1 The consultants shall carry out 1-day (24 hour, both directions) O-D and commodity movement surveys at locations finalized in consultation with

NHIDCL. These will be essentially required around congested towns to delineate through traffic. The road side interviews shall be on random sample basis and cover all four-wheeled vehicles. The location of the O-D survey and commodity movement surveys shall normally be same as for the classified traffic count.

4.9.3.2 The location of origin and destination zones shall be determined in relation to each individual station and the possibility of traffic diversion to the Project Road from/to other road routes including bypasses.

4.9.3.3 The trip matrices shall be worked out for each vehicle type information on weight for trucks should be summed up by commodity type and the results tabulated, giving total weight and average weight per truck for the various commodity types. The sample size for each vehicle type shall be indicated on the table and also in the graphical representations.

4.9.3.4 The data derived from surveys shall also be analysed to bring out the lead and load characteristics and desire line diagrams. The data analysis should also bring out the requirement for the construction of bypasses.

4.9.3.5 The distribution of lead and load obtained from the surveys should be compared. The axle load surveys shall normally be done using axle load pads or other sophisticated instruments. The location(s) of count station(s) and the survey with those derived from the axle load studies.

4.9.3.6 The commodity movement data should be duly taken into consideration while making the traffic demand estimates.

4.9.4. Turning Movement Surveys

1. The turning movement surveys for estimation of peak hour traffic for the design of major and minor intersections shall be carried out for the Study. The details regarding composition and directional movement of traffic shall be furnished by the Consultant.
2. The methodology for the surveys shall be as per IRC: SP: 41-1994. The details including location and duration of surveys shall be finalized in consultation with NHIDCL officials. The proposal in response to this TOR shall clearly indicate the number of locations that the Consultants wish to conduct turning movement surveys and the rationale for the same.
3. The data derived from the survey should be analyzed to identify requirements of suitable remedial measures, such as construction of underpasses, fly-overs, interchanges, grade-separated intersections along the project road alignment. Intersections with high traffic volume requiring special treatments either presently or in future shall be identified.

4.9.5 Axle Load Surveys

1. Axle load surveys in both directions shall be carried out at suitable location(s) in the project road stretch on a random sample basis normally for trucks only (both empty and loaded trucks) for 2 normal days - (24 hours) at special count stations to be finalized in consultation with NHIDCL. However, a few buses may be weighed in order to get an idea about their loading behavior. While selecting the location(s) of axle load survey station(s), the locations of existing bridges with load restrictions, if any, should be taken into account and such sites should be avoided.
2. Axle load surveys shall normally be done using axle load pads or other sophisticated instruments. The location(s) of count station(s) and the survey methodology including the data formats and the instrument type to be used shall be finalized before taking up the axle load surveys. The axle load data should be collected axle configuration-wise. The number of equivalent standard axles per truck shall be calculated on the basis of results obtained. The results of the survey should bring out the VDF for each truck type (axle configuration, if the calculated VDF is found to be below the national average, then national average shall be used. Furthermore, the data from axle load surveys should be analysed to bring out the Gross Vehicle Weight (GVW) and Single Axle Load (SAL) Distributions by truck type (axle configuration).
3. The Consultant shall ascertain from local enquiries about the exceptional live loads that have used the highway in the past in order to assess the suitability of existing bridges to carry such loads.

4.9.6 Speed-Delay Surveys

The Consultants shall carry out appropriate field studies such as moving car survey to determine running speed and journey speed. The data should be analyzed to identify sections with typical traffic flow problems and congestion. The objective of the survey would be to recommend suitable measures for segregation of local traffic, smooth flow of through traffic and traffic safety. These measures would include the provision of bypasses, under-passes, fly-overs, interchanges, grade-separated intersections and service roads.

4.9.7 Pedestrian / animal cross traffic surveys:

These may be conducted to determine if provision of viaduct for pedestrians/animals is necessary to improve the traffic safety.

4.9.8 Truck Terminal Surveys

The data derived from the O-D, speed-delay, other surveys and also supplementary surveys should be analysed to assess requirements for present and future development of truck terminals at suitable locations en route.

4.10. Traffic Demand Estimates

1. The consultants shall make traffic demand estimates and establish possible traffic growth rates in respect of all categories of vehicles, taking into account the past trends, annual population and real per capita growth rate, elasticity of transport demand in relation to income and estimated annual production increase. The other aspects including socio-economic development plans and the land use patterns of the region having impact on the traffic growth, the projections of vehicle manufacturing industry in the country, development plans for the other modes of transport, O-D and commodity movement behaviour should also be taken into account while working out the traffic demand estimates.
2. The values of elasticity of transport demand shall be based on the prevailing practices in the Country. The Consultants shall give complete background including references for selecting the value of transport demand elasticity.
3. It is envisaged that the project road sections covered under this TOR would be completed and opened to traffic after 3 years. The traffic demand estimates shall be done for a further period of 30 years from completion of two/four lane. The demand estimates shall be done assuming three scenarios, namely, optimistic, pessimistic and most likely traffic growth. The growth factors shall be worked out for five-yearly intervals.
4. Traffic projections should be based on sound and proven forecasting techniques. In case

traffic demand estimated is to be made on the basis of a model, the application of the model in the similar situation with the validation of the results should be established. The traffic projections should also bring out the possible impact of implementation of any competing facility in the near future. The demand estimates should also take into account the freight and passenger traffic along the major corridors that may interconnect with the project. Impact of toll charges on the traffic estimates should be estimated.

5. The methodology for traffic demand estimates described in the preceding paragraphs is for normal traffic only. In addition to the estimates for normal traffic, the Consultants shall also work out the estimates for generated, induced and diverted traffic.
6. The traffic forecasts shall also be made for both diverted and generated traffic.
7. Overall traffic forecast thus made shall form the basis for the design of each pavement type and other facilities/ancillary works.

4.11 Engineering Surveys and Investigations

4.11.1. Reconnaissance and Alignment

1. The Consultants should make an in-depth study of the available land width(ROW) topographic maps, satellite imageries and air photographs of the project area, geological maps, catchment area maps, contour plans, flood flow data and seismological data and other available relevant information collected by them concerning the existing alignment. Consultant himself has to arrange the required maps and the information needed by him from the potential sources. **Consultant should make efforts for minimizing land acquisition.**
2. The detailed ground reconnaissance may be taken up immediately after the study of maps and other data. The primary tasks to be accomplished during the reconnaissance surveys include;
 - i. *topographical features of the area;*
 - ii. *typical physical features along the existing alignment within and outside ROW i.e. land use Pattern;*
 - iii. *possible alignment alternatives, vis-a-vis, scheme for the construction of additional lanes parallel to the existing road;*
 - iv. *realignment requirements including the provision of bypasses, ROBs / Flyovers and via-duct for pedestrian crossings with possible alignment alternatives;*
 - v. *preliminary identification of improvement requirements including treatments and measures needed for the cross-roads;*
 - vi. *traffic pattern and preliminary identification of traffic homogenous links;*
 - vii. *sections through congested areas;*
 - viii. *inventory of major aspects including land width, terrain, pavement type, carriageway type, bridges and structures (type, size and location), intersections(type, cross-road category, location) urban areas (location,*

- extent), geologically sensitive areas, environmental features:*
- ix. critical areas requiring detailed investigations; and,*
 - x. Requirements for carrying out supplementary investigations.*
 - xi. soil (textural classifications) and drainage conditions*
 - xii. Type and extent of existing utility services along the alignment (within ROW).*
 - xiii. Typical physical features along the approach roads*
 - xiv. Possible bridge locations, land acquisition problems, nature of crossings, likely length of approaches and bridge, firmness of banks, suitability of alignment of approach roads.*
3. The data derived from the reconnaissance surveys are normally utilized for planning and programming the detailed surveys and investigations. All field studies including the traffic surveys should be taken up on the basis of information derived from the reconnaissance surveys.
 4. The data and information obtained from the reconnaissance surveys should be documented. The data analysis and the recommendations concerning alignment and the field studies should be included in the Inception Report. The data obtained from the reconnaissance surveys should form the core of the database which would be supplemented and augmented using the data obtained from detailed field studies and investigations.
 5. The data obtained from the reconnaissance surveys should be compiled in the tabular as well as graphical (chart) form indicating the major physical features and the proposed widening scheme for NHIDCL comments. The data and the charts should also accompany the rationale for the selection of traffic survey stations.

4.11.2. Topographic Surveys

1. The basic objective of the topographic survey would be to capture the essential ground features along the alignment in order to consider improvements and for working out improvements, rehabilitation and upgrading costs. The detailed topographic surveys should normally be taken up after the completion of reconnaissance surveys.
2. The carrying out of topographic surveys will be one of the most important and crucial field tasks under the project. Technologies which can meet the following accuracy levels shall be adopted. For land based surveys (a) Fundamental horizontal accuracy of 2 cm or better (b) Fundamental vertical accuracy of 2 cm or better (c) More than 50 points shall be measured per sq. m and for aerial based surveys (a) Fundamental horizontal accuracy of 5 cm or better (b) Fundamental vertical accuracy of 5 cm or better (c) More than 10 points shall be measured per sq. m. To establish accuracy, a check point survey using DGPS (for horizontal accuracy) and Auto Level (for vertical accuracy) shall be carried out to establish the fundamental horizontal and vertical accuracy. A minimum of 25 check points, or check points once every 4 km should be established, and these should be strictly different from any geo-referencing or control network points.

3. The following are the set of deliverables which should be submitted after completion of survey:
 - (a) Raw DGPS data for the entire highway length and adjoining areas of interest
 - (b) Point cloud data/ Data of points captured for the entire highway length and adjoining areas of interest
 - (c) Topographic map of scale 1:1000 of the entire highway length and adjoining areas of interest
 - (d) Contour map of 50 cm of entire highway length and adjoining areas of interest
 - (e) Cross section of the highway at every 1 m in *.dwg format.

4. For land based surveys, Mobile LIDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. For aerial based surveys, Aerial Mobile LIDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. In shadow areas such as invert levels below culverts, where LIDAR or equivalent technologies cannot survey accurately, traditional methods of Total Station/ Auto Level shall be used to complete the study.

5. In case of mobile LIDAR or equivalent technology, 360 degree panoramic images of the entire highway length and adjoining areas of interest shall be submitted. In case of aerial LIDAR or equivalent technology, ortho-images of the entire highway length and adjoining areas of interest shall be submitted.

6. The detailed field surveys would essentially include the following activities:
 - i. *Topographic Surveys along the Existing Right of Way (ROW): Carrying out topographic survey using LIDAR or equivalent technology along the existing road and realignments, wherever required and properly referencing the same with reference pillars fixed on either side of the centre-line at safe places within the ROW*
 - ii. *The detailed field surveys would essentially include the topographic surveys along the proposed location of bridge and alignment of approach road.*
 - iii. *The detailed topographic surveys should be carried out along the approach roads alignment and location of bridge approved by NHIDCL.*
 - iv. *Collection/ Extraction of details for all features such as structures (bridges, culverts etc.) utilities, existing roads, electric and telephone installations (both O/H as well as underground), huts, buildings, fencing and trees (with girth greater than 0.3metre) oil and gas lines etc. falling within the extent of survey.*

7. The width of survey corridor will generally be as given under:
 - i. *The width of the survey corridor should take into account the layout of the existing alignment including the extent of embankment and cut slopes and the general ground profile. While carrying out the field surveys, the widening scheme*

(i.e. right, left or symmetrical to the centre line of the existing carriageway) should be taken into consideration so that the topographic surveys cover sufficient width beyond the centre line of the proposed divided carriageway. Normally the surveys should extend a minimum of 30 m beyond either side of the centre line of the proposed divided carriageway or land boundary whichever is more

- ii. *In case the reconnaissance survey reveals the need for bypassing the congested locations, the traverse lines would be run along the possible alignments in order to identify and select the most suitable alignment for the bypass. The detailed topographic surveys should be carried out along the bypass alignment approved by <Agency>. At locations where grade separated intersections could be the obvious choice, the survey area will be suitably increased. Field notes of the survey should be maintained which would also provide information about traffic, soil, drainage etc.*
- iii. *The width of the surveyed corridor will be widened appropriately where developments and / or encroachments have resulted in a requirement for adjustment in the alignment, or where it is felt that the existing alignment can be improved upon through minor adjustments.*
- iv. *Where existing roads cross the alignments, the survey will extend a minimum of 100 m either side of the road centre line and will be of sufficient width to allow improvements, including at grade intersection to be designed.*

8. The surveyed alignment shall be transferred on to the ground as under:

- i. *Reference Pillar and Bench Mark / Reference pillar of size 15 cm X 15 cm X 45cm shall be cast in RCC of grade M 15 with a nail fixed in the centre of the top surface. The reference pillar shall be embedded in concrete upto a depth of 30cm with CC M10 (5 cm wide all around). The balance 15 cm above ground shall be painted yellow. The spacing shall be 250m apart, incase Bench Mark Pillar coincides with Reference Pillar, only one of the two need be provided.*
- ii. *Establishing Bench marks at site connected to GTS Bench marks at a interval of 250 metres on Bench mark pillar made of RCC as mentioned above with RL and BM No. marked on it with red paint.*
- iii. **Boundary Pillars-** *Wherever there is a proposal of realignment of the existing Highway and/or construction of New Bypasses, Consultant shall fix boundary pillars*

along the proposed alignment on the extreme boundary on either side of the project Highway at 50 m interval.

4.11.2.1 Longitudinal and Cross-Sections

The topographic surveys for longitudinal and cross-sections shall cover the following:

- i. Longitudinal section levels along final centre line at every 1 m interval, at the locations of curve points, small streams, and intersections and at the locations of change in elevation.*
- ii. Cross sections at every 1 m interval in full extent of survey covering sufficient number of spot levels on existing carriageway and adjacent ground for profile correction course and earth work calculations. Cross sections shall be taken at closer interval at curves.*
- iii. Longitudinal section for cross roads for length adequate for design and quantity estimation purposes.*
- iv. Longitudinal and cross sections for major and minor streams shall cover Cross section of the channel at the site of proposed crossing and few cross sections at suitable distance both upstream and downstream, bed level upto top of banks and ground levels to a sufficient distance beyond the edges of channel, nature of existing surface soil in bed, banks & approaches, longitudinal section of channel showing site of bridge etc. These shall be as per recommendations contained in IRC Special Publication No. 13 (Guidelines for the Design of Small Bridges and Culverts) and provisions of IRC:5 (“Standard Specifications & Code of Practice for Road Bridges, Section 1 – General Features of Design”).*

At feasibility study stage cross sections at 50m interval may be taken.

4.11.2.2 Details of utility Services and Other Physical Features

1. The Consultants shall collect details of all important physical features along the alignment. These features affect the project proposals and should normally include buildings and structures, monuments, burial grounds, cremation grounds, places of worship, railway lines, stream / river / canal, water mains, sewers, gas/oil pipes, crossings, trees, plantations, utility services such as electric, and telephone lines (O/H & U/G) and poles, optical fibre cables (OFC) etc. The survey would cover the entire right-of-way of the road on the adequate allowance for possible shifting of the central lines at some of the intersections locations.
2. Consultant shall also map out sub-surface utilities. The following criteria shall be met by the process of sub-surface utility mapping: (a) Coverage and mapping of all sub-surface utilities within project RoW, especially those under additional carriageway width (b) Accurate mapping and resolution of all sub-surface utilities

up to a depth of 4 m (c) Differentiation between sub-surface utilities such as live electric cables, metallic utilities and other utilities (d) Sub-surface utilities radargrams further processed into utility maps in formats such as PDF, JPEG and AutoCAD. To meet the accuracy levels, consultant shall use Ground Penetrating Radar, Induction Locator or equivalent technologies.

3. The information collected during reconnaissance and field surveys shall be shown on a strip plan so that the proposed improvements can be appreciated and the extent of land acquisition with L.A schedule, utility removals of each type etc. assessed and suitable actions can be initiated. Separate strip plan for each of the services involved shall be prepared for submission to the concerned agency.

4.11.3 Road and Pavement Investigations

The Consultants shall carry out detailed field studies in respect of road and pavement. The data collected through road inventory and pavement investigations should be sufficient to meet the input requirements of HDM-IV.

4.11.3.1 Road Inventory Surveys

1. Detailed road inventory surveys shall be carried out to collect details of all existing road and pavement features along the existing road sections. The inventory data shall include but not limited to the following:
 - i. *Terrain (flat, rolling, mountainous);*
 - ii. *Land-use (agricultural, commercial, forest, residential etc) @ every kilometer;*
 - iii. *Carriageway width, surfacing type @ every 500m and every change of feature whichever is earlier;*
 - iv. *Shoulder surfacing type and width @ every 500m and every change of feature whichever is earlier;*
 - v. *Sub-grade / local soil type (textural classification) @ every 500m and every change of feature whichever is earlier;*
 - vi. *Horizontal curve; vertical curve*
 - vii. *Road intersection type and details, at every occurrence;*
 - viii. *Retaining structures and details, at every occurrence;*
 - ix. *Location of water bodies (lakes and reservoirs), at every occurrence;*
 - x. *Height of embankment or depth of cut @ every 200m and every change of feature whichever is earlier.*
 - xi. *Land width i.e. ROW*
 - xii. *Culverts, bridges and other structures (type, size, span arrangement and location)*

- xiii. *Roadside arboriculture*
 - xiv. *Existing utility services on either side within ROW.*
 - xv. *General drainage conditions*
 - xvi. *Design speed of existing road*
2. The data should be collected in sufficient detail. The data should be compiled and presented in tabular as well as graphical form. The inventory data would be stored in computer files using simple utility packages, such as EXCEL.

4.11.3.2 Pavement Investigation

1. Pavement Composition

- i. *The data concerning the pavement composition may be already available with the PWD. However, the consultants shall make trial pits to ascertain the pavement composition. The test pit interval will be as per Para 4 below.*
- ii. *For each test pit, the following information shall be recorded:*
 - *test pit reference (Identification number, location);*
 - *pavement composition (material type and thickness); and*
 - *subgrade type (textural classification) and condition (dry, wet)*

2. Road and Pavement Condition Surveys

- i. *Detailed field studies shall be carried out to collect road and pavement surface conditions. The data should generally cover:*
 - *pavement condition (surface distress type and extent);*
 - *shoulder condition;*
 - *embankment condition; and*
 - *drainage condition*

Pavement Condition

- *cracking (narrow and wide cracking), % of pavement area affected;*
- *raveling, % of pavement area affected;*
- *potholing, % of pavement area affected;*
- *edge break, length (m); and,*
- *rut depth, mm*

Shoulder Condition

- *Paved: Same as for pavement*
- *Unpaved: material loss, rut depth and corrugation,*
- *Edge drop, mm.*

Embankment Condition

- *general condition; and*
 - *extent of slope erosion*
- ii. *The objective of the road and pavement condition surveys shall be to identify defects and sections with similar characteristics. All defects shall be systematically referenced, recorded and quantified for the purpose of determining the mode of rehabilitation.*
 - iii. *The pavement condition surveys shall be carried out using visual means. Supplemented by actual measurements and in accordance with the widely accepted methodology (AASHTO, IRC, OECD, TRL and World Bank Publications) adapted to meet the study requirements. The measurement of rut depth would be made using standard straight edges.*
 - iv. *The shoulder and embankment conditions shall be evaluated by visual means and the existence of distress modes (cuts, erosion marks, failure, drops) and extent (none, moderate, frequent and very frequent) of such distress manifestations would be recorded.*
 - v. *For sections with severe distresses, additional investigations as appropriate shall be carried out to determine the cause of such distresses.*
 - vi. *Middle 200m could be considered as representative sample for each one km. of road and incase all other things are considered similar.*

Drainage Condition

- *General condition*
- *Connectivity of drainage turnouts into the natural topography*
- *Condition in cut sections*
- *Condition at high embankments*

The data obtained from the condition surveys should be analysed and the road segments of more or less equal performance may be identified using the criteria given in IRC: 81-1997.

3. Pavement Roughness

- i. *The roughness surveys shall be carried out using Bump Integrator or similar instrument. The methodology for the surveys shall be as per the widely used standard practices. The calibration of the instrument shall be done as per the procedure given in the World Bank's Technical Publications and duly got authenticated by established laboratory/institution acceptable to the client*
- ii. *The surveys shall be carried out along the outer wheel paths. The surveys shall cover a minimum of two runs along the wheel paths for each directions.*
- iii. *The results of the survey shall be expressed in terms of BI and IRI and shall be presented in tabular and graphical forms. The processed data shall be*

analysed using the cumulative difference approach to identify road segments homogenous with respect to surface roughness.

4 Pavement Structural Strength

- i. The Consultants shall carry out structural strength surveys for existing pavements using Benkelman Beam Deflection technique in accordance with the CGRA procedure given in IRC:81-1997 (“Guidelines for Strengthening of Flexible Road Pavements Using Benkelman Beam Deflection Technique”).*
- ii. It is suggested that the deflection surveys may be carried out as per the scheme given below:*
 - mainline testing; and,*
 - control section testing.*
- iii. The deflection tests for the mainline shall be carried out at every 500 m along the road sections covered under the study. The control section testing shall involve carrying out deflection testing for each 100 m long homogenous road segment along the road sections. The selection of homogenous segment shall be based on the data derived from pavement condition surveys. The total length of such homogenous segments shall not be less than 100 m per kilometre. The deflection measurements for the control section testing should be at an interval of not more than 10 m.*
- iv. Test pits shall be dug at every 500 m and also along each homogeneous road segment to obtain pavement composition details (pavement course, material type and thickness) so as to be able to study if a correlation exists between deflection and composition. If so, the relationship may be used while working out the overlay thickness for the existing pavement.*
- v. Benkelman Beam Deflection surveys may not be carried out for severely distressed sections of the road warranting reconstruction. The Consultants, immediately upon the award of the contract, shall submit to NHIDCL the scheme describing the testing schedule including the interval. The testing scheme shall be supported by data from detailed reconnaissance surveys.*
- vi. In case, the Consultants wish to use any acceptable method(s) other than Benkelman Beam deflection technique for the evaluation of pavement strength, viz. Falling weight deflectometer method etc. details of such methods or innovative features for deflection testing using Benkelman Beam technique along with the methodology for data analysis, interpretation and the use of such data for pavement overlay design purposes using IRC or any other widely used practices, such as AASHTO guidelines, should be got approved by NHIDCL. The sources of such methods should be properly referenced.*

4.11.3.3 Subgrade Characteristics and Strength

1. Based on the data derived from condition (surface condition, roughness) and

structural strength surveys, the project road section should be divided into segments homogenous with respect to pavement condition and strength. The delineation of segments homogenous with respect to roughness and strength should be done using the cumulative difference approach (AASHTO, 1993).

2. The data on soil classification and mechanical characteristics for soils along the existing alignments may already be available with the PWD. The testing scheme is, therefore, proposed as given under:
 - i. *For the widening (2/- Laning) of existing road within the ROW, the Consultants shall test at least three sub-grade soil samples for each homogenous road segment or three samples for each soil type encountered, whichever is more.*
 - ii. *For the roads along new alignments, the test pits for sub grade soil shall be @5km or for each soil type, whichever is more. A minimum of three samples should be tested corresponding to each homogenous segment.*
3. The testing for subgrade soil shall include:
 - i. *in-situ density and moisture content at each test pit*
 - ii. *Field CBR using DCP at each test pit*
 - iii. *Characterization (grain size and Atterberg limits) at each test pit and,*
 - iv. *Laboratory moisture-density characteristics (modified AASHTO compaction);*
 - v. *Laboratory CBR (unsoaked and 4-day soak compacted at three energy levels) and swell.*
4. For problematic soils, the testing shall be more rigorous. The characteristics with regard to permeability and consolidation shall also be determined for these soils. The frequency of sampling and testing of these soils shall be finalised in consultation with the NHIDCL officers after the problematic soil types are identified along the road sections.
5. The laboratory for testing of material should be got approved from NHIDCL before start of work.

4.11.4 Investigations for Bridges and Structure

4.11.4.1 Inventory of Bridges, Culverts and Structures

The Consultants shall make an inventory of all the structures (bridges, viaducts, ROBs/RUB and other grade separated structures, culverts, etc.) along the road under the project. The inventory for the bridges, viaducts and ROBs shall include the parameters required as per the guidelines of IRC-SP:35. The inventory of Culverts shall be presented in a tabular form covering relevant physical and hydraulic parameters.

4.11.4.2 Hydraulic and Hydrological Investigations

1. The hydrological and hydraulic studies shall be carried out in accordance with IRC Special Publication No. 13 (“Guidelines for the Design of Small Bridges and Culverts”) and IRC:5 (“Standard Specifications & Code of Practice for Road

Bridges, Section I General Feature of Design”). These investigations shall be carried out for all existing drainage structures along the road sections under the study.

2. The consultant shall also collect information on observed maximum depth of scour.
3. In respect of major bridges, history of hydraulic functioning of existing bridge, if any, under flood situation, general direction of river course through structure, afflux, extent and magnitude of flood, effect of backwater, if any, aggradation/degradation of bed, evidence of scour etc. shall be used to augment the available hydrological data. The presence of flood control/irrigation structures, if affecting the hydraulic characteristics like causing obliquity, concentration of flow, scour, silting of bed, change in flow levels, bed levels etc. shall be studied and considered in design of bridges. The details of any future planned work that may affect the river hydraulics shall be studied and considered.
4. The Consultants shall make a desk study of available data on topography(topographic maps, stereoscopic aerial photography), storm duration, rainfall statistics, top soil characteristics, vegetation cover etc. so as to assess the catchment areas and hydraulic parameters for all existing and proposed drainage provisions. The findings of the desk study would be further supplemented and augmented by a reconnaissance along the area. All-important hydrological features shall be noted during this field reconnaissance.
5. The Consultants shall collect information on high flood level (HFL),low water levels (LWL), high tide level (HTL),low tide level (LTL) where applicable, discharge velocity etc. from available past records, local inquiries and visible signs, if any, on the structural components and embankments. Local inquiries shall also be made with regard to the road sections getting overtopped during heavy rains.
6. Conducting Model studies for bridges is not covered in the scope of consultancy services. If Model study is envisaged for any bridge, requirement of the same shall be spelt out in the RPF documents separately indicating scope and time frame of such study. Salient features of the scope of services to be included for model study are given in the supplement- II Terms of Reference.

4.11.4.3 Condition Surveys for Bridges, Culverts and Structures

1. The Consultants shall thoroughly inspect the existing structures and shall prepare a report about their condition including all the parameters given in the Inspection pro-forma of IRC-SP; 35. The condition and structural assessment survey of the bridges / culverts / structures shall be carried out by senior experts of the Consultants.
2. For the bridges identified to be in a distressed condition based upon the visual condition survey, supplementary testing shall be carried out as per IRC-SP:35 and

IRC-SP:40. Selection of tests may be made based on the specific requirement of the structure.

3. The assessment of the load carrying capacity or rating of existing bridges shall be carried out under one or more of the following scenarios:
 - i. *when the design live load is less than that of the statutory commercial vehicle plying or likely to ply on bridge;*
 - ii. *if during the condition assessment survey and supplementary testing the bridge is found to indicate distress of serious nature leading to doubt about structural and / or functional adequacy, and*
 - iii. *Design live load is not known nor are the records and drawings available*
4. The evaluation of the load carrying capacity of the bridge shall be carried out as per IRC-SP:37 (“Guidelines for Evaluation of Load Carrying Capacity of Bridges”). The analytical and correlation method shall be used for the evaluation of the load carrying capacity as far as possible. When it is not possible to determine the load carrying capacity of the bridge using analytical and correlation method, the same shall be carried out using load testing. The consultant has to exhaust all other methods of evaluation of strength of bridges before recommending to take up load testing of bridges. Road closure for testing if unavoidable shall be arranged by NHIDCL for limited duration say 12 hours or so.
5. Consultant shall carryout necessary surveys and investigations to establish the remaining service life of each retainable bridge or structure with and without the proposed strengthening and rehabilitation according to acceptable international practice in this regard.

4.11.4.4 Geo-technical Investigations and Sub-Soil Exploration

1. The Consultants shall carry out geo-technical investigations and sub-surface explorations for the proposed Bridges / Road over bridges/ tunnels/ viaducts/ interchanges etc., along high embankments and any other location as necessary for proper design of the works and conduct all relevant laboratory and field tests on soil and rock samples. The minimum scope of geo-technical investigations for bridge and structures shall be as under:

S.No.	Description	Location of Boring
1	Overall length = 6 – 30 m	One abutment location and One abutment location and at least one intermediate location between abutments for structures having more than one span

2	Overall length = 30 – 60 m	One abutment location and at least one intermediate location between abutments for structures having more than one span.
3	Overall length >60 m	Each abutment and each pier locations.

2. The deviation(s), if any, by the Consultants from the scheme presented above should be approved by NHIDCL.
3. However, where a study of geo-technical reports and information available from adjacent crossings over the same waterway (existing highway and railway bridges) indicates that subsurface variability is such that boring at the suggested spacing will be insufficient to adequately define the conditions for design purposes, the Consultants shall review and finalise the bore hole locations in consultation with the NHIDCL officers.
4. Geotechnical Investigations and Sub soil Explorations shall be carried out to determine the nature and properties of existing strata in bed, banks and approaches with trial pits and bore hole sections showing the levels, nature and properties of various strata to a sufficient depth below the level suitable for foundations, safe intensity of pressure on the foundation strata, proneness of site to artesian conditions, seismic disturbance and other engineering properties of soil etc. Geotechnical investigation and Sub-soil Exploration will be done as per IRC 78.
5. The scheme for the borings locations and the depth of boring shall be prepared by the Consultants and submitted to NHIDCL for approval. These may be finalised in consultation with NHIDCL.
6. The sub-soil exploration and testing should be carried out through the Geotechnical Consultants empanelled by MORT&H The soil testing reports shall be in the format prescribed in relevant IRC Codes.
7. For the approach road pavement, bore holes at each major change in pavement condition or in deflection readings or at 2 km intervals whichever is less shall be carried out to a depth of at least 2 m below embankment base or to rock level and are to be fully logged. Appropriate tests to be carried out on samples collected from these bore holes to determine the suitability of various materials for use in widening of embankments or in parts of new pavement structure.

4.11.5 **Material Investigations**

1. The Consultants shall identify sources (including use of fly-ash/ slag), quarry sites and borrow areas, undertake field and laboratory testing of the materials to determine their suitability for various components of the work and establish quality and quantity of various construction materials and recommend their use on the basis of techno-economic principles. The Consultants shall prepare mass haul diagram for haulage purposes giving quarry charts indicating the location of selected borrow areas, quarries and the respective estimated quantities.

“Environment friendly materials”

“As per MORTH circular No. RW /NH-33044/53/2013-S&R(R) dated 20th November, 2013, alternative pavement materials and technologies for road construction shall be assessed and compared in the design stage. The alternative resulting in substantial reduction in GHG emission and with least life cycle cost shall be recommended for implementation.

Technical and economic feasibility of using industrial byproducts, recyclable and waste materials shall be assessed depending on their availability in the concerned region.

2. It is to be ensured that no material shall be used from the right-of-way except by way of leveling the ground as required from the construction point of view, or for landscaping and planting of trees etc. or from the cutting of existing ground for obtaining the required formation levels.
3. Environmental restrictions, if any, and feasibility of availability of these sites to prospective civil works contractors, should be duly taken into account while selecting new quarry locations.
4. The Consultants shall make suitable recommendations regarding making the borrow and quarry areas after the exploitation of materials for construction of works.
5. The Material Investigation aspect shall include preparation and testing of bituminous mixes for various layers and concrete mixes of different design mix grades using suitable materials (binders, aggregates, sand filler etc.) as identified during Material Investigation to conform to latest MoRT&H specification.

4.12 Detailed Design of Road and Pavements, Bridges, Structures

4.12.1 General

1. The Consultants are to carryout detailed designs and prepare working drawings for the following:
 - i. *High speed highway with divided carriageway configuration complete in all respects with service roads at appropriate locations;*
 - ii. *Design of pavement for the additional lanes and overlay for the existing road, paved shoulders, medians, verges;*
 - iii. *Bridges, viaduct/subways and other grade separated structures including ROBs/RUBs etc.*
 - iv. *At-grade and grade-separated intersections, interchanges (if required);*
 - v. *ROB for railway crossings as per the requirement and the standards of the Indian Railways; and,*
 - vi. *Prepare alignment plans, longitudinal sections and cross-sections @ 50m intervals;*
 - vii. *Designs for road furniture and road safety/traffic control features;*
 - viii. *Designs and drawings for service road/under passes/overpass / cattle passes tree planting/fencing at locations where necessary / required*

- ix.. *Toll plazas and office-cum-residential complex for PIU (one for each civil contract package)*
- x *Short bypasses at congested locations*
- xi.** *Drainage design showing location of turnouts, out falling structures, separate drawings sheet for each 5 km. stretch.*
- xii. *Bridges and structures rehabilitation plan with design and drawings*
- xiii. *Traffic amenities (Parking Areas, Weighing Station and Rest Areas, etc.).*
- xiv *Design of pavement for approach road*
- xv *Design of river bank protection / training works. Innovative type of structures with minimum joints, aesthetically, pleasing and appropriate to the topography of the region shall be designed wherever feasible.*

4.12.2 Design Standards

1. The Consultants shall evolve Design Standards and material specifications for the Study primarily based on IRC publications, MoRT&H Circulars and relevant recommendations of the international standards for approval by NHIDCL.
2. The Design Standards evolved for the project shall cover all aspects of detailed design including the design of geometric elements, pavement design, bridges and structures, traffic safety and materials.

4.12.3 Geometric Design

1. The design of geometric elements shall, therefore, take into account the essential requirements of such facilities.
2. Based on the data collected from reconnaissance and topographic surveys, the sections with geometric deficiencies, if any, should be identified and suitable measures for improvement should be suggested for implementation.
3. The data on accident statistics should be compiled and reported showing accident type and frequency so that black spots are identified along the project road section. The possible causes (such as poor geometric features, pavement condition etc.) of accidents should be investigated into and suitable cost-effective remedial measures suggested for implementation.
4. The detailed design for geometric elements shall cover, but not be limited to the following major aspects:
 - i. *horizontal alignment;*
 - ii. *longitudinal profile;*
 - iii. *cross-sectional elements, including refuge lane (50m) at every 2kms.*
 - iv. *junctions, intersections and interchanges;*
 - v. *bypasses; and,*

- vi. *service roads as and when require i.e built up area..*
5. The alignment design shall be verified for available sight distances as per the standard norms. The provision of appropriate markings and signs shall be made wherever the existing site conditions do not permit the adherence to the sight distance requirements as per the standard norms.
 6. The consultants shall make detailed analysis of traffic flow and level of service for the existing road and workout the traffic flow capacity for the improved project road. The analysis should clearly establish the widening requirements with respect to the different horizon periods taking into account special problems such as road segments with isolated steep gradients.
 7. In the case of closely spaced cross roads the Consultant shall examine different options such as, providing grade separated structure for some of them with a view to reduce number of at-grade crossings, services roads connecting the cross-roads and closing access from some of the intersections and prepare and furnish appropriate proposals for this purpose keeping in view the cost of improvement, impact on traffic movement and accessibility to cross roads. The detailed drawings and cost estimate should include the provisions for realignments of the existing cross roads to allow such arrangements.
 8. The Consultant shall also prepare design of grade separated pedestrian crossings (viaducts) for large cross traffic of pedestrians and / or animals.
 9. The Consultant shall also prepare details for at-grade junctions, which may be adopted as alternative to the grade separated structures. The geometric design of interchanges shall take into account the site conditions, turning movement characteristics, level of service, overall economy and operational safety.
 10. The Consultants shall prepare design and other details in respect of the parallel service roads in urbanized locations and other locations to cater to the local traffic, their effect of the viability of the project on commercial basis if service roads are constructed as part of the project and the implications of not providing the service roads.
 11. The consultant shall prepare complete road and pavement design including drainage for new bypass option identified around congested town en-route.

4.12.4 Pavement Design

1. The detailed design of pavement shall involve:
 - i. *strengthening of existing road pavement and design of the new pavement if any, if the findings of the traffic studies and life-cycle costing analysis confirm the requirement for widening of the road beyond 2lane undivided carriageway standard;;*
 - ii. *pavement design for bypasses; and,*
 - iii. *design of shoulders.*
2. The design of pavement shall primarily be based on IRC publications.

3. The design of pavement shall be rigorous and shall make use of the latest Indian and International practices. **The design alternatives shall include both rigid and flexible design options. The most appropriate design, option shall be established on life-cycle costing and techno-economic consideration.**
4. For the design of pavement, each set of design input shall be decided on the basis of rigorous testing and evaluation of its suitability and relevance in respect of in-service performance of the pavement. The design methodology shall accompany the design proposals and shall clearly bring out the basic assumptions, values of the various design inputs, rationale behind the selection of the design inputs and the criteria for checking and control during the implementation of works. In other words, the design of pavement structure should take due account of the type, characteristics of materials used in the respective courses, variability of their properties and also the reliability of traffic predictions. Furthermore, the methodology adopted for the design of pavement shall be complete with flowcharts indicating the various steps in the design process, their interaction with one another and the input parameter required at each step.
5. For the design of overlays for the existing 2-lane pavement, the strengthening requirement shall duly take into account the strength of the existing pavement vis-à-vis the remaining life. The overlay thickness requirements shall be worked out for each road segment homogenous with respect to condition, strength and sub-grade characteristics. The rehabilitation provisions should also include the provision of regulating layer. For existing pavement with acceptable levels of cracking, provision of a crack inhibiting layer should also be included.
6. Latest techniques of pavement strengthening like provision of geo-synthetics and cold/hot pavement recycling should be duly considered by the consultant for achieving economy.
7. The paved shoulders shall be designed as integral part of the pavement for the main carriageway. The design requirements for the carriageway pavement shall, therefore, be applicable for the design of shoulder pavements. The design of granular shoulder should take into account the drainage considerations besides the structural requirements.
8. The pavement design task shall also cover working out the maintenance and strengthening requirements and periodicity and timing of such treatments.

4.12.5 Design of Embankments

1. The embankments design should provide for maximum utilization of locally available materials consistent with economy. Use of fly ash wherever available with in economical leads must be considered. In accordance with Government

instructions, **use of fly ash within 100 km from Thermal Power Stations is mandatory.**

2. The Consultants shall carry out detailed analysis and design for all embankments of height greater than 6 m based on relevant IRC publications.
3. The design of embankments should include the requirements for protection works and traffic safety features.

4.12.6 Design of Bridges and Structures

1. The data collected and investigation results shall be analysed to determine the following:
 - i. HFL
 - ii. LWL
 - iii. LBL
 - iv. Erodibility of bed/scour level
 - v. Design discharge
 - vi. Linear waterway and effective linear waterway
 - vii. Likely foundation depth
 - viii. Safe bearing capacity
 - ix. Engineering properties of sub soil
 - x. Artesian conditions
 - xi. Settlement characteristics
 - xii. Vertical clearance
 - xiii. Horizontal clearance
 - xiv. Free board for approach road
 - xv. Severity of environment with reference to corrosion
 - xvi. Data pertaining to seismic and wind load
 - xvii. Requirement of model study etc.

2. The Consultant shall prepare General Arrangement Drawing (GAD) and Alignment Plan showing the salient features of the bridges and structures proposed to be constructed / reconstructed along the road sections covered under the Study. These salient features such as alignment, overall length, span arrangement, cross section, deck level, founding level, type of bridge components (superstructure, substructure, foundations, bearings, expansion joint, return walls etc.) shall be finalized based upon hydraulic and geo-technical studies, cost effectiveness and ease of construction. The GAD shall be supplemented by Preliminary designs. In respect of span arrangement and type of bridge a few alternatives with cost-benefit implications should be submitted to enable NHIDCL to approve the best alternative. After approval of alignment and GAD the Consultant shall prepare detailed design as per IRC codes/guidelines and working drawings for all components of bridges and structures.
3. The location of all at-grade level crossings shall be identified falling across the existing level crossings for providing ROB at these locations. The Consultants shall prepare preliminary GAD for necessary construction separately to the Client. The Consultant shall pursue the Indian Railways Authorities or/and any statutory authority of State/Central Government for approval of the GAD from concerned Authorities.
4. GAD for bridges/structures across irrigation/water way channels shall be got approved from the concerned Irrigation/Water way Authorities. Subsequent to approval of GAD and alignment plan by NHIDCL the Consultants shall prepare detailed design as per IRC codes/guidelines for all components of the bridges and structures.
5. Subsequent to the approval of the GAD and Alignment Plan by NHIDCL and Railways, the Consultant shall prepare detailed design as per IRC and Railways guidelines and working drawings for all components of the bridges and structures. The Consultant shall furnish the design and working drawings for suitable protection works and/or river training works wherever required.
6. Dismantling/ reconstruction of existing structures shall be avoided as far as possible except where considered essential in view of their poor structural conditions/ inadequacy of the provisions etc.
7. The existing structures having inadequate carriageway width shall be widened/reconstructed in part or fully as per the latest MoRT&H guidelines. The Consultant shall furnish the detailed design and working drawings for carrying out the above improvements.

8. Suitable repair / rehabilitation measures shall be suggested in respect of the existing structures as per IRC-SP:40 along with their specifications, drawings and cost estimate in the form of a report. The rehabilitation or reconstruction of the structures shall be suggested based on broad guidelines for rehabilitation and strengthening of existing bridges contained in IRC-SP:35 and IRC-SP:40.
9. Subsequent to the approval of the GAD and the alignment plan by NHIDCL, detailed design shall also be carried out for the proposed underpasses, overpasses and interchanges.
10. The Consultants shall also carry out the design and make suitable recommendations for protection works for bridges and drainage structures.
11. In case land available is not adequate for embankment slope, suitable design for RCC retaining wall shall be furnished. However, RES wall may also be considered depending upon techno-economic suitability to be approved by NHIDCL.

4.12.7 Drainage System

1. The requirement of roadside drainage system and the integration of the same with proposed cross-drainage system shall be worked out for the entire length of the project road section.
2. In addition to the roadside drainage system, the Consultants shall design the special drainage provisions for sections with super-elevated carriageways, high embankments and for road segments passing through cuts. The drainage provisions shall also be worked out for road segments passing through urban areas.
3. The designed drainage system should show locations of turnouts/outfall points with details of outfall structures fitting into natural contours. A separate drawing sheet covering every 5 km. stretch of road shall be prepared.

4.12.8 Traffic Safety Features, Road Furniture and Road Markings

The Consultants shall design suitable traffic safety features and road furniture including traffic signals, signs, markings, overhead sign boards, crash barriers, delineators etc. The locations of these features shall be given in the reports and also shown in the drawings.

4.12.9 Arboriculture and Landscaping

The Consultants shall work out appropriate plan for planting of trees (specifying type of plantation), horticulture, floriculture on the surplus land of the right-of way with a view to beautify the highway and making the environment along the highway pleasing. The existing trees / plants shall be retained to the extent possible. The Transplantation of trees shall also be proposed wherever feasible.

4.12.10 Toll Plaza

- a. The Consultants shall identify the possible toll plaza location(s) based on the data and information derived from the traffic studies and a study of the existing physical features including the availability of land. The location of the plaza should keep in view that the project road is to be developed as a partially access controlled highway facility and it is required to collect toll on rational basis from as much of the vehicular traffic as possible consistent with economy of collection and operations. The location of the toll plaza should be finalised in consultation with NHIDCL.
- b. Toll Plaza shall be designed as per IRC 84.

4.12.11 Weighing Station, Parking Areas and Rest Areas

The consultant shall select suitable sites for weighing stations, parking areas and rest areas and prepare suitable separate designs in this regard. The common facilities like petrol pump, first-aid medical facilities, police office, restaurant, vehicle parking etc. should be included in the general layout for planning. For petrol pump, the guidelines issued by OISD of Ministry of Petroleum shall be followed. The facilities should be planned to be at approximately 50 km interval. Atleast each facility (1 no.) is foreseen to be provided for this project stretch. Weighing stations can be located near toll plazas so that overloaded vehicles can be easily identified and suitably penalized and unloaded before being allowed to proceed further. The type of weighing system suitable for the project shall be brought out in the report giving merits of each type of the state-of-the art and basis of recommendations for the chosen system.

4.12.12 Deleted

4.12.13 Miscellaneous Works

1. The Consultants shall make suitable designs and layout for miscellaneous works including rest areas, bus bays, vehicle parking areas, telecommunication facilities etc. wherever appropriate.
2. The Consultants shall prepare the detailed scheme and lay out plan for the works mentioned in Para 1.
3. The Consultants shall prepare detailed plan for the traffic management and safety during the construction period.

4.13 Environment and Social Impact Assessment

The consultant shall under take the detailed environmental and social impact assessment in accordance with the standard set by the Government of India for projects proposed to be funded by MORT&H/NHAI. In respect of projects proposed to be funded by ADB loan assistance, Environmental Assessment Requirements, Environmental Guidelines for selected infrastructure projects, 1993 of Asian Development Bank shall be followed. Similarly, for projects proposed to be funded by World Bank loan assistance, World Bank Guidelines shall be followed.

4.13.1 Environmental Impact Assessment

Environment impact assessment or initial environment examination be carried out in accordance with ADB's Environmental Assessment Requirements of ADB 1998 guidelines for selected infrastructure projects 1993 as amended from time to time

/World Bank Guidelines / Government of India Guidelines, as applicable

1. The consultant should carry out the preliminary environmental screening to assess the direct and induced impacts due to the project.
2. The consultant shall ensure to document baseline conditions relevant to the project with the objective to establish the benchmarks.
3. The consultant shall assess the potential significant impacts and identify the mitigation measures to address these impacts adequately.
4. The consultant shall do the analysis of alternatives incorporating environmental concerns. This should include with and without scenario and modification incorporated in the proposed project due to environment considerations.
5. The consultant shall give special attention to the environmental enhancement measures in the project for the following:
 - (a) Cultural property enhancement along the highways
 - (b) Bus bays and bus shelters including a review of their location,
 - (c) Highway side landscape and enhancement of the road junctions,
 - (d) Enhancement of highway side water bodies, and
 - (e) Redevelopment of the borrow areas located on public land.
6. The consultant shall prepare the bill-of-quantities (BOQ) and technical specifications for all items of work in such a way that these may be readily integrated to the construction contracts.
7. The consultant shall establish a suitable monitoring network with regard to air, water and noise pollution. The consultant will also provide additional inputs in the areas of performance indicators and monitoring mechanisms for environmental components during construction and operational phase of the project.
8. The consultant shall provide the cost of mitigation measures and ensure that environmental related staffing, training and institutional requirements are budgeted in project cost.
9. The consultant shall prepare the application forms and obtain forestry and environmental clearances from the respective authorities including the SPCBs and the MOEF on behalf of NHIDCL. The consultants will make presentation, if required, in defending the project to the MOEF Infrastructure Committee.
10. The consultant shall identify and plan for plantation and Transplantation of the suitable trees along the existing highway in accordance with IRC guidelines.
11. The consultant shall assist in providing appropriate input in preparation of relevant environment and social sections of BPIP.

4.13.2 Social Assessment

- 1 The consultant would conduct base line socio-economic and census survey to assess the impacts on the people, properties and loss of livelihood. The socioeconomic survey will establish the benchmark for monitoring of R&R activities. A social assessment is conducted for the entire project to identify mechanisms to improve project designs to meet the needs of different stakeholders. A summary of stakeholder discussions, issue raised and how the project design was developed to meet stakeholders need would be prepared.
- 2 The consultant shall prepare Land Acquisition Plan and assist NHIDCL in acquisition of land under various Acts.
- 3 The consultant would prepare Resettlement and Rehabilitation Plan and assess feasibility and effectiveness of income restoration strategies and suitability and availability to relocation sites. The resettlement plan which accounts for land acquisition and resettlement impacts would be based on a 25% socio-economic survey and 100 % census survey of project affected people which provide the complete assessment of the number of affected households and persons, including common property resources. All untitled occupants are recorded at the initial stages and identify cards will be issued to ensure there is no further influx of people in to the project area. All consultations with affected persons (to include list of participants) should be fully documented and records made available to NHIDCL.
 - Assessment on the impact of the project on the poor and vulnerable groups along the project road corridor.
 - Based on the identified impacts, developing entitlement matrix for the project affected people.
 - Assessment on social issues such as indigenous people, gender, HIV/AIDS, labourers including child labour.
 - Implementation budgets, sources and timing of funding and schedule of tasks.
 - Responsibility of tasks, institutional arrangements and personnel for delivering entitlement and plans to build institutional capacity.
 - Internal and external monitoring plans, key monitoring indicators and grievance redress mechanism.
 - Incorporating any other suggestions of the NHIDCL, till the acceptance of the reports by the NHIDCL

4.13.3 Reporting Requirements of EIA

- The consultant would prepare the stand-alone reports as per the requirement of the ADB/World Bank / NHIDCL, as applicable, with contents as per the following:
 - Executive Summary
 - Description of the Project
 - Environmental setting of the project.
 - Identification and categorization of the potential impacts (during pre-construction, construction and operation periods).

- Analysis of alternatives (this would include correlation amongst the finally selected alternative alignment/routing and designs with the avoidance and environmental management solutions).
- The public consultation process.
- Policy, legal and administrative framework. This would include mechanisms at the states and national level for operational policies. This would also include a description of the organizational and implementation mechanism recommended for this project.
- Typical plan or specific designs for all additional environmental items as described in the scope of work.
- Incorporating any other as per the suggestions of the ADB/ World Bank / MORT&H/ NHIDCL, till the acceptance of the reports by the ADB/ World Bank / MORT&H/ NHIDCL, as applicable.
- EMP Reports for Contract Package based on uniform methodology and processes. The consultant will also ensure that the EMP has all the elements for it to be a legal document. The EMP reports would include the following:
 - Brief description of the project, purpose of the EMP, commitments on incorporating environmental considerations in the design, construction and operations phases of the project and institutional arrangements for implementing the EMP.
 - A detailed EMP for construction and operational phases with recourse to the mitigation measures for all adverse impacts.
 - Detailed plans for highway-side tree plantation (as part of the compensatory afforestation component).
 - Environmental enhancement measure would be incorporated.
 - Enhancement measures would include items described in the scope of work and shall be complete with plans, designs, BOQ and technical specifications.
 - Environmental monitoring plans during and after construction including scaling and measurement techniques for the performance indicators selected for monitoring.
 - The EMP should be amendable to be included in the contract documents for the works.
 - Incorporating any other as per the suggestions of the ADB/ World Bank/ NHIDCL, till the acceptance of the reports by the ADB/ World Bank / NHIDCL as applicable.

4.13.4 Reporting requirements of RAP

Analysis on the resettlement plan be conducted based on ADBs Hand Book on Resettlement, A Guide to Good practice 1998 as amended time to time/ World Bank Guidelines / Government of India Guidelines, as applicable.

- Executive summary
- Description of project
- Objectives of the project.

- The need for Resettlement in the Project and evaluation of measures to minimize resettlement.
- Description and results of public consultation and plans for continued participation of PAPs.
- Definition of PAPs and the eligibility criteria.
- Census and survey results-number affected, how are they affected and what impacts will they experience.
- Legal and entitlement policy framework-support principles for different categories of impact.
- Arrangements for monitoring and evaluation (internal and external)
- Implementation schedule for resettlement which is linked to the civil works contract
- A matrix of scheduled activities linked to land acquisition procedures to indicate clearly what steps and actions will be taken at different stages and the time frame
- The payment of compensation and resettlement during the acquisition process
- An itemized budget (replacement value for all assets) and unit costs for different assets

5. Estimation of Quantities and Project Costs

1. The Consultants shall prepare detailed estimates for quantities (considering designs and mass haul diagram) and project cost for the entire project (civil packages wise), including the cost of environmental and social safeguards proposed based on MoRT&H's Standard Data Book and market rate for the inputs. The estimation of quantities shall be based on detailed design of various components of the projects. The estimation of quantities and costs would have to be worked out separately for civil work Package as defined in this TOR.
2. The Consultants shall make detailed analysis for computing the unit rates for the different items of works. The unit rate analysis shall duly take into account the various inputs and their basic rates, suggested location of plants and respective lead distances for mechanized construction. The unit rate for each item of works shall be worked out in terms of manpower, machinery and materials.
3. The project cost estimates so prepared for NHIDCL /ADB/WB projects are to be checked against rates for similar on-going works in India under NHIDCL / World Bank/ ADB financed road sector projects.

6. Viability and Financing Options

1. The Project Road should be divided into the traffic homogenous links based on the findings of the traffic studies. The homogenous links of the Project Road should be further subdivided into sections based on physical features of road and pavement, sub-grade and drainage characteristics etc. The economic and commercial analysis shall be carried out separately for each traffic homogenous link as well as for the Project Road.

2. The values of input parameters and the rationale for their selection for the economic and commercial analyses shall be clearly brought out and got approved by NHIDCL.
3. For models to be used for the economic and the commercial analyses, the calibration methodology and the basic parameters adapted to the local conditions shall be clearly brought out and got approved by NHIDCL.
4. The economic and commercial analyses should bring out the priority of the different homogenous links in terms of project implementation.

6.1 Economic Analysis

1. The Consultants shall carry out economic analysis for the project. The analysis should be for each of the sections covered under this TOR. The benefit and cost streams should be worked out for the project using HDM-IV or other internationally recognized life-cycle costing model.
2. The economic analysis shall cover but be not limited to be following aspects:
 - i. *assess the capacity of existing roads and the effects of capacity constraints on vehicle operating costs (VOC);*
 - ii. *calculate VOCs for the existing road situation and those for the project;*
 - iii. *quantify all economic benefits, including those from reduced congestion, travel distance, road maintenance cost savings and reduced incidence of road accidents; and,*
 - iv. *estimate the economic internal rate of return (EIRR) for the project over a 30-year period. In calculating the EIRRs, identify the tradable and non-tradable components of projects costs and the border price value of the tradable components.*
 - v. *Saving in time value.*
3. Economic Internal Rate of Return (EIRR) and Net Present Value (NPV), “with “and “without time and accident savings” should be worked out based on these cost-benefit stream. Furthermore, sensitivity of EIRR and NPV worked out forth different scenarios as given under:

Scenario – I Base Costs and Base Benefits

Scenario - II Base Costs plus 15% and Base Benefits

Scenario - III Base Costs and Base Benefits minus 15%

Scenario - IV Base Costs plus 15% and Base Benefits minus 15%

The sensitivity scenarios given above are only indicative. The Consultants shall select the sensitivity scenarios taking into account possible construction delays, construction costs overrun, traffic volume, revenue shortfalls, operating costs, exchange rate variations, convertibility of foreign exchange, interest rate volatility, non-compliance or default by contractors, political risks and force majeure.

4. The economic analysis shall take into account all on-going and future road and transport infrastructure projects and future development plans in the project area.

6.2 Financial Analysis

1. It is envisaged that the project stretch should be implemented on EPC/BOT basis, therefore, the Consultant shall study the financial viability of the project under a commercial format and under different user fee scenarios and funding options. The Consultants shall submit and finalize in consultation with the NHIDCL officers the format for the analysis and the primary parameters and scenarios that should be taken into account while carrying out the commercial analysis. The financial model so developed shall be the property of NHIDCL.
2. The Financial analysis for the project should cover financial internal rate of return, projected income statements, balance sheets and fund flow statements and should bring out all relevant assumptions. The sensitivity analysis should be carried out for a number of probabilistic scenarios.
3. The financial analysis should cover identification, assessment, and mitigating measures for all risks associated with the project. The analysis shall cover, but be not limited to, risks related to construction delays, construction costs overrun, traffic volume, revenue shortfalls, operating costs, exchange rate variations, convertibility of foreign exchange, interest rate volatility, non-compliance or default by Contractors , political risks and force majeure.
4. The consultant shall suggest positive ways of enhancing the project Viability and furnish different financial models for implementing on BOT format.

7. Time period for the service

1. Time period envisaged for the study of the project is indicated in **Annex-I to LOI**. The final reports, drawings and documentation shall be completed within this time schedule.
2. NHIDCL shall arrange to give approval on all sketches, drawings, reports and recommendations and other matters and proposals submitted for decision by the Consultant in such reasonable time so as not to delay or disrupt the performance of the Consultant's services.

8. Project Team and Project Office of the Consultant

1. The Consultants shall be required to form a multi-disciplinary team for this assignment. The consultants team shall be manned by adequate number of experts with relevant experience in the execution of similar detailed design assignments.
2. List of suggested key personnel to be fielded by the consultant with appropriate man-month of consultancy services is given in Enclosure I as per client's assessment.

3. A Manning Schedule for key personnel mentioned above is enclosed as Enclosure I along with broad job- description and qualification as Enclosure II. The information furnished in Enclosures I & II are to assist the Consultants to understand the client's perception about these requirements and shall be taken by the Consultants for the purpose of Financial Proposal and deployment schedule etc. in technical proposal to be submitted by them. Any deviation proposed may be recorded in the comments on TOR. All the key personnel mentioned will be evaluated at the time of evaluation of technical proposal. Consultants are advised in their own interest to frame the technical proposal in an objective manner as far as possible so that these could be properly assessed in respect of points to be given as part of evaluation criteria as mentioned in Data sheet. The bio-data of the key personnel should be signed on every sheet by the personnel concerned and the last sheet of each bio-data should also be signed by the authorised signatory of the Consultants.
4. The Consultants shall establish an office at the project site manned by senior personnel during the course of the surveys and investigations. All the project related office work shall be carried out by the consultant in their site office unless there are special reasons for carrying out part of the office work elsewhere for which prior approval of NHIDCL shall be obtained. The address of the site office including the personnel manning it including their Telephone and FAX numbers will be intimated by the Consultant to NHIDCL before commencement of the services.
5. The Consultant shall maintain an Attendance Register to be signed by each individual key personnel at site as well as at Head Office. The Consultant shall furnish certificate that all the key personnel as envisaged in the Contract
Agreement have been actually deployed in the Projects at the time of submission of their bills to the NHIDCL from time to time.

9. Reports to be submitted by the Consultant to NHIDCL

- 9.1 All reports, documents and drawings are to be submitted separately for each of the traffic homogenous link of the Project Road. The analysis of data and the design proposals shall be based on the data derived from the primary surveys and investigations carried out during the period of assignment. The sources of data and model relationships used in the reports shall be indicated with complete details for easy reference.
- 9.2 Project preparation activities will be split into six stages as brought out below.

Preliminary design work should commence without waiting for feasibility study to be completed. Stage 3, 5 and 6 shall run in parallel with Stage 2 and 4

Stage 1: Inception Report Stage

2: Feasibility Report

Stage 3: LA & Clearances I Report

Stage 4: Detailed Project Report

(DPR) Stage 5: Technical Schedules

Stage 6: LA & Clearances II Report

- 9.3 Consultant shall be required to complete, to the satisfaction of the client, all the different stages of study within the time frame indicated in the schedule of submission in para 10 pertaining to Reports and Documents for becoming eligible for payment for any part of the next stage.

10 Reports and Documents to be submitted by the Consultant to NHIDCL

1. The Consultant shall submit to the client the reports and documents in bound volumes (and not spiral binding form) after completion of each stage of work as per the schedule and in the number of copies as given in Enclosure III. Further, the reports shall also be submitted in floppy diskettes / CD's in addition to the hardcopies as mentioned in Enclosure-III. Consultant shall submit all other reports mentioned specifically in the preceding paras of the TOR.
2. The time schedule for various submissions prescribed at s.l.no.1 above shall be strictly adhered to. No time-over-run in respect of these submissions will normally be permitted. Consultant is advised to go through the entire terms of reference carefully and plan his work method in such a manner that various activities followed by respective submissions as brought out at Sl.No.1 above are completed as stipulated. Consultant is, therefore, advised to deploy sufficient number of supporting personnel, both technical and administrative, to undertake the project preparation activities in construction package (Section) simultaneously. As far as possible, the proposal should include complete information such as number of such persons, name, position, period of engagement, remuneration rate etc. The Consultant is also advised to start necessary survey works from the beginning so as to gain time in respect of various other activities in that stage.

STAGE 1

10.1 Quality Assurance Plan (QAP) Document

1. Immediately upon the award, the Consultants shall submit four copies of the QAP document covering all aspects of field studies, investigations design and economic financial analysis. The quality assurance plans/procedures for different field

studies, engineering surveys and investigation, design and documentation activities should be presented as separate sections like engineering surveys and investigations, traffic surveys, material geo-technical and sub-soil investigations, road and pavement investigations, investigation and design of bridges & structures, environment and R&R assessment, economic & financial analysis, drawings and documentation; preparation, checking, approval and filing of calculations, identification and traceability of project documents etc. Further, additional information as per format shall be furnished regarding the details of personnel who shall be responsible for carrying out/preparing and checking/verifying various activities forming part of feasibility study and project preparation, since inception to the completion of work. The field and design activities shall start after the QAP is approved by NHIDCL

2. The data formats proposed by the Consultants for use in field studies and investigations shall be submitted within 14 days after the commencement of services and got approved by NHIDCL

10.2

Inception Report (IR)

1. The report shall cover the following major aspects:
 - i. *Project appreciation;*
 - ii. *Detailed methodology to meet the requirements of the TOR finalised in consultation with the NHIDCL officers; including scheduling of various sub activities to be carried out for completion of various stages of the work; stating out clearly their approach & methodology for project preparation after due inspection of the entire project stretch and collection/ collation of necessary information;*
 - iii. *Task Assignment and Manning Schedule;*
 - iv. *Work programme;*
 - v. *Proforma for data collection;*
 - vi. *Design standards and proposed cross-sections;*

- vii. *Key plan and Linear Plan;*
 - viii. *Development plans being implemented and / or proposed for implementation in the near future by the local bodies and the possible impact of such development plans on the overall scheme for field work and design for the study;*
 - ix. *Quality Assurance Plan (QAP) finalised in consultation with NHIDCL;*
 - x. *Draft design standards; and*
2. The requirements, if any, for the construction of bypasses should be identified on the basis of data derived from reconnaissance and traffic studies. The available alignment options should be worked out on the basis of available maps. The most appropriate alignment option for bypasses should be identified on the basis of site conditions and techno-economic considerations. Inception Report should include the details regarding these aspects concerning the construction of bypasses for approval by NHIDCL.

STAGE 2:

10.3 Feasibility Report

1. The consultant shall commence the Feasibility Study of the project in accordance with the accepted IR and the report shall contain the following:
- i. *Executive summary*
 - ii. *Overview of NHIDCL organization and activities, and project financing and cost recovery mechanisms*
 - iii. *Project description including possible alternative alignments/bypasses and technical/engineering alternatives*
 - iv. *Methodology adopted for the feasibility study*
 - v. *Socioeconomic profile of the project areas*
 - vi. *Indicative design standards, methodologies and specifications*
 - vii. *Traffic surveys and analysis*
 - viii. *Environmental screening and preliminary environmental assessment*
 - ix. *Initial social assessment and preliminary land acquisition/resettlement plan*
 - x. *Cost estimates based on preliminary rate analysis and bill of quantities*
 - xi. *Economic and financial analysis*
 - xii. *Conclusions and recommendations*

2. In view of para 1 above the consultant has to submit the following documents in six sets:
 - i. **Technical Specifications:** *The MORT&H's Technical Specifications for Road and Bridge works shall be followed for this study. However, Volume - IV: Technical Specifications shall contain the special technical specifications which are not covered by MORT&H Specifications for Roads and Bridges (latest edition / revision) and also specific quality control norms for the construction of works.*
 - ii. **Rate Analysis:** *This volume will present the analysis of rates for all items of works. The details of unit rate of materials at source, carriage charges, any other applicable charges, labour rates, and machine charges as considered in arriving at unit rates will be included in this volume.*
 - iii. **Cost Estimates:** *This volume will present the each item of work as well as a summary of total cost.*
 - iv. **Bill of Quantities:** *This volume shall contain the detailed Bill of Quantities for all items of works*
3. The basic data obtained from the field studies and investigations shall be submitted in a separate volume as an Appendix to Feasibility Report.
4. The Final Feasibility Study Report incorporating comments, revisions and modifications suggested by NHIDCL shall be submitted within 15 days of comments from NHIDCL on draft feasibility study report.

STAGE 3:

10.4 Strip Plan and Clearances

1. The Consultants shall submit the following documents:
 - i. *Details of the center line of the proposed widened NH along with the existing and proposed right-of-way limits to appreciate the requirements of land acquisition;*
 - ii. *The information concerning the area including ownership of land to be acquired for the implementation of the project shall be collected from the revenue and other concerned authorities and presented along with the strip plans;*
 - iii. *Strip plans showing the position of existing utilities and services indicating clearly the position of their relocation;*
 - iv. *Details for various clearances such as environment and forest clearances;*
 - v. *Separate strip plan showing shifting / relocation of each utility services in consultation with the concerned local authorities;*

- vi. *The utility relocation plans should clearly show existing right-of-way and pertinent topographic details including buildings, major trees, fences and other installations such as water-mains, telephone, telegraph and electricity poles, and suggest relocation of the services along with their crossings the highway at designated locations as required and prepare necessary details for submission to the Service Departments;*
 - vii. *Detail schedules for acquisition of additional land and additional properties in consultation with the revenue authorities; and*
 - viii. *Land Acquisition Plan shall be prepared after digitization of cadastral / land revenue maps. The digitized map shall exactly match the original map, like a contact print, since the dimensions and area of plots, or the whole village is to be extracted from the map itself. An accuracy of 1mm or higher in a 1:1000 scale map shall be ensured, as this translates into an accuracy of 1 m or higher on ground.*
2. The strip plans and land acquisition plan shall be prepared on the basis of data from reconnaissance and detailed topographic surveys.
 3. The Report accompanying the strip plans should cover the essential aspects as given under:
 - i. *Kilometre-wise Land Acquisition Plan (LAP) and schedule of ownership thereof and Costs as per Revenue Authorities and also based on realistic rates.*
 - ii. *Details of properties, such as buildings and structures falling within the right-of way and costs of acquisition based on realistic rates.*
 - iii. *Kilometre-wise Utility Relocation Plan (URP) and costs for relocation per civil construction package as per concerned authorities.*
 - iv. *Kilometre-wise account in regard to felling of trees of different type and girth and value estimate of such trees based on realistic rates obtainable from concerned District forest office.*
 4. The strip plans shall clearly indicate the scheme for widening. The views and suggestions of the concerned State PWDs should be duly taken into account while working out the widening scheme (left, right or symmetrical). The widening scheme shall be finalised in consultation with NHIDCL
 5. Kilometre-wise Strip Plans for section (Package) shall be prepared separately for each concerned agency and suggested by NHIDCL

10.5 Land Acquisition Report

1. The Land acquisition report shall be prepared and submitted for section (package). The report shall include detail schedules about acquisition of landholdings as per revenue records and their locations in a strip plan and also the costs as per district authorities. Details shall be submitted in land acquisition proforma to be supplied by NHIDCL. The land acquisition report shall be submitted in both Hind and English languages.

2. The land acquisition report should be prepared in consultation with affected persons, non-governmental organisations and concerned government agencies and should cover land acquisition and resettlement plan and costs of resettlement and rehabilitation of such affected persons. It should also include plan of compensating afforestation, its land requirement with specific locations and cost involved for undertaking all activities in this regard.

10.6 Deleted

STAGE: 4

10.7 Draft Detailed Project Report (DPR)

1. The draft DPR Submission shall consist of construction package-wise Main Report, Design Report, Materials Report, Engineering Report, Drainage Design Report, Economic and Financial Analysis Report, Environmental Assessment Report including Resettlement Action Plan (RAP), Package-wise bid Documents and Drawings.
2. The Report volumes shall be submitted as tabulated in para 10 above.
3. The Documents and Drawings shall be submitted for the Package and shall be in the following format:

Reports

- i. ***Volume-I, Main Report:*** *This report will present the project background, social analysis of the project, details of surveys and investigations carried out, analysis and interpretation of survey and investigation data, traffic studies and demand forecasts designs, cost estimation, environmental aspects, economic and commercial analyses and conclusions. The report shall include Executive Summary giving brief accounts of the findings of the study and recommendations.*

The Report shall also include maps, charts and diagrams showing locations and details of existing features and the essential features of improvement and upgrading. The Environmental Impact Assessment (EIA) Report for contract package shall be submitted as a part of the main report.

The basic data obtained from the field studies and investigations and input data used for the preliminary design shall be submitted in a separate volume as an Appendix to Main Report.

- ii. ***Volume - II, Design Report:*** *This volume shall contain design calculations, supported by computer printout of calculations wherever applicable. The Report shall clearly bring out the various features of design standards adopted for the study. The design report will be in two parts. Part-I shall primarily deal with the design of road features and pavement composition while Part-II shall*

deal with the design of bridges, tunnels and cross- drainage structures. The sub-soil exploration report including the complete details of boring done, analyses and interpretation of data and the selection of design parameters shall be included as an Appendix to the Design Report.

The detailed design for all features should be carried out as per the requirements of the Design Standards for the project. However, there may be situations wherein it has not been possible to strictly adhere to the design standards due to the existing site conditions, restrictions and other considerations. The report should clearly bring out the details of these aspect and the standards adopted.

- iii. ***Volume - III, Materials Report:*** *The Materials Report shall contain details concerning the proposed borrow areas and quarries for construction materials and possible sources of water for construction purposes. The report shall include details on locations of borrow areas and quarries shown on maps and charts and also the estimated quantities with mass haul diagram including possible end use with leads involved, the details of sampling and testing carried out and results in the form of important index values with possible end use thereof.*

The materials Report shall also include details of sampling, testing and test results obtained in respect physical properties of subgrade soils. The information shall be presented in tabular as well as in graphical representations and schematic diagrams. The Report shall present soil profiles along the alignment.

The material Report should also clearly indicate the locations of areas with problematic soils. Recommendations concerning the improvement of such soils for use in the proposed construction works, such as stabilization (cement, lime, mechanical) should be included in the Report.

- iv. ***Volume - IV, Environmental Assessment Report including Environmental Management Plan (EMP) & Resettlement Action Plan (RAP):*** *The Report shall be prepared conforming to the Guidelines of the Government of India, State Government and World Bank / ADB as appropriate for construction package.*

- v. ***Volume - V, Technical Specifications:*** *The MORT&H's Technical Specifications for Road and Bridge works shall be followed for this study. However, Volume IV: Technical Specifications shall contain the special technical specifications which are not covered by MOST Specifications for Roads and Bridges (latest edition / revision) and also specific quality control norms for the construction of works.*

- vi. **Volume - VI, Rate Analysis:** *This volume will present the analysis of rates for all items of works. The details of unit rate of materials at source, carriage charges, any other applicable charges, labour rates, machine charges as considered in arriving at unit rates will be included in this volume.*
- vii. **Volume - VII, Cost Estimates:** *This volume will present the contract package wise cost of each item of work as well as a summary of total cost.*
- viii. **Volume - VIII, Bill of Quantities:** *This volume shall contain the package- wise detailed Bill of Quantities for all items of works.*
- ix. **Volume - IX, Drawing Volume:** *All drawings forming part of this volume shall be 'good for construction' drawings. All plan and profile drawings will be prepared in scale 1:250V and 1:2500H scale to cover one km in one sheet. In addition this volume will contain 'good for construction' drawings for the following:*
- *Horizontal Alignment and Longitudinal Profile.*
 - *Cross-section @ 50m interval along the alignment within ROW*
 - *Typical Cross-Sections with details of pavement structure.*
 - *Detailed Working Drawings for individual Culverts and Cross Drainage Structures.*
 - *Detailed Working Drawings for individual Bridges, tunnels and Structures.*
 - *Detailed Drawings for Improvement of At-Grade and Grade-separated*
 - *Intersections and Interchanges.*
 - *Drawings for Road Sign, Markings, Toll Plazas, and other Facilities.*
 - *Schematic Diagrams (linear chart) indicating but be not limited to be following:*
 - *Widening scheme;*
 - *Locations of median openings, intersections, interchanges, underpasses, overpasses, bypasses;*
 - *Locations of service roads;*
 - *Location of traffic signals, traffic signs, road markings, safety features; and,*
 - *Locations of toll plaza, parking areas, weighing stations, bus bays, rest areas, if any.*
 - *Drawings for toll plaza, Bus Bays, Parking areas, Rest areas, weighing stations etc. All drawings will be prepared in A2 size sheets. The format for plan, cross section and profile drawings shall be finalised in consultation with the concerned NHIDCL officers. The drawings shall also include details of all BM and reference pillars, HIP and VIP. The co-ordinates of all points should be referenced to a common datum, preferably GTS referencing system.*

The drawings shall also include the locations of all traffic safety features including traffic signals, signs, markings, crash barriers, delineators and rest areas, busbays, parking areas etc.

- *The typical cross-section drawings should indicate the scheme for future widening of the carriageway. The proposed cross-sections of road segment passing through urban areas should indicate the provisions for pedestrian movements and suitable measures for surface and sub-surface drainage and lighting, as required.*

10.8. Final Detailed Project Report, Documents and Drawings (6 Sets)

1. The Final package-wise DPR consisting of Main Report, Design Report, Drainage Design Report and Materials Report, incorporating all revisions deemed relevant following receipt of the comments from NHIDCL on the draft DPR shall be submitted as per the schedule given in Enclosure-III.

STAGE: 5

10.9. Technical Schedules

1. Civil Work Contract Agreement: A civil works contract agreement shall be submitted

STAGE: 6

10.10. LA & Clearances II Report

1. Draft 3a, 3A, 3D notification shall be submitted by the consultant.
2. All the necessary project related clearances such as environment, forest and wildlife clearance from MOEF, Railways in respect of ROB/ RUBs, Irrigation Deptt and any other concerned agencies shall be obtained by the consultant. The final approvals shall be obtained and submitted to NHIDCL so that project Implementation can straight away proceed without any hold up. For utility clearances, consultant shall prepare draft utility shifting estimates using the latest Schedule of Rates and obtain final approval from utility agency and NHIDCL.

11. Interaction with NHIDCL

1. During entire period of services, the Consultant shall interact continuously with NHIDCL and provide any clarification as regards methods being followed and carry out modification as suggested by NHIDCL. A programme of various activities shall be provided to NHIDCL and prior intimation shall be given to NHIDCL regarding start of key activities such as boring, survey etc. so that inspections of NHIDCL officials could be arranged in time.

2. The NHIDCL officers and other Government officers may visit the site at any time, individually or collectively to acquaint/ supervise the field investigation and survey works. NHIDCL may also appoint a Proof Consultant to supervise the work of the DPR consultant including inter-alia field investigation, survey work, Design work and preconstruction activities
3. The consultant shall be required to send 3 copies of concise monthly Progress Report by the 5th day of the following month to the designated officer at his Head Quarter so that progress could be monitored by the NHIDCL. These reports will indicate the dates of induction and de-induction of various key personnel and the activities performed by them. Frequent meetings with the consultant at site office or in Delhi are foreseen during the currency of project preparation.
4. All equipment, software and books etc. required for satisfactory services for this project shall be obtained by the Consultant at their own cost and shall be their property.

12. Payment Schedule

1. The Consultant will be paid consultancy fee as a percentage of the contract values as per the schedule given in the Draft Contract Agreement.

13. Data and Software

1. The floppy diskettes/CD's containing all basic as well as the processed data from all field studies and investigations, report, appendices, annexure, documents and drawings shall be submitted to NHIDCL at the time of the submission of the Final Report. The data can be classified as follows:
 - i **Engineering Investigations and Traffic Studies:** Road Inventory, Condition, Roughness, Test Pit (Pavement composition), Benkelman Beam Deflection, Material Investigation including test results for subgrade soils, Traffic Studies(traffic surveys), axle load surveys, Sub-soil Exploration, Drainage Inventory, Inventory data for bridge and culverts indicating rehabilitation, new construction requirement etc. in MS EXCEL or any other format which could be imported to widely used utility packages.
 - ii **Topographic Surveys and Drawings:** All topographic data would be supplied in (x, y, z) format along with complete reference so that the data could be imported into any standard highway design software. The drawing files would be submitted in dxf or dwg format.
 - iii **Rate Analysis:** The Consultant shall submit the rate analysis for various works items including the data developed on computer in this relation so

that it could be used by the Authority later for the purpose of updating the cost of the project.

iv. Economic and Financial Analysis

2. **Software:** The Consultant shall also hand-over to NHIDCL floppies/CD's containing any general software including the financial model which has been specifically developed for the project.
3. The floppy diskettes/CD's should be properly indexed and a catalogue giving contents of all floppies/CD's and print-outs of the contents (data from field studies topographic data and drawings) should be handed over to NHIDCL at the time of submission of the Final Report.
4. Consultant shall include editable soft copies of the final versions of all documents, including but not limited to the strip plan, plan & profile drawings, cross sections of right of way and details of structures as well as any cost workings.

SUPPLEMENT I

ADDITIONAL POINTS TO BE CONSIDERED FOR HILL ROADS IN ADDITION TO POINTS COVERED IN MAIN TOR

S. No.	Clause No. of TOR	<i>Additional points</i>
1.	2.2	a) Provisions of tunnels if required.
2.	2.3	a) Design of tunnels, if required b) Design of protective works, slope stabilization measures, erosion control measures, land slide control/protection measures snow drift control/snow clearance measures, avalanche protection measures, if required
3.	3	Feasibility study and preparation of detailed project report for hill roads shall be done in accordance with best international practices and wherever practicable/feasible steep gradients and hair pin bends may be avoided by realignments by provision of structures and provision of tunnels if required
4.	4.1	a) Inventory and condition survey for tunnels, if required. b) Identification of faults in rock strata and impact of faults in design of tunnels, if required c) Detailed design of road considering and incorporating specific aspects related to hill region like terrain, topographic conditions, extreme weather conditions, altitude effects etc. d) Design of protective works, slope stabilization measures, erosion control measures, land slide control/protection measures, snow drift control/snow clearance measures, avalanche protection measures, if required e) Design of scenic overlooks/watering points etc.
5.	4.5 (1)	All activities related to field studies, design and documentation shall be done as per the latest guidelines/circulars of MORT&H and relevant publications of the Indian Roads Congress (IRC)/Bureau of Indian Standards (BIS) for hill roads. For aspects not covered by IRC and BIS, international standard practices, such as, British and American Standards may be adopted.
6.	4.7	Review of data and documents pertaining to a) Terrain and soil condition b) Condition of tunnels, if required. c) Sub-surface and geo-technical data for existing tunnels, if required. d) Drawing and details of existing tunnels, if required. e) Existing protective works, erosion control and land slide control/

		<p>protection works, slope stabilization measures, snow drift control measures, avalanche protection measures</p> <p>f) Existing land slide and snow clearance facilities</p> <p>g) Geological details of rock strata in the area in case of tunnels</p>
7.	4.11(1)	The Consultant should make an in depth study of available geological and meteorological maps of the area.
8.	4.11 (2)	<p>The primary tasks to be accomplished during the reconnaissance survey shall also include:</p> <p>a) details of terrain (steep or mountainous), cliffs and gorges, general elevation of the road including maximum heights negotiated by main ascents and descents, total number of ascents and descents, hair pin bends, vegetation etc.</p> <p>b) Climatic conditions i.e. temperature, rain fall data, snow fall data, fog conditions, unusual weather conditions etc.</p> <p>c) Realignment requirements including provision of tunnels, if required.</p> <p>d) Inventory of tunnels and geologically sensitive areas like slip prone areas, areas subject to landslides, rock fall, snow drifts, erosion, avalanche activity etc.</p>
9.	4.11.2.1 (ii)	Cross sections shall be taken at every 25 m. in case of hill roads and at points of appreciable changes in soil conditions. While taking cross sections, soil conditions shall also be recorded.
10.	4.11.3.1 (1)	<p>The inventory data shall also include:</p> <p>a) General elevation of road indicating maximum & minimum heights negotiated by main ascents & descents and total no. of ascents & descents.</p> <p>b) Details of road gradients, lengths of gentle & steep slopes, lengths & location of stretches in unstable areas, areas with cliffs, areas with loose rocks, land slide prone areas, snow drift prone areas, no. & location of hairpin bends etc.</p> <p>c) Details of tunnels</p> <p>d) Details & types of protective structures, erosion & land slide control/protection measures, snow drift control measures, avalanche protection/control measures etc.</p>
11.	4.11.3.2 (2)	<p>Pavement:</p> <p>a) Location of crust failures along with their causes</p> <p>b) Conditions of camber/cross falls/super elevations etc., whether affected by subsidence</p> <p>Embankment:</p> <p>Extent of slope erosion on hill and valley side</p>

12.	--	<p>Condition Surveys & Investigation for Slope Stabilization, Erosion Control, Landslide Correction/Protection & Avalanche Protection Measures:</p> <p>a) Inventory & Condition Surveys of Existing Protective/Control Measures:</p> <p>The consultant shall make an inventory of all the structures related to Slope Stabilization, Erosion Control, Landslide Control/protection, Avalanche Protection etc. This shall include details of effectiveness of control measures already done and condition of protective/control structures.</p> <p>b) Landslide Investigation</p> <p>This shall be carried out to identify landslide prone areas, to suggest preventive measures or alternate routes that are less susceptible to landslide hazard. Further in existing slide areas this shall help to identify factors responsible for instability and to determine appropriate control measures needed to prevent or minimize recurring of instability problems.</p> <p>Initial preliminary studies shall be carried out using available contour maps , topographical maps, geological/geo-morphological maps, aerial photographs etc. for general understanding of existing slide area and to identify potential slide areas. This shall be followed by further investigations like geological/geotechnical/hydrological investigation to determine specific site conditions prevailing in the slide area as per relevant IRC specifications/publications, MORT&H circulars and relevant recommendations of the international standards for hill roads. The result of the investigations shall provide basis for engineering analysis and the design of protection/remedial measures.</p>
13.	4.11.4.4	<p>a) For tunnels if required, geotechnical and subsurface investigation shall be done as per IRC:SP:91.</p> <p>b) Geotechnical and subsurface investigation and testing for tunnels shall be carried out through the geotechnical Consultants who have the experience of geotechnical and subsurface investigation in similar project.</p>
14.	4.12.1 (1)	<p>The Consultant shall also carry out detailed designs and prepare working designs for the following:</p> <p>a) cross sections at every 25 m intervals</p> <p>b) Slope stabilization and erosion control measures</p> <p>c) Design of protection/control structures in areas subject to subsidence, landslides, rock fall, rock slide, snow drifts, icing, scour, avalanche activity etc.</p> <p>d) Design of protective structures in slip prone and unstable areas</p> <p>e) Design of scenic overlooks, watering points etc.</p> <p>f) Safety features specific to hill roads</p>
15.	4.12.2 (1)	<p>The Consultant shall evolve Design Standards and material specifications</p>

	4.12.2 (2)	<p>for the Study primarily based on IRC publications, MORT&H Circulars and relevant recommendations of the international standards for hill roads for approval by NHIDCL.</p> <p>The Design Standards evolved for the project shall cover all aspects of detailed design including the design of geometric elements, pavement design, bridges and structures, tunnels if required, traffic safety and materials.</p>
16.	4.12.3	Wherever practicable/feasible hairpin bends and steep gradients shall be avoided by realignments, provision of structures or any other suitable provisions.
17.	4.12.4	While designing pavement for hill roads specific aspects relevant to hill regions like terrain & topographic conditions, weather conditions, altitude effects etc. shall be duly considered and suitably incorporated in design so that pavement is able to perform well for the design traffic and service life. Effects of factors like heavy rainfall, frost action, intensive snow and avalanche activity, thermal stresses due to temperature difference in day and night, damage by tracked vehicles during snow clearance operations etc. must also be considered along with traffic intensity, its growth, axle loads and design life.
18.	4.12.5(3)	The design of embankments should include the requirements for protection works and traffic safety features including features specific to hill roads.
19.	--	<p>Design and Drawing of Tunnels:</p> <p>The Consultant shall prepare design and drawings for tunnels, if required as per the results of feasibility study, as per the relevant specifications of IRC:SP:91/MORT&H and other international specifications.</p>
20.	4.12.7	<p>a) Topography of hills generates numerous water courses and this coupled with continuous gradients of roads in hills and high intensity of rainfall calls for effective drainage of roads. The drainage system shall be designed to ensure that the water flowing towards the road surface may be diverted and guided to follow a definite path by suitable provision of road side drains, catch water drains, interceptors etc. and flow on valley side is controlled so that stability is not affected.</p> <p>b) Further, adequate provision shall be made for sub-surface/subgrade drainage to take care of seepage through the adjacent hill face of the road & underground water flows.</p>
21.	4.12.8	The Consultant shall design suitable traffic safety features and road furniture including traffic signals, signs, markings, overhead sign boards, crash barriers ,delineators etc. including any feature specific to hill roads. The locations of these features shall be given in the reports and also shown in the drawings.
22.	4.12.3 (1)	The Consultant shall make suitable designs and layout for miscellaneous

		works including rest areas, bus bays, vehicle parking areas, telecommunication facilities, scenic overlooks, watering points etc. wherever appropriate.
23.	10.6 (1)	<p>Volume II: Design Report :</p> <p>a) Inventory of protection measures and other structures</p> <p>b) Inventory of tunnels, if required.</p> <p>c) Proposed preliminary designs for tunnels, if required.</p> <p>Volume III: Drawings</p> <p>a) Drawings for protection/control measures and other structures</p> <p>b) Drawings for tunnels, if required.</p>
24.	10.7 (3)	<p>Volume II: Design Report (Part II)</p> <p>Part II of Design Report shall also deal with design of tunnels, if required and design of other protection/control structures.</p> <p>Volume IX: Drawing Volume</p> <p>This shall also include :</p> <p>a) Detailed working drawings for tunnels, if required.</p> <p>b) Detailed working drawings for protection/control structures</p>

SUPPLEMENT II

S.No.	Clause No. of TOR	<i>Additional points</i>
1	4.1	For stand alone bridge projects the scope of work shall include detailed design of approach road extending at least up to 2 km on either side of the bridge
1.	4.11.4.2(6)	<p style="text-align: center;">Model Studies for Bridges</p> <p>1. Objective Physical/ Mathematical Model study for detailed Hydraulic / Hydrologic investigations regarding the proposed bridge for hydraulic design of the bridge and assessment and hydraulic design of required river training works.</p> <p>2. Methodology</p> <p>Physical/Mathematical Model study shall be carried out at a reputed/recognized institution. The consultant will be responsible for identifying the institution, supplying Information /Documents /Data required for modal studies as indicated in para 4 below and coordinating the model study with the institution concerned</p> <p>3. Scope of Work</p> <p>Physical Model study Physical modeling with appropriate model scale for Hydraulic and Hydrologic Investigations to :</p> <ul style="list-style-type: none"> i) Finalize span arrangement causing uniformity in flow distribution, and work out the alignment and orientation of river training works and bridge axis. ii) Provide information on estimated/observed maximum depth of scour. iii) Provide information on required river training works for proposed bridge iv) Provide hydraulic design for the bridge and the required river training works. v) Quantify the general direction of river course through bridge, afflux, extent and magnitude of flood, effect of backwater, if any, aggradation/degradation of bed, evidence of scour etc. shall be used to augment the available hydrological data. The presence of flood control/irrigation structures, if affecting the hydraulic characteristics like causing obliquity, concentration of

		<p>flow, scour, silting of bed, change in flow levels, bed levels etc. shall be studied and considered in Hydraulic design of proposed bridge. The details of any planned work in the immediate future that may affect the river hydraulics shall be studied and considered</p> <p>Mathematical Model study</p> <p>Mathematical modeling for detailed Hydraulic / Hydrologic investigations regarding the proposed new bridge to:</p> <ol style="list-style-type: none"> i) Finalize the site/location of the proposed new bridge based on mathematical modeling. ii) Provide information on estimated/observed maximum depth of scour.. iii) Provide information on required river training works for proposed bridge iv) Provide hydraulic design for the bridge and the required river training works. v) Quantify the general direction of river course through bridge, afflux, extent and magnitude of flood, effect of backwater, if any, aggradation/degradation of bed, evidence of scour etc. shall be used to augment the available hydrological data. The presence of flood control/irrigation structures, if affecting the hydraulic characteristics like causing obliquity, concentration of flow, scour, silting of bed, change in flow levels, bed levels etc. shall be studied and considered in Hydraulic design of proposed bridge. The details of any planned work in the immediate future that may affect the river hydraulics shall be studied and considered. <p>4. Information /Documents /Data required for Physical /Mathematical Model study</p> <ol style="list-style-type: none"> i) Plan layouts showing the locations of the proposed bridge as well as the existing bridges / barrages etc., in the vicinity of the proposed bridge with the chainages with respect to a standard reference marked on it. ii) High flood discharges and corresponding flood levels at the locations of the existing bridges in the vicinity of the proposed bridge. iii) General arrangement drawing (GAD) of the existing bridges showing number of spans, pier and well dimensions, founding levels, maximum scour level, the
--	--	--

		<p>design discharge and the HFL, guide bund details. On this, the plan form of the river course with the bridge alignment may also be shown as far as possible.</p> <p>iv) General arrangement drawing (GAD) of the proposed new bridge showing number of spans , pier and foundation dimensions. On this, the plan form of the river course with the bridge alignment may also be shown as for as possible.</p> <p>v) River cross sections at 500m longitudinal spacing (maximum) up to a distance of 2 times the bridge total length on the upstream side and up to a distance equal to the bridge total length on the downstream with right bank and left bank clearly marked on it. At least one cross section to be provided at the location of the proposed bridge. At each cross section, the bed levels to be taken at a maximum lateral distance of 8 m in flow section and at 25 m in nonflow section respectively. The abrupt variations in the bed levels to be captured by taking measurements at closer locations both in longitudinal as well as lateral directions.</p> <p>vi) The cross sections, as for as possible, from high bank to high bank.</p> <p>vii) The longitudinal profile of the river along the length of the proposed alignment.</p> <p>viii) Size distribution of the river bed material and the bore log data at different locations at the site of the proposed bridge.</p> <p>ix) The series of annual peak flood of the river for at least 15 years period.</p>
--	--	---

SUPPLEMENT-III
ADDITIONAL REQUIREMENT FOR SAFETY AUDIT

The use of checklists is highly recommended as they provide a useful “aide memoire” for the audit team to check that no important safety aspects are being overlooked. They also give to the project manager and the design engineer a sense of understanding of the place of safety audit in the design process. The following lists have been drawn up based on the experience of undertaking systematic safety audit procedures overseas. This experience indicates that extensive lists of technical details has encouraged their use as “tick” sheets without sufficient thought being given to the processes behind the actions. Accordingly, the checklists provide guidelines on the principal issues that need to be examined during the course of the safety audits.

Stage F-During Feasibility Study

1. The audit team should review the proposed design from a road safety perspective and check the following aspects

CONTENTS	ITEMS
Aspects to be checked	<ul style="list-style-type: none"> A. Safety and operational implications of proposed alignment and junction strategy with particular references to expected road users and vehicle types likely to use the road. B. Width options considered for various sections. C. Departures from standards and action taken. D. Provision of pedestrians, cyclists and intermediate transport E. Safety implications of the scheme beyond its physical limits i.e. how the scheme fits into its environs and road hierarchy
A1 : General	<ul style="list-style-type: none"> ➤ Departures from standards ➤ Cross-sectional variation ➤ Drainage ➤ Climatic conditions ➤ Landscaping ➤ Services apparatus ➤ Lay-byes ➤ Footpath ➤ Pedestrian crossings ➤ Access (minimize number of private accesses)

	<ul style="list-style-type: none"> ➤ Emergency vehicles ➤ Public Transport ➤ Future widening ➤ Staging of contracts ➤ Adjacent development
A2 : Local Alignment	<ul style="list-style-type: none"> ➤ Visibility ➤ New/Existing road interface ➤ Safety Aids on steep hills
A3 : Junctions	<ul style="list-style-type: none"> ➤ Minimise potential conflicts ➤ Layout ➤ Visibility
A4 : Non-Motorised road users Provision	<ul style="list-style-type: none"> ➤ Adjacent land ➤ Pedestrians ➤ Cyclists ➤ Non-motorised vehicles
A5 : Signs and Lighting	<ul style="list-style-type: none"> ➤ Lighting ➤ Signs/Markings
A6 : Construction and Operation	<ul style="list-style-type: none"> ➤ Buildability ➤ Operational ➤ Network Management

Stage 1 – Completion of Preliminary Design

1. The audit team should review the proposed check the following aspects design from a road safety perspective and check the following aspects	
CONTENTS	ITEMS
Aspects to be checked	<p>A. Safety and operational implications of proposed alignment and junction strategy with particular references to expected road users and vehicle types likely to use the road.</p> <p>B. Width options considered for various sections.</p> <p>C. Departures from standards and action taken.</p> <p>D. Provision of pedestrians, cyclists and intermediate transport</p>

	E. Safety implications of the scheme beyond its physical limits i.e. how the scheme fits into its environs and road hierarchy
B1 : General	<ul style="list-style-type: none"> ➤ Departures from standards ➤ Cross-sectional variation ➤ Drainage ➤ Climatic conditions ➤ Landscaping ➤ Services apparatus ➤ Lay-byes ➤ Footpaths ➤ Pedestrian crossings ➤ Access (minimize number of private accesses) ➤ Emergency vehicles ➤ Public Transport ➤ Future widening ➤ Staging of contracts ➤ Adjacent development
B2 : Local Alignment	<ul style="list-style-type: none"> ➤ Visibility ➤ New/Existing road interface ➤ Safety Aids on steep hills
B3 : Junctions	<ul style="list-style-type: none"> ➤ Minimise potential conflicts ➤ Layout ➤ Visibility
B4 : Non-Motorised road users Provision	<ul style="list-style-type: none"> ➤ Adjacent land ➤ Pedestrians ➤ Cyclists ➤ Non-motorised vehicles
B5 : Signs and Lighting	<ul style="list-style-type: none"> ➤ Lighting ➤ Signs/Markings
B6 : Construction and Operation	<ul style="list-style-type: none"> ➤ Buildability ➤ Operational ➤ Network Management

Stage 2 – Completion of Detailed Design

1. The audit team should satisfy itself that all issues raised at Stage 1 have been resolved. Items may require further consideration where significant design changes have occurred.
2. If a scheme has not been subject to a stage 1 audit, the items listed in Checklists B1 to B6 should be considered together with the items listed below.

CONTENTS	ITEMS
Aspects to be checked	<p>A. Any design changes since Stage 1.</p> <p>B. The detailed design from a road safety viewpoint, including the road safety implications of future maintenance (speed limits; road signs and markings; visibility; maintenance of street lighting and central reserves).</p>
C1 : General	<ul style="list-style-type: none"> ➤ Departures from standards ➤ Drainage ➤ Climatic conditions ➤ Landscaping ➤ Services apparatus ➤ Lay-byes ➤ Access ➤ Skid-resistance ➤ Agriculture ➤ Safety Fences ➤ Adjacent development
C2 : Local Alignment	<ul style="list-style-type: none"> ➤ Visibility ➤ New/Existing road interface
C3 : Junctions	<ul style="list-style-type: none"> ➤ Layout ➤ Visibility ➤ Signing ➤ Lighting ➤ Road Marking ➤ T,X,Y-junctions ➤ All roundabouts ➤ Traffic signals
C4 : Non-Motorised road users Provision	<ul style="list-style-type: none"> ➤ Adjacent land ➤ Pedestrians ➤ Cyclists

	<ul style="list-style-type: none"> ➤ Non-motorised vehicles
C5 : Signs and Lighting	<ul style="list-style-type: none"> ➤ Advanced direction signs ➤ Local traffic signs ➤ Variable message signs ➤ Other traffic signs ➤ Lighting
C6 : Construction and Operation	<ul style="list-style-type: none"> ➤ Buildability ➤ Operational ➤ Network Management

MANNING SCHEDULE

The Consultant shall be deploying adequate manpower having requisite experience to complete the assignment as per the TOR. The Key personnel proposed to be deployed shall be informed by the most preferred Consultant (L-1 bidder) during the Negotiations.

Enclosure-II
Deleted

Schedule for submission of Reports and Documents

Stage No.	Activity	No. of copies	Time Period in days from date of commencement
1	Monthly Reports	3	by 10 th day of every month
2	Inception Report		
	(i) Draft Inception Report including QAP document	3	21
	(ii) Inception Report including QAP document	3	30
3	F.S. REPORT		
	i) Draft Feasibility Study Report including option study report	4	75
	ii) Comments of client	1	90
	iii) Final Feasibility Study Report incorporating compliance of comments of Client.	4	105
4	LA & Clearances I Report		
	i) Draft LA & Clearances I Report	4	90
	ii) Comments of client	1	105
	iii) Final LA & Clearances I Report incorporating compliance of comments of Client	4	120

5	Detailed Project Report i) Draft DPR ii) Comments of client iii) Final DPR incorporating compliance of comments of Client	4 1 6	135 150 180
6	Technical Schedules i) Draft Technical Schedules ii) Comments of client iii) Final technical schedule	4 1 6	135 150 180
7	LA & Clearances II Report Approval of Project clearances from concerned agencies e.g. from MOEF; Rly for approval of GAD and detail engineering drawing of ROB/RUB; Irrigation Dept., Land Acquisitions: 3(a), 3(A), 3(D) Notifications	6 Original letters from the concerned agencies and 5 photocopies of each. 3 copies each	180

APPENDIX-II

Form –E1

Letter of Proposal (On Applicant’s Letter Head)

(Date and Reference)

To,

Sub: Appointment of Consultant for preparation of
Detailed Project Report for

Dear Sir,

With reference to your RFP Document dated, I/we i.e. M/s-----
------(Name of Bidder) h a v i n g examined all relevant documents and
understood their contents, hereby submit our Proposal for selection as Consultant. The proposal is
unconditional and unqualified.

2. All information provided in the Proposal and Appendices is true and correct and all documents accompanying such Proposal and submitted are true copies of their respective originals.
3. This statement is made for the express purpose of appointment as the Consultant for the aforesaid Project.
4. I/We shall make available to the Authority any additional information it may deem necessary or require for supplementing or authenticating the Proposal.
5. I/We acknowledge the right of the authority to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
6. I/We certify that in the last three years, we or any of our Associates have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Applicant, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
7. I/We understand that you may cancel the Selection Process at any time and that you are

neither bound to accept any Proposal that you may receive nor to select the Consultant, without incurring any liability to the Applicants in accordance with Clause 1.7 of the RFP document.

8. I/We declare that we/any member of the consortium, are/is not a Member of any other Consortium applying for Selection as a Consultant.
9. I/We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which would cast a doubt on our ability to undertake the Consultancy for the Project or which relates to a grave offence that outrages the moral sense of the community.
10. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.
11. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/Managers/employees.
12. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority [and/ or the Government of India] in connection with the selection of Consultant or in connection with the Selection Process itself in respect of the above mentioned Project.
13. The Bid Security of Rs. ***** (Rupees *****) in the form of a Demand Draft/Banker's Cheque is attached, in accordance with the RFP document.
14. I/We agree and understand that the proposal is subject to the provisions of the RFP document. In no case, shall I/we have any claim or right of whatsoever nature if the Consultancy for the Project is not awarded to me/us or our proposal is not opened or rejected.
15. I/We agree to keep this valid for 120 (One hundred and twenty) days from the Proposal Due Date specified in the RFP.
16. A Power of Attorney in favour of the authorized signatory to sign and submit this Proposal and documents is attached herewith.
17. In the event of my/our firm/consortium being selected as the Consultant, I/we agree to enter into any Agreement in accordance with the form Appendix V of the RFP. We agree not to seek any changes in the aforesaid form and agree to abide by the same.

18. I/We have studied RFP and all other documents carefully and also surveyed the Project site. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of and documents or information provided to us by the Authority or in respect of any matter arising out of or concerning or relating to the Selection Process including the award of Consultancy.
19. The Proof of Eligibility and Technical proposal are being submitted in separate covers in hard copy and they are being submitted online. Financial Proposal is being submitted online only. This Proof of Eligibility read with Technical Proposal and Financial Proposal shall constitute the Application which shall be binding on us.
20. I/We agree and undertake to abide by all the terms and conditions of the RFP Document. In witness thereof, I/we submit this Proposal under and in accordance with the terms of the RFP Document.

Yours faithfully,
(Signature, name and designation of the authorized signatory)
(Name and seal of the Applicant/Lead Member)

Deleted

APPENDIX-II

Form- E3

Deleted

Form- E4

Deleted

(Form-T1)

TECHNICAL PROPOSAL

FROM:

TO:

Sir:

Subject Consultancy Service for

Regarding Technical Proposal

I/We _____ Consultant enclose herewith Technical Proposal for selection of my/our firm/organization as Consultant for

(_____).

Yours faithfully,

Authorized Representative Signature _____

Full Name _____

Designation _____

Address _____

Form-T-2)

Deleted

Form-E2/T3

Deleted

Deleted.

Deleted.

Deleted.

Deleted.

Deleted

Deleted.

Deleted.

Form- T11

Deleted.

(Form-I)

FINANCIAL PROPOSALS

FROM:

TO:

Sir:

Subject: Consultants' Services for

Regarding Price Proposal

I/We _____ Consultant/consultancy firm herewith enclose

*Price Proposal for selection of my/our firm/organization as Consultant for _____

Yours faithfully,

Signature _____

Full Name _____

Designation _____

Address _____

(Authorized Representative)

***The Financial proposal is to be filled strictly as per the format given on CPP Portal i.e. eprocure.gov.in and shall be uploaded online only.**

Details of Financial Proposal (To be uploaded as per format given on CPP portal i.e. eprocure.gov.in)

Summary of Cost (in Indian Rupees)

No.	Description	Amount (in figures)	Amount (in figures)
I	DPR preparation consultancy fee for new RCC Bridge over River Gomti at Ch. 49.80 km		
II	DPR preparation consultancy fee for new RCC Bridge over River Muhuri at Ch. 93.775 km.		
	Total cost net of service tax**		
	Service Tax		
	TOTAL COSTS (Including Service Tax)		

** Total Cost Net of Service Tax shall be considered for financial evaluation.

Note: No escalation will be payable during the services

Insurances shall not be allowed separately .These will be incidental to main items.

Rates for all items shall be quoted in figures as well as in words.

(Form-III)

Deleted.

(Form-IV)

Deleted.

(Form -V)

Deleted.

Appendix-V

Deleted.

***DRAFT CONTRACT
AGREEMENT***

Between

**National Highways & Infrastructure Development Corporation
Ltd. 3rd Floor, PTI Building, 4- Parliament Street, New Delhi -
110001**

and

M/s

for

Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

CONTENTS

Sl. No.	Description	Page No.
I	CONTRACT FORCONSULTANT’S SERVICES	
II	GENERAL CONDITIONS OF CONTRACT	
1.	General Provisions	
1.1	Definitions	
1.2	Relation between the Parties	
1.3	Law Governing the Contract	
1.4	Language	
1.5	Headings	
1.6	Notices	
1.7	Location	
1.8	Authority of Member in Charge	
1.9	Authorized Representatives	
1.10	Taxes and Duties	
2.	Commencement, Completion, Modification and Termination of Contract	
2.1	Effectiveness of Contract	
2.2	Termination of Contract for Failure to BecomeEffective	
2.3	Commencement of Services	
2.4	Expiration of Contract	
2.5	Entire Agreement	
2.6	Modification	
2.7	Force Majeure	
	2.7.1	Definition
	2.7.2	No Breach of Contract
	2.7.3	Measures to be Taken
	2.7.4	Extension of Time

- 2.7.5 Payments
- 2.7.6 Consultation
- 2.8 Suspension
- 2.9 Termination
 - 2.9.1 By the Client
 - 2.9.2 By the Consultants
 - 2.9.3 Cessation of Rights and Obligations
 - 2.9.4 Cessation of Services
 - 2.9.5 Payment upon Termination
 - 2.9.6 Disputes about Events of Termination

3. Obligations of the Consultants

- 3.1 General
 - 3.1.1 Standard of Performance
 - 3.1.2 Law Governing Services
- 3.2 Conflict of Interests
 - 3.2.1 Consultants not to Benefit from Commissions, discounts etc.
 - 3.2.2 Consultants and Affiliates not to be otherwise interested in Project
 - 3.2.3 Prohibition of Conflicting Activities
- 3.3 Confidentiality
- 3.4 Liability of the Consultants
- 3.5 Insurance to be taken out by the Consultants
- 3.6 Accounting, Inspection and Auditing
- 3.7 Consultants' Actions requiring Client's prior Approval
- 3.8 Reporting Obligations
- 3.9 Documents prepared by the Consultants to be the Property of the Client
- 3.10 Equipment and Materials furnished by the Client

4. Consultants' Personnel

- 4.1 General
- 4.2 Description of Personnel
- 4.3 Approval of Personnel
- 4.4 Working Hours, Overtime, Leave etc.
- 4.5 Removal and/or Replacement of Personnel
- 4.6 Resident Project Manager

5. Obligations of the Client

- 5.1 Assistance and Exemptions
- 5.2 Access to Land
- 5.3 Change in the Applicable Law
- 5.4 Services, Facilities and Property of the Client

Payment

6. Payment to the Consultants

- 6.1 Cost Estimates; Ceiling Amount
- 6.2 Currency of Payment
- 6.3 Mode of Billing and Payment

7. Responsibility for accuracy of the project document

- 7.1 General
- 7.2 Retention money
- 7.3 Penalty
- 7.4 Action for deficiency in services

8. Fairness and Good Faith

- 8.1 Good Faith
- 8.2 Operation of the Contract

9. SETTLEMENT OF DISPUTES

- 9.1 Amicable Settlement
- 9.2 Dispute Settlement

III. SPECIAL CONDITIONS OF CONTRACT

IV. APPENDICES

Appendix A: Terms of reference containing, inter-alia, the Description of the Services and Reporting Requirements

Appendix B: Schedule for submission of various report.

Appendix C: Deleted.

Appendix D: Duties of the Client

Appendix E: Cost Estimate

Appendix F: Minutes of Financial/ Contract Negotiations with the Consultant

Appendix G: Copy of letter of invitation

Appendix H: Copy of letter of Award

Appendix I: Format for Bank Guarantee for Performance Security

Appendix J : Minutes of the Pre-bid meeting

DRAFT CONTRACT FOR CONSULTANT’S SERVICES

INDIA

CONTRACT FOR CONSULTANTS’
SERVICES

Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of new RCC Bridge over River Gomti at Ch. 49.80 km and over River Muhuri at Ch. 93.775 km including approach roads to the Bridges on Agartala to Sabroom road section of NH-44 in the state of Tripura.

This CONTRACT (hereinafter called the “Contract”) is made on the ----- day of the month of -----2017 , between, on the one hand, NHIDCL (hereinafter called the “Client”) and, on the other hand, M/s ----- in JV with ----- and in Association with (hereinafter called the “Consultants”).

WHEREAS

- (A) the Client has requested the Consultants to provide certain consulting services as defined in the General Conditions attached to this Contract (hereinafter called the “Services”);
- (B) the Consultants, having represented to the Client that they have the required professional skills, personnel and technical resources, have agreed to provide the Services on the terms and conditions set forth in this Contract;

NOW THEREFORE the parties hereto hereby agree as follows:

1 The following documents attached hereto shall be deemed to form an integral part of this Contract:

- (a) The General Conditions of Contract (hereinafter called “GC”);
- (b) The Special Conditions of contract (hereinafter called “SC”);
- (c) The following Appendices:

Appendix A: Terms of reference containing, inter-alia, the Description of the Services and Reporting Requirements

Appendix B: Schedule for submission of various report.

Appendix C: Deleted.

Appendix D: Duties of the Client

Appendix E: Cost Estimate

Appendix F: Minutes of Financial/ Contract Negotiations with the Consultant

Appendix G: Copy of letter of invitation

Appendix H: Copy of letter of Award

Appendix I: Copy of Bank Guarantee for Performance Security

Appendix-J: Minutes of the pre-bid meeting

2. The mutual rights and obligations of the Client and the Consultants shall be as set forth in the Contract; in particular:

(a) The Consultants shall carry out the Services in accordance with the provisions of the Contract; and

(b) Client shall make payments to the Consultants in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

FOR AND ON BEHALF OF
(NHIDCL)

Witness

1 Signature
 Name
 Address

By
Authorized Representative

2. Signature
 Name
 Address

FOR AND ON BEHALF OF
(Consultant)

By
Authorised Representative

Witness

1. Signature
Name Address

2. Signature
Name Address

GENERAL CONDITIONS OF CONTRACT

1. GENERAL PROVISIONS

1.1 Definitions

Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- (a) “Applicable Law” means the laws and any other instruments having the force of law in the Government’s country as they may be issued and in force from time to time;
- (b) “Contract” means the Contract signed by the Parties, to which these General Conditions of Contract are attached, together with all the documents listed in Clause 1 of such signed Contract;
- (c) “Effective Date” means the date on which this Contract comes into force and effect pursuant to Clause GC 2.1;
- (d) “foreign currency” means any currency other than the currency of the Government;
- (d) “GC” means these General Conditions of Contract;
- (f) “Government” means the Government of India;
- (g) “local currency” means the currency of the Government;
- (h) “Member”, in case the Consultants consist of a joint venture or consortium of more than one entity, means any of these entities, and “Members” means all of these entities;
- (i) “Personnel” means persons hired by the Consultants or by any Sub consultant as employees and assigned to the performance of the Services or any part thereof; “foreign Personnel” means such persons who at the time of being so hired had their domicile outside India; and “local Personnel” means such persons who at the time of being so hired had their domicile inside India;
- (j) “Party” means the Client or the Consultants, as the case may be, and Parties means both of them;
- (k) “Services” means the work to be performed by the Consultants pursuant to this Contract for the purposes of the Project, as described in Appendix A hereto;
- (l) “SC” means the Special Conditions of Contract by which these General Conditions of Contract may be amended or supplemented;
- (m) “Sub consultant” means any entity to which the Consultants subcontract any part of

the Services in accordance with the provisions of Clause GC 3.7; and

- (n) “Third Party” means any person or entity other than the Government, the Client, the Consultants or a Sub consultant.

1.2 Relation between the Parties

Nothing contained herein shall be construed as establishing a relation of master and servant or of agent and principal as between the Client and the Consultants. The Consultants, subject to this Contract, have complete charge of Personnel performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

1.3 Governing Law and Jurisdiction

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Laws of India and the Courts atshall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

1.4 Language

This Contract has been executed in the language specified in the SC, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

1.5 Table of Contents and Headings

The table of contents, headings or sub-headings in this agreement are for convenience for reference only and shall not be used in, and shall not limit, alter or affect the construction and interpretation of this Contract.

1.6 Notices

Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, facsimile or e-mail to such Party at the address specified in the SC.

Notice will be deemed to be effective as specified in the SC. A party may change its address for notice hereunder by giving the other Party notice of such change pursuant to the provisions listed in the SC with respect to Clause GC 1.6.2.

1.7 Location

The Services shall be performed at such locations as are specified in **Letter of Award** hereto and, where the location of a particular task is not so specified, at such locations, whether in India or elsewhere, as the Client may approve.

1.8 Authority of Member in Charge

In case the Consultants consist of a joint venture of more than one entity, with or without an Associate the Members hereby authorize the entity specified in the SC to act on their behalf in exercising all the Consultants' rights and obligations towards the Client under this Contract, including without limitation the receiving of instructions and payments from the Client.

1.9 Authorized Representatives

Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Client or the Consultants may be taken or executed by the officials specified in the SC.

1.10 Taxes and Duties

Unless otherwise specified in the SC, the Consultants shall pay all such taxes, duties, fees and other impositions as may be levied under the Applicable Law.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

2.1 Effectiveness of Contract

This Contract shall come into force and effect on the date of the Client's notice to the Consultants instructing the Consultants to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in the SC have been met.

2.2 Termination of Contract for Failure to Become Effective

If this Contract has not become effective within such time period after the date of the Contract signed by the Parties as shall be specified in the SC, either Party may, by not less than four (4) weeks' written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.

2.3 Commencement of Services

The Consultants shall begin carrying out the Services at the end of such time period after the Effective Date as shall be specified in the SC.

2.4 Expiration of Contract

Unless terminated earlier pursuant to Clause GC 2.9 hereof, this Contract shall expire

- (i) when services have been completed and all payments have been made at the end of such time period after the Effective Date as shall be specified in the SC. or
- (ii) when the findings of the feasibility report are not suggestive of a four lane bridge including the present two lane bridge.

2.5 Entire Agreement

This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

2.6 Modification

Modification of the terms and conditions of this Contract, including any modification of the scope of the Services, may only be made by written agreement between the Parties. Pursuant to Clause GC 7.2 hereof, however, each party shall give due consideration to any proposals for modification made by the other Party.

2.7 Force Majeure

2.7.1 Definition

- (a) For the purposes of this Contract, “Force Majeure” means an event which is beyond the reasonable control of a Party, and which makes a Party’s performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by government agencies.
- (b) Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party’s Sub consultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both (A) take into account at the time of the conclusion of this Contract and (B) avoid or overcome in the carrying out of its obligations hereunder.
- (c) Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

2.7.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

2.7.3 Measures to be Taken

- (a) A party affected by an event of Force Majeure shall take all reasonable measures to remove such Party's inability to fulfill its obligations hereunder with a minimum of delay.
- (b) A party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any event not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give notice of the restoration of normal conditions as soon as possible.
- (c) The Parties shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

2.7.4 Extension of Time

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

2.7.5 Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultants shall be entitled to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Services after the end of such period.

2.7.6 Consultation

Not later than thirty (30) days after the Consultants, as the result of an event of Force Majeure, have become unable to perform a material portion of the Services, the Parties shall consult with each other with a view to agreeing on appropriate measures to be taken in the circumstances.

2.8 Suspension

The Client may, by written notice of suspension to the Consultants, suspend all payments to the Consultants hereunder if the Consultants fail to perform any of their obligations under this Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultants to remedy such failure within a period not exceeding thirty (30) days after receipt by the Consultants of such notice of suspension.

2.9 Termination

2.9.1 By the Client

The Client may, by not less than thirty (30) days' written notice of termination to the Consultants (except in the event listed in paragraph (f) below, for which there shall be a written notice of not less than sixty (60) days), such notice to be given after the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause 2.9.1, terminate this Contract:

- (a) if the Consultants fail to remedy a failure in the performance of their obligations are under, as specified in a notice of suspension pursuant to Clause 2.8 hereinabove, within thirty (30) days of receipt of such notice of suspension or within such further period as the Client may have subsequently approved in writing;
- (b) if the Consultants become (or, if the Consultants consist of more than one entity, if any of their Members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
- (c) if the Consultants fail to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 8 hereof;
- (d) if the Consultants submit to the Client a statement which has a material effect on the rights, obligations or interests of the Client and which the Consultants know to be false;
- (e) if, as the result of Force Majeure, the Consultants are unable to perform a material portion of the Services for a period of not less than sixty (60) days;
or
- (f) if the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract.

2.9.2 By the Consultants

The Consultants may, by not less than thirty (30) day's written notice to the Client, such notice to be given after the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause 2.9.2, terminate this Contract:

- (a) if the Client fails to pay any money due to the Consultants pursuant to this contract and not subject to dispute pursuant to Clause 8 hereof within forty-five(45) days after receiving written notice from the Consultants that such payment is overdue;
- (b) if the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Consultants may have subsequently approved in writing) following the receipt by the Client of the Consultants' notice specifying such breach;
- (c) if, as the result of Force Majeure, the Consultant are unable to perform a material portion of the Services for a period of not less than sixty (60) days; or
- (d) if the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause 8 hereof.

2.9.3 Cessation of Rights and Obligations

Upon termination of this Contract pursuant to Clauses 2.2 or 2.9 hereof, or upon expiration of this Contract pursuant to Clause 2.4 hereof, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause 3.3 hereof,

(ii) the Consultant's obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause 3.6 (ii) hereof, and (iv) any right which a Party may have under the Applicable Law.

2.9.4 Cessation of Services

Upon termination of this Contract by notice of either Party to the other pursuant to Clauses 2.9.1 or 2.9.2 hereof, the Consultants shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Consultants and equipment and materials furnished by the Client, the Consultants shall proceed as provided, respectively, by Clauses 3.9 or 3.10 hereof.

2.9.5 Payment upon Termination

Upon termination of this Contract pursuant to Clauses 2.9.1 or 2.9.2 hereof, the Client shall make the following payments to the Consultants (after offsetting against these payments any amount that may be due from the Consultant to the Client):

- (i) remuneration pursuant to Clause 6 hereof for Services satisfactorily performed prior to the effective date of termination.
- (ii) reimbursable expenditures pursuant to Clause 6 hereof for expenditures actually incurred prior to the effective date of termination; and
- (iii) except in the case of termination pursuant to paragraphs (a) through (d) of Clause 2.9.1 hereof, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract including the cost of the return travel of the Consultants' personnel and their eligible dependents.

2.9.6 Disputes about Events of Termination

If either Party disputes whether an event specified in paragraphs (a) through (e) of Clause 2.9.1 or in Clause 2.9.2 hereof has occurred, such Party may, within forty-five(45) days after receipt of notice of termination from the other Party, refer the matter to arbitration pursuant to Clause 8 hereof, and this Contract shall not be terminated on account of such event except in accordance with the terms of any resulting arbitral award.

3. OBLIGATIONS OF THE CONSULTANTS

3.1 General

3.1.1 Standard of Performance

The Consultants shall perform the Services and carry out their obligations here under with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods. The Consultants shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with Sub consultants or Third Parties.

3.1.2 Law Governing Services

The Consultants shall perform the Services in accordance with the Applicable Law and shall take all practicable steps to ensure that any Sub consultants, as well as the Personnel and agents of the Consultants and any Sub consultants, comply with the Applicable Law.

The Client shall advise the Consultants in writing of relevant local customs and the Consultants shall, after such notifications, respect such customs.

3.2 Conflict of Interests

3.2.1 Consultants not to Benefit from Commissions, Discounts, etc.

The remuneration of the Consultants pursuant to Clause 6 hereof shall constitute the Consultants' sole remuneration in connection with this Contract or the Services and the Consultants shall not accept for their own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or to the Services or in the Discharge of their obligations hereunder, and the Consultants shall use their best efforts to ensure that any Sub consultants, as well as the Personnel and agents of either of them, similarly shall not receive any such additional remuneration.

3.2.2 Consultants and Affiliates not to be otherwise interested in Project

The Consultants agree that, during the term of this Contract and after its termination, the Consultants and any entity affiliated with the Consultants, as well as any Sub consultant and any entity affiliated with such Sub consultant, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

3.2.3 Prohibition of Conflicting Activities

Neither the Consultants nor their Sub consultants nor the Personnel of either of them shall engage, either directly or indirectly, in any of the following activities:

- (a) during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract; or
- (b) after the termination of this Contract, such other activities as may be specified in the SC.

3.3 Confidentiality

The Consultants, their Sub consultants and the Personnel of either of them shall not, either during the term or within two (2) years after the expiration of this Contract,

disclose any proprietary or confidential information relation to the Project, the Services, this Contract or the Client's business or operations without the prior written consent of the Client.

3.4 Liability of the Consultants

Subject to additional provisions, if any, set forth in the SC, the Consultants' liability under this Contract shall be as provided by the Applicable Law.

3.5 Insurance to be taken out by the Consultants

The Consultants (i) shall take out and maintain, and shall cause any Sub consultants to take out and maintain, at their (or the Sub consultants', as the case may be) own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverage, as shall be specified in the Special Conditions (SC), and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid.

3.6 Accounting, Inspection and Auditing

The Consultants (i) shall keep accurate and systematic accounts and records in respect of the Services hereunder, in accordance with internationally accepted accounting principles and in such form and detail as will clearly identify all relevant time charges and cost, and the bases thereof (including the bases of the Consultants' costs and charges), and (ii) shall permit the Client or its designated representative periodically, and up to one year from the expiration or termination of this Contact, to inspect the same and make copies thereof as well as to have them audited by auditors appointed by the Client.

3.7 Consultants' Actions requiring Client's prior Approval

The Consultants shall obtain the Client's prior approval in writing before taking any of the following actions:

- (a) appointing such members of the Personnel as are listed in Appendix B;
- (b) entering into a subcontract for the performance of any part of the Services, it being understood (i) that the selection of the Sub-consultant and the terms and conditions of the subcontract shall have been approved in writing by the Client prior to the execution of the subcontract, and (ii) that the Consultants shall remain fully liable for

- the performance of the Services by the Sub-consultant and its Personnel pursuant to this Contract;
- (c) any other action that may be specified in the SC.

3.8 Reporting Obligations

The Consultants shall submit to the Client the reports and documents specified in **Appendix A/E** here to, in the form, in the numbers and within the time periods set forth in the said Appendix.

3.9 Documents prepared by the Consultants to be the Property of the Client

All plans, drawings, specifications, designs, reports and other documents prepared by the Consultants in performing the Services shall become and remain the property of the Client, and the Consultants shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The Consultants may retain a copy of such documents. Restrictions about the future use of these documents, shall be as specified in the SC.

3.10 Equipment and Materials furnished by the Client

Equipment and materials made available to the Consultants by the Client, or purchased by the Consultants with funds provided by the Client, shall be the property of the Client and shall be marked accordingly. Upon termination or expiration of this Contract, the Consultants shall make available to the Client an inventory of such equipment and materials and shall dispose of such equipment and materials in accordance with the Client's I instructions. While in possession of such equipment and materials, the Consultants, unless otherwise instructed by the Client in writing, shall insure them in an amount equal to their full replacement value.

4. CONSULTANTS' PERSONNEL

4.1 General

The Consultants shall employ and provide such qualified and experienced Personnel as are required to carry out the Services.

4.2 Deleted.

4.3 Deleted.

4.4 Deleted.

4.5 Deleted.

4.6 Deleted.

5. OBLIGATION OF THE CLIENT

5.1 Assistance and Exemptions

Unless otherwise specified in the SC, the Client shall use its best efforts to ensure that the Government shall:

- (a) provide the Consultants, Sub consultants and Personnel with work permits and such other documents as shall be necessary to enable the Consultants, Sub consultants or Personnel to perform the Services;
- (b) assist for the Personnel and, if appropriate, their eligible dependents to be provided promptly with all supporting papers for necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in India;
- (c) facilitate prompt clearance through customs of any property required for the Services;
- (d) issue to officials, agents and representatives of the Government all such instructions as may be necessary or appropriate for the prompt and effective implementation of the Services;

5.2 Access to Land

The Client warrants that the Consultants shall have, free of charge, unimpeded access to all land in the Government's country in respect of which access is required for the performance of the Services. The Client will be responsible for any damage to such land or any property thereon resulting from such access and will indemnify the Consultants and each of the Personnel in respect of liability for any such damage, unless such damage is caused by the default or negligence of the Consultants or any Sub consultants or the Personnel of either of them.

5.3 Change in the Applicable Law

If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost or reimbursable expenses incurred by the Consultants in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultants under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the ceiling amounts specified in Clause

6.1(b),

5.4 Services, Facilities and Property of the Client

The client shall make available to the Consultants and the Personnel, for the purposes of the Services and free of any charge, the services, facilities and property described in Appendix D at the times and in the manner specified in said Appendix D, provided that if such services, facilities and property shall not be made available to the Consultants as and when so specified, the Parties shall agree on (i) any time extension that may be appropriate to grant to the Consultants for the performance of the Services, (ii) the manner in which the Consultants shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Consultants as a result thereof pursuant to Clause 6.1(c) hereinafter.

5.5 Payment

In consideration of the Services performed by the Consultants under this Contract, the Client shall make to the Consultants such payments and in such manner as is provided by Clause 6 of this Contract.

6. PAYMENT TO THE CONSULTANTS

6.1 Cost Estimates ; Ceiling Amount

- (a) An abstract of the cost of the Services payable in **local currency (Indian Rupees)** is set forth in **Appendix E**.
- (b) Except as may be otherwise agreed under Clause 2.6 and subject to Clause 6.1(c), the payments under this Contract shall not exceed the ceiling specified in the SC. The Consultants shall notify the Client as soon as cumulative charges incurred for the Services have reached 80% of the ceiling.
- (c) Notwithstanding Clause 6.1(b) hereof, if pursuant to Clauses 5.4 hereof, the Parties shall agree that additional payments shall be made to the Consultants in order to cover any necessary additional expenditures not envisaged in the cost estimates referred to in Clause 6.1(a) above, the ceiling set forth in Clause 6.1(b) above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

6.2 Currency of Payment

- (a) The payment shall be made in Indian Rupees.

6.3 Mode of Billing and Payment

Billing and payments in respect of the Services shall be made as follows:-

(a) The Client shall cause to be paid to the Consultants an advance payment as specified in the SC, and as otherwise set forth below. The advance payment will be due after provision by the Consultants to the Client of a bank guarantee by a bank acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the SC, such bank guarantee (i) to remain effective until the advance payment has been fully set off as provided in the SC, and **ii) in such form as the Client shall have approved in writing.**

(b) Payment Schedule

The Consultant will be paid stage-wise as a percentage of the contract value as per the schedule given below:

S.No	Item	Payment as % of contract value
1	Submission of final Inception Report	15%
2	Submission of final Alignment Report	10%
3	Submission of final Feasibility Report	5%
4	Submission of final Land Acquisition Report	10%
5	Submission of clearance proposals	5%
6	Submission of Draft DPR	10%
7	Approval of Final DPR	10%
8	Approval of Technical Schedules	5%
9	3D publication	10%
10	Clearance – Stage I Approval	5%
11	Clearance – Stage II/Final Approval	5%
12	Retention to be released after 3 years	10%
	Total:	100%
13	Bonus on submission of draft 3A within 1 month of alignment finalization	2.5% bonus
14	Bonus on submission of draft clearance proposals within 1 month of alignment finalization	2.5% bonus

(c) No payment shall become eligible for the next stage till the consultant completes to the satisfaction of the client the work pertaining to the preceding stage. The payment for the work of sub-soil investigation (Boring) will be as per plan approved by the client and will be paid as per actual at the rates quoted by the consultants. The payment for the quantity given by the client for boring will be deemed to be included in the above mentioned payment schedule. Any adjustment in the payment to the consultants will be made in the final payment only.

- (d) The Client shall cause the payment of the Consultants in Para 6.4 (b) above as given in schedule of payment within thirty (30) days after the receipt by the Client of bills. Interests at the rate specified in the SC shall become payable as from the above due date on any amount due by, but not paid on, such due date.
- (e) The final payment under this Clause shall be made only after the final report and a final statement, identified as such, shall have been submitted by the Consultants and approved as satisfactory by the Client. The Services shall be deemed completed and finally accepted by the Client and the final report and final statement shall be deemed approved by the Client as satisfactory one hundred and eighty (180) calendar days after receipt of the final report and final statement by the Client unless the Client, within ninety(90) day period, gives written notice to the Consultants specifying in detailed deficiencies in the Services, the final report or final statement. The Consultants shall thereupon promptly make any necessary corrections, and upon completion of such corrections, the foregoing process shall be repeated. Any amount which the Client has paid or caused to be paid in accordance with this Clause in excess of the amounts actually payable in accordance with the provisions of this Contract shall be reimbursed by the Consultants to the Client within thirty (30) days after receipt by the Consultants of notice thereof. Any such claim by the Client for reimbursement must be made within twelve (12) calendar months after receipt by the Client of a final report and a final statement approved by the Client in accordance with the above.
- (f) All payments under this Contract shall be made to the account of the Consultants specified in the SC.

7. Responsibility for Accuracy of Project Documents

7.1 General

7.1.1 The Consultant shall be responsible for accuracy of the data collected, by him directly or procured from other agencies/authorities, the designs, drawings, estimates and all other details prepared by him as part of these services. He shall indemnify the Authority against any inaccuracy in the work which might surface during implementation of the project. The Consultant will also be responsible for correcting, at his own cost and risk, the drawings including any re-survey / investigations and correcting layout etc. if required during the execution of the Services.

7.1.2 The Consultant shall be fully responsible for the accuracy of design and drawings of the bridges and structures. All the designs and drawings for bridges and structures including all their components shall be fully checked by a Senior Engineer after completion of the designs. All drawings for bridges and structures shall be duly signed by the (a) Designer, (b) Senior Checking Engineer, and (c) Senior Bridge / Structure Expert. The designs and drawings not signed by the three persons mentioned above shall not be accepted. The Consultant shall indemnify the Client against any inaccuracy / deficiency in the designs and drawings of the bridges and structures noticed during the construction and even thereafter and the Client shall bear no responsibility for the accuracy of the designs and drawings submitted by the Consultants.

7.1.3 The survey control points established by the Consultant shall be protected by the Consultants till the completion of the Consultancy Services.

7.2 Retention Money

An amount equivalent to 10% of the contract value shall be retained at the end of the contract for accuracy of design and quantities submitted and the same will be released after the completion of civil contract works or after 3 years from completion of consultancy services, whichever is earlier. The retention money will however be released by the Client on substitution by Bank Guarantee of the same amount valid up to the period as above.

7.3 Penalty

7.3.1 Penalty for Error/Variation

- i) If variation in any of the main quantities of work like earth work including sub grade, GSB, WMM, Bituminous works (BM/DBM/AC/BC), drains, total concrete quantities and reinforcing steel in bridge works or overall project cost, found during execution is more than +/- 15%, the penalty equivalent to 5% of the contract value shall be imposed. For this purpose retention money equivalent to 5% of the contract value will be forfeited. This shall exclude any additional/deletion of items/works ordered during the execution
- ii) For inaccuracies in survey/investigation/design work the penalties shall be imposed as per details given in Table below:

Sl. No.	Item	Penalty (%age of contract value)
1	Topographic Surveys	0.5 to 1.0
	<i>a) The horizontal alignment does not match with ground condition.</i>	
	<i>b) The cross sections do not match with existing ground.</i>	
	<i>c) The co-ordinates are defective as instruments of desired accuracy not used.</i>	
2	Geotechnical Surveys	0.5 to 1.0
	<i>a) Incomplete surveys</i>	
	<i>b) Data not analysed properly</i>	
	<i>c) The substrata substantially different from the actual strata found during construction.</i>	
3	Traffic data found to be varying by more than 25% on resurvey at a later date, unless there are justifiable reasons.	0.2 to 0.5
4	Axle load data found to be varying by more than 25% on resurvey at a later date, unless there are justifiable reasons.	0.20 to 0.5
5	Structural Designs found to be unsafe or grossly over safe.	1.0 to 2.0

7.3.2 Penalty for delay

In case of delay in completion of services, a penalty equal to 0.05% of the contract price per day subject to a maximum 5% of the contract value will be imposed and shall be recovered from payments due/performance security. However in case of delay due to reasons beyond the control of the consultant, suitable extension of time will be granted.

7.3.3 Total amount of recovery from all penalties shall be limited to 10% of the Consultancy Fee.

7.4 ACTION FOR DEFICIENCY IN SERVICES

7.4.1 Consultants liability towards the Client

Consultant shall be liable to indemnify the client for any direct loss or damage accrued or likely to accrue due to deficiency in service rendered by him.

7.4.2 Warning / Debarring

In addition to the penalty as mentioned in para 7.3, warning may be issued to the erring consultants for minor deficiencies. In the case of major deficiencies in the Detailed Project Report involving time and cost overrun and adverse effect on reputation of NHIDCL, other penal action including debarring for certain period may also be initiated as per policy of NHIDCL.

8 FAIRNESS AND GOOD FAITH

8.1 Good Faith

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

8.2 Operation of the Contract

The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but no failure to agree on any action pursuant to this Clause shall give rise to a dispute subject to arbitration in accordance with Clause 9 hereof.

9. SETTLEMENT OF DISPUTES

9.1 Amicable Settlement

The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or the interpretation thereof.

9.2 Dispute Settlement

Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC.

10. Change of Scope

The indicative length of Gomti bridge and Muhuri bridge are 120m and 77m respectively.

- i) The Consultancy fee shall be revised on account of change of scope as below:
 - In case the bridge length increase/ decrease up to more 10% of indicative length given in the RFP : **No change in Consultancy Fees**
 - In case the increase/ decrease in bridge length is more than 10 % of the indicative length as given in the RFP: The consultancy fee shall be increased/decreased in the same proportion in which the length of the bridge is increased/ decreased beyond 10% .
- ii) Length of approach roads shall not be treated as additionality for the purpose of change / variation in bridge length. Increase/decrease in length of approach road shall not be considered as change of scope.

SPECIAL CONDITIONS OF CONTRACT

Number of

GC Clause

A. Amendments of, and Supplements to, Clauses in the General Conditions

1.1(a) The words “**in the Government’s country**” are amended to read “**in INDIA**”

1.4 The language is: **English**

1.6.1 The addresses are:

For the Client : **Managing Director**
National Highway & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor , 4, Parliament Street, New Delhi-110001

Attention : **General Manager (Technical)**
National Highway & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor , 4, Parliament Street, New Delhi-110001
Ph. 011-23461616
Email: gmt1nhidcl@gmail.com

For the Consultants:

Attention:	Name			
	Designation			
	Address			
	Tel:	Fax:	E-mail address	

1.6.2 Notice will be deemed to be effective as follows:

- (a) in the case of personal delivery or registered mail, on delivery;
- (b) In the case of facsimiles, 24 hours following confirmed transmission.
- (c) In case of E mail, 24 hours following confirmed transmission.

Entity to Act as Member in charge (In case of Joint Venture of Consultants) with or without an Associate:

-

1.9 The Authorized Representatives are:

For the Client : (--)

Director, **NHIDCL** (--)

For the Consultant: Name

Designation

1.10 The Consultants and the personnel shall pay the taxes, duties, fees, levies and other impositions levied under the existing, amended or enacted laws (prevailing 7 days before the last date of submission of bids) during life of this contract and the Client shall perform such duties in regard to the deduction of such tax as may be lawfully imposed.

2.1 The effectiveness conditions are the following:

a) The contract has been approved by NHIDCL.

b) The consultant will furnish within 15 days of the issue of letter of Award, an unconditional Bank Guarantee from a Nationalised Bank, IDBI or ICICI/ICICI Bank/Foreign Bank/EXIM Bank / Any Scheduled Commercial Bank approved by RBI having a networth of not less than 500 crore as per latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a Branch in India) the net worth in respect of Indian operations shall only be taken into account. In case of Foreign Bank, the BG issued by Foreign Bank should be counter guaranteed by any Nationalised Bank in India. In case of JV, the BG shall be furnished on behalf of the JV or lead partner of JV for an amount equivalent to **10 %** of the total contract value to be received by him towards Performance Security valid for a period of **three years** beyond the date of completion of services.

2.2 The time period shall be “two months” or such other time period as the parties may agree in writing.

2.3 The time period shall be “fifteen days” from the effective date i.e. date of issuance of Letter to Proceed.

2.4 The time period shall be ----- **months** or such other time period as the parties may agree in writing.

3.4 Limitation of the Consultants' Liability towards the Client

(a) Except in case of negligence or willful misconduct on the part of the Consultants or on the part of any person or firm acting on behalf of the Consultants in carrying out the Services, the Consultants, with respect to damage caused by the Consultants to the Client's property, shall not be liable to the Client:

- (i) for any indirect or consequential loss or damage; and
- (ii) for any direct loss or damage that exceeds (A) the total payments for Professional

Fees and Reimbursable Expenditure made or expected to be made to the Consultants hereunder, or (B) the proceeds the Consultants may be entitled to receive from any insurance maintained by the Consultants to cover such a liability, whichever of (A) or (B) is higher.

- (b) This limitation of liability shall not affect the Consultants' liability, if any, for damage to Third Parties caused by the Consultants or any person or firm acting on behalf of the Consultants in carrying out the Services.

3.5 The risks and the coverage shall be as follows:

(a) Third Party motor vehicle liability insurance as required under Motor Vehicles Act, 1988 in respect of motor vehicles operated in India by the Consultants or their Personnel or any Sub consultants or their Personnel for the period of consultancy.

(b) Third Party liability insurance with a minimum coverage, for Rs. 1.00 million for the period of consultancy.

(c) (i) The Consultant shall provide to NHIDCL Professional Liability Insurance (PLI) for a period of **Five years** beyond completion of Consultancy services or as per Applicable Law, whichever is higher.

(ii) The Consultant will maintain at its expense PLI including coverage for errors and omissions caused by Consultant's negligence in the performance of its duties under this agreement, (A) For the amount not exceeding total payments for Professional Fees and Reimbursable Expenditures made or expected to be made to the Consultants hereunder OR (B) the proceeds, the Consultants may be entitled to receive from any insurance maintained by the Consultants to cover such a liability, whichever of (A) or (B) is higher.

iii) The policy should be issued only from an Insurance Company operating in India.

iv) The policy must clearly indicate the limit of indemnity in terms of "Any One Accident" (AOA) and "Aggregate limit on the policy" (AOP) and in no case should be for an amount less than stated in the contract.

v) If the Consultant enters into an agreement with NHIDCL in a joint venture or 'in association', the policy must be procured and provided to NHIDCL by the joint venture/in association entity and not by the individual partners of the joint venture/association.

- vi) The contract may include a provision whereby the Consultant does not cancel the policy midterm without the consent of NHAI. The insurance company may provide an undertaking in this regard.
 - (d) Employer's liability and workers' compensation insurance in respect of the Personnel of the Consultants and of any Sub consultant, in accordance with the relevant provisions of the Applicable Law, as well as, with respect to such Personnel, any such life, health, accident, travel or other insurance as may be appropriate; and all insurances and policies should start from the date of commencement of services and remain effective as per relevant requirements of contract agreement.
- 3.9 The Consultants shall not use these documents for purposes unrelated to this Contract without the prior written approval of the Client.
- 4.6 The person designated as Team Leader cum Senior Highway Engineer in Appendix B shall serve in that capacity, as specified in Clause 4.6.
- 6.1 (b) The ceiling amount in local currency is **Rs..... Excluding Service Tax)**
- 6.3 (a) No advance payment will be made.
- 6.3 (e) The interest rate is : @ 12% per annum
- 6.3 (f) **The account is :**

9.2 Disputes shall be settled by arbitration in accordance with the following provisions:

9.2.1 Selection of Arbitrators

Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three arbitrators, in accordance with the following provisions:

- (a) Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to the President, Indian Roads Congress, New Delhi, for a list of not fewer than five nominees and, on receipt of such list, the Parties shall alternately strike names there from, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list, the president, Indian Roads Congress, New Delhi, shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.
- (b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultants shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) days after the later of the two arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by Secretary, the Indian Council of Arbitration, New Delhi.
- (c) If, in a dispute subject to Clause SC 9.2.1 (b), one Party fails to appoint its arbitrator within thirty (30) days after the other Party has appointed its arbitrator, the Party which has named an arbitrator may apply to the Secretary, Indian Council of Arbitration, New Delhi, to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.

9.2.2 Rules of Procedure

Arbitration proceedings shall be conducted in accordance with procedure of the Arbitration & Conciliation Act 1996, of India unless the Consultant is a foreign national/firm, where arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract.

9.2.3 Substitute Arbitrators

If for any reason an arbitrator is unable to perform his function, a substitute shall be appointed in the same manner as the original arbitrator.

9.2.4 Qualifications of Arbitrators

The sole arbitrator or the third arbitrator appointed pursuant to paragraphs (a) through (c) of Clause 9.2.1 hereof shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute.

9.2.5 Miscellaneous

In any arbitration proceeding hereunder:

- (a) Proceedings shall, unless otherwise agreed by the Parties, be held in DELHI
- (b) the English language shall be the official language for all purposes; and
[Note: English language may be changed to any other Language, with the agreement of both the Parties.]
- (c) the decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.
- (d) The maximum amount payable per Arbitrator in Arbitration clauses shall be as under

S.No	Particulars	Maximum amount payable per Arbitrator/ per case
1	Arbitrator fee	Rs 15,000/- per day subject to a maximum of Rs 4 lacs or Rs 2.5 lacs (lump sum) subject to publishing the award within 12 months.
2	Reading charges	Rs 15,000/-
3	Secretarial Assistance and Incidental charges (telephone, fax, postage etc)	Rs 20,000/-
4	Charges for publishing/ declaration of the award	Rs 20,000/-
5	Other expenses (As per actual against bills subject to maximum of the prescribed ceiling given below)	
	Traveling expenses Lodging and Boarding	Economy class (by air), First class AC (by train) and AC Car (by road) a) Rs 15,000/- per day (in metro cities) b) Rs 7,000/- per day (in other cities) c) Rs 3,000/- per day if any Arbitrator makes their own arrangements.
6	Local travel	Rs 1,500/- per day
7	Extra charges for days other than hearing/ meeting days (maximum for 2 days)	Rs 3,500/- per day

Note:-	<ol style="list-style-type: none">1. Lodging boarding and traveling expenses shall be allowed only for those members who are residing 100 kms. Away from place of meeting.2. Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad shall be considered as Metro Cities.
--------	---

In exceptional cases, such as cases involving major legal implications/ wider ramifications/ higher financial stakes etc., a special fee structure could be fixed in consultation with the Contractor/ Supervision Consultants and with the specific approval of the NHIDCL before appointment of the Arbitrator,

Appendix A

Terms of reference containing, inter-alia, the Description of the Services and Reporting Requirements

Appendix B

Schedule for submission of various reports

Appendix C

Deleted.

Appendix D

Duties of the Client

Appendix E

Cost Estimate

Appendix F

Minutes of Financial/ Contract Negotiations with the Consultant

Appendix G: Copy of letter of invitation

Appendix H: Copy of letter of Award

Format for Bank Guarantee for Performance Security
BANK GUARANTEE FOR PERFORMANCE SECURITY

To,
Managing Director,

National Highway and Infrastructure Development Corporation Ltd

PTI Building, 3rd Floor,

4, Parliament Street,

New Delhi-110001

In consideration of “National Highway and Infrastructure Development Corporation Ltd.” (hereinafter referred as the “Client”, which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....having its office at (Hereinafter referred to as the “Consultant” which expression shall repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a contract by issue of client’s Contract Agreement no. / Letter of Award No. dated

..... and the same having been unequivocally accepted by the Consultant, resulting in a Contract valued at Rs...../- (Rupees.....) excluding service tax for **“Consultancy Services for preparation of Detailed Project Report of <Project Description>**

.....**(Total Length -.....) on NH-.....**in the states ofunder – Contract Package No. (Hereinafter called the “Contract”), and the Consultant having agreed to furnish a Bank Guarantee to the Client as “Performance Security as stipulated by the Client in the said contract for performance of the above Contract amounting to Rs...../- (Rupees.....).

We,having registered office at, a body registered/constituted under the(hereinafter referred to as the Bank), which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the client immediately on demand any or, all money payable by the Consultant to the extent of Rs.

.....(Rupees.....) as aforesaid at any time up towithout any demur, reservation, contest, recourse or protest and/or without any reference to the consultant. Any such demand made by the client on the bank shall be conclusive and binding notwithstanding any difference between the Client and the Consultant or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. We agree that the Guarantee herein contained shall be irrevocable and shall continue to be enforceable till the Client discharges this guarantee.

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

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

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

The liability of Bank under this Guarantee shall not be affected by any change in the constitution of the consultant or the bank.

Notwithstanding anything contained herein,

- a) Our liability under this Bank Guarantee is limited to Rs.(Rupees.....) and it shall remain in force up to and includingand shall be extended from time to time for such period as may be desired by M/s....., on whose behalf this guarantee has been given.
- b) This Bank Guarantee shall be valid up to
- c) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before(date of expiry of Guarantee).

(Signature of the Authorised Official)

(Name & Designation with Bank Stamp)

NOTE:

- (i) *The bank guarantee(s) contains the name, designation and code number of the officer(s) signing the guarantee(s).*
- (ii) *The address, telephone no. and other details of the Head Office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing Branch.*
- (iii) *The bank guarantee for Rs. 10,000 and above is signed by at least two officials (or as per the norms prescribed by the RBI in this regard).*
- (iv) *The Guarantor shall also send information about the issuance of this Guarantee through SFMS gateway to the Syndicate Bank, Transport Bhawan , New Delhi-110001(SYNB0009062) to aid the process of confirmation of Bank Guarantee.*

Appendix J : Reply to Queries of the Bidder