National Highways & Infrastructure Development Corporation Limited

BUILDING INFRASTRUCTURE - BUILDING THE NATION

REQUEST FOR PROPOSAL (RFP)

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

(Through INFRACON and CPPP Portal)

[online mode]

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

(MINISTRY OF ROAD TRANSPORT & HIGHWAYS, GOVT. OF INDIA)

3RD FLOOR, PTI BUILDING, 4-PARLIAMENT STREET,

NEW DELHI – 110001

September, 2021

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National Highways & Infrastructure Development Corporation Limited.

3rd Floor, PTI Building, 4, Parliament Street, New Delhi – 110001

NOTICE INVITING TENDER (NIT)

Bid/ Package no.: Ladakh/Tunnels-2021/DPR-01/02/03 Date: 07.09.2021

1. NHIDCL has been assigned the work of "**Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh" .**

2. Proposals are hereby invited from eligible Consultants for **Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh. The Package & location of these tunnels are detailed below:**

i. Package-I: Construction of Highway Tunnel across Khardungla pass connecting Leh and Nubra valley from approx. km 28.000 to km 51.000 including approaches on Leh-Khalsar road .

ii. Package-II: Construction of Highway Tunnel across Namik La pass from approx. km 251.000 to km 260.000 including approaches on NH-01(Srinagar-Leh Road).

iii. Package-III: Construction of Highway Tunnel across Fotu La pass from approx. km 288.00 to km 297.00 including approaches on NH-01(Srinagar-Leh Road).

3. The letter of Invitation (LOI) and Terms of Reference (ToR) including Request for Proposal (RFP) is available online on e-tender portal of NIC i.e. http://infracon.nic.in and https://eprocure.gov.in. The document can also be downloaded from NHIDCL website www.nhidcl.com. Cost of the Document in the form of a Non- refundable document fee of Rs. 5900 including 18% GST (Rupees FIve Thousand Nine Hundred only) in the form of (i) Demand Draft favouring 'National Highways & Infrastructure Development Corporation Ltd.' and payable at New Delhi OR (ii) RTGS/NEFT/Other online mode to the NHIDCL's account, as given below:

Sr. No.	Particulars	Details
1.	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2.	Beneficiary Bank Account No.	90621010002659
3.	Beneficiary Bank Branch Name and Address	Syndicate Bank, Transport Bhawan, 1st Parliament Street, New Delhi-110001
4.	Beneficiary Bank Branch IFSC	CNRB0019062

The Demand Draft in original or copy of payment receipt (RTGS/NEFT/Other online mode) must be furnished in a separate envelop while submitting the proposal along with soft copy.

4. The **RFP has also been uploaded on "INFRACON" (www.infracon.nic.in)**. As such before submitting the proposal the Consultant shall mandatorily register and enlist themselves (the firm and all key personnel), on the NIC portal "INFRACON" and furnish registration details along with its RFP. INFRACON Operation Procedure is available on INFRACON portal for bidder's reference and also described in the RFP in subsequent clauses.

5. All the bidders registered on INFRACON shall form a Team on INFRACON and which would be assigned unique INFRACON Team ID. Bidders while submitting the proposal shall quote the INFRACON Team ID. Proposal for all the three Tunnel Packages can be submitted with single team and INFRACON ID.

6. Bid must be submitted online at e-tender portal of NIC i.e. https://eprocure.gov.in on or before as per schedule given hereunder.

7. As part of the Standard Operating Procedure for adoption of Integrity Pact, Independent External Monitor (IEM) in NHIDCL, as per approval of the Central Vigilance Commission and Ministry of Road Transport & Highways, Govt. of India.

8. The critical date sheet for bidding process is to be followed for this assignment is given here in under:

Bid Document /NIT Publishing Date	**:**	**07.09.2021 (1100hrs)**
Bid Document Download / Start Date	**:**	**07.09.2021 (1100 hrs)**
Clarification Start Date (Pre bid queries)	**:**	**07.09.2021 (1100 hrs)**
Clarification End Date(Last date for receipt of pre bid query)	**:**	**15.09.2021 (1100 hrs)**
Pre bid meeting	**:**	**15.09.2021 (1500 hrs)**
Bid Submission start Date	**:**	**22.09.2021**
Bid submission End Date (online & physical Copy)	**:**	**27.09.2021 (1100 hrs)**
Opening Date of Technical Bid	**:**	**28.09.2021 (1100 hrs)**
Date of uploading of list of Technically Qualified Applicants	**:**	**To be intimated later**
Date of Opening of Financial Bids of Qualified Applicants	**:**	**To be intimated with the result of technical evaluation**

B. Shivprasad
General Manager (Technical)
NHIDCL, PTI Building, 3rd Floor,
4, Parliament Street, New Delhi-110001
e-mail: shivprasad.152p@gov.in
Tel: 011-23461674

Letter of Invitation (LOI)

Dated: 07.09.2021

Dear Sir,

Sub: ***Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.***

1.1 The National Highways and Infrastructure Development Corporation Ltd has been entrusted with the assignment of "***Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.". The location of these tunnels is detailed below:***

i. Package-I: Construction of Highway Tunnel across Khardungla pass connecting Leh and Nubra valley from approx. km 28.000 to km 51.000 including approaches on Leh-Khalsar road .

ii. Package-II: Construction of Highway Tunnel across Namik La pass from approx. km 251.000 to km 260.000 including approaches on NH-01(Srinagar-Leh Road).

iii. Package-III: Construction of Highway Tunnel across Fotu La pass from approx. km 288.00 to km 297.00 including approaches on NH-01(Srinagar-Leh Road).

Proposals are hereby invited from eligible Consultants for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

1.2 A brief description of the assignment and its objectives are given in the Appendix-I, **"Terms of Reference".**

1.3 The National Highways and Infrastructure Development Corporation Ltd. invites Proposals (the "**Proposals**") ***through e-tender*** (on-line bid submission) on CPP portal after creating Team ID at http://infracon.nic.in * for selection of Technical Consultant (the "**Consultant**") who shall prepare DPR and provide pre-construction activities. Consultant may bid for all the three package with one team. For the sake of clarity, it is mentioned that one consultant cannot submit two proposals/bids for the same package. Consultants are hereby invited to submit proposals in the manner as prescribed in the RFP. A Consultant may submit only "**Proof of eligibility** (Part 1)" and "**Technical Proposal** (Part 2)" for the package. Financial proposal are only to be submitted online and no hard copy of the financial proposal should be submitted. The most preferred bidder (H-1) for the package would be determined on the basis of Quality and Cost as mentioned in the RFP. The consultants are hereby invited to submit proposals in the manner prescribed in the RFP.

* In order to make the evaluation process more objective, user friendly and transparent, NHIDCL has developed INFRACON portal (www.infracon.nic.in) which is a comprehensive National Portal for Infrastructure Consultancy firms & Key Personnel. The Portal has facility to host Consulting Firms'& Personnel Credentials online with linkage to Aadhar &

Digilocker for data storage, validation & purity. The Information available on the portal would also be made available in Public Domain.

Based on the above stated objective, it has been decided that while calling RFPs for preparation of DPR, NHIDCL would receive technical proposals through INFRACON by making it mandatory for firms & personnel to register on the portal. This would lead to reduction in paper work during bid submission & evaluation and shall bring transparency & accountability to the submission process. The applicants (hereinafter called as the Consultants) are hereby invited to submit proposals in the manner prescribed in the RFP.

1.4 The consultants shall submit proposals either in sole capacity or in JV or in Association. Joint Venture shall not have more than two firms. However, the Associate(s) cannot be common for 2 or more bidders. Any entity which has been barred by the Ministry of Road Transport and Highways (MORTH) or its implementing agencies for the works of Expressways, National Highways, ISC and EI Works and the bar subsists as on the date of application, would not be eligible to submit the bid, either individually or as a member of a Joint Venture. The consultant may bid for any number of tunnel package(s); accordingly they must fill Form II, showing for which package they are bidding.

1.5 To obtain first hand information on the assignment and on the local conditions, the consultants are encouraged to pay a visit to the client, local State PWDs, BRO, SASE and the project site before submitting a proposal and attend a pre-proposal conference. They must fully inform themselves of local and site conditions and take them into account in preparing the proposal.

1.6 Financial Proposals for all the tunnel packages will be opened only for the firms found to be eligible and scoring qualifying marks in accordance with Para 5 hereof. The consultancy services will be awarded to the highest ranking consultant separately for each Tunnel Package on the basis of Quality and Cost subject to para 8 of LOI.

1.7 Please note that (i) costs of preparing the proposal and of negotiating the contract (if any), including visits to the Client, site, etc., are not reimbursable as a direct cost of the assignment; and (ii) Client is not bound to accept any of the proposals submitted and reserve the right to reject any or all proposals without assigning any reasons.

1.8 The proposals must be properly signed as detailed below:

1.8.1
- *i. by the proprietor in case of a proprietary firm*
- *ii. by the partner holding the Power of Attorney in case of a firm in partnership (A certified copy of the Power of Attorney on a stamp paper of Rs. 100 and duly notarized shall accompany the Proposal).*
- *iii. by a duly authorized person holding the Power of Attorney in case of a Limited Company or a corporation (A certified copy of the Power of Attorney on a stamp paper of Rs. 100 and duly notarized shall accompany the proposal).*
- *iv. by the authorized representative in case of Joint Venture.*

1.8.2 In case a Joint Venture of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs.100, signed by all firms to the joint venture confirming the following therein:

i. Date and place of signing

ii. Purpose of Joint Venture (must include the details of contract works for which the joint venture has been invited to bid)

iii. A clear and definite description of the proposed administrative arrangements for the management and execution of the assignment. Name of Lead Firm and other partner of JV should be clearly defined in the MOU

iv. Delineation of duties/ responsibilities and scope of work to be undertaken by each firm along with resources committed by each partner of the JV / and Association for the proposed services

v. An undertaking that the JV firms are jointly and severally liable to the Employer for the performance of the services

vi. The authorized representative of the joint venture/Association

The Association firm shall give a Letter of Association, MOU as in i) to vi) above except v, letter of Authorization, copies of GPA/SPA for the person signing the documents and a certificate of incorporation.

1.8.3 In case of Joint venture, one of the firms which preferably have relatively higher experience will act as the lead firm representing the Joint Venture. The duties, responsibilities and powers of such lead firm shall be specifically included in the MOU /agreement. It is expected that the lead partner would be authorized to incur liabilities and to receive instructions and payments for and on behalf of the Joint Venture. Payment to be made to the JV can also be made to the account of the JV or any of the partner. For a JV to be eligible for bidding, the experience of lead partner and other partner should be as indicated in data sheet.

1.8.4 A firm can bid for a project either as a sole consultant or in the form of joint venture with other consultant or / and in association with any other consultants. However, alternative proposals i.e. one as sole or in JV with other consultant and another in association / JV with any other consultant for the same package will be summarily rejected. In such cases, all the involved proposals shall be rejected.

1.8.5 **Only Indian firms are allowed to participate in the bid and no International Bidder is eligible as individually or as a member of a Joint Venture or as an associate. However the firms may propose foreign nationals (maximum 02 Nos.) as key personnel.**

(1) The following provisions shall apply:

(a) A firm/company having 25% (Twenty Five percent) or more of the aggregate issued, subscribed and paid up equity share capital is held by persons resident outside India or is controlled by persons resident outside India, is not eligible for the project/Bid.

(b) Further, where the LoA of a project has been issued to an agency, not covered under the category mentioned above, and it subsequently wishes to transfer its share capital in favour of another entity who is a resident outside India or where a Bidder or its Member is controlled by persons resident outside India and thereby the equity capital of the transferee entity exceeds 25% or above, any such transfer of equity capital shall be with the prior approval of the competent authority from

national security and public interest perspective as per the instructions of the Government of India applicable at such point in time.

(2) The holding or acquisitionF of equity control, as above shall include direct or indirect holding, acquisition, including by transfer of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, the Authority shall be guided by the principles, precedents and definitions contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011, or any substitute thereof, as in force on the date of such acquisition.

(3) The Bidder shall promptly inform the authority of any change in the shareholding, as above, and failure to do so shall render the Bidder liable for disqualification from the Bidding process.

(4) In case the L-1 Applicant under (a) above is denied the security clearance, for whatsoever reasons, then the applicants emerging as L-2, L-3 eligible Bidders (in that order) may be given a counter-offer (one by one sequentially) to match the bid of L-1 applicant/preferred Bidder. In the event of acceptance of the counter-offer by another eligible Bidder, the project may be awarded to such Bidder. In case no applicant matches the bid of the L-1 applicant, the bid process shall be annulled and fresh bids invited.

1.9 Pre-proposal conference shall be held on the date, time and venue given in Data Sheet.

1.10 **Bid Security**

1.10.1 The applicant shall furnish as part of its Proposal, a Bid Security of amount specified in Data sheet**.** The Bid security may be furnished in the form of a Demand Draft issued by one of the Nationalized/Scheduled Banks in India in favour of the "National Highways and Infrastructure Development Corporation Ltd. payable at New Delhi OR pay online through RTGS/NEFT/Other online mode to the NHIDCL's account (**the "Bid Security"**). This Bid Security is returnable not later than 30 (thirty) days from the date of Opening of the Financial proposals except in case of the two highest ranked Applicants. Bid Security of the Selected Applicant and the Second ranked Team shall be returned, upon the Selected Applicant signing the Agreement. The details of Bank account of NHIDCL is given in the Datasheet.

1.11 The Applicant, by submitting its Application pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the NHIDCL any other right or remedy hereunder or in law or otherwise, the Applicant shall be debarred from participating in the future projects of the NHIDCL in the following situations :-

(a) If an Applicant withdraws its Proposal during the period of its validity as specified in this RFP and as extended by the Applicant from time to time.

(b) In the case of a Selected Applicant, if the Applicant fails to sign the Agreement.

1.12

CRITERIA FOR INELIGIBILITY TO BID

(i) Stands debarred by the Authority as a natural consequence of termination of any Consultancy Contract of the Authority.

(ii) Has been placed in the Negative List of firms by the Authority for any reason including failure to deliver consultancy in time bound manner, abandoning the project without permission of the Authority, non mobilization of key personnel, poor performance, penalties, missing commitments, non-adherence to quality specifications, inefficient execution of works, unethical practices, failure to abide by Integrity Pact or failure to follow any lawful directions given by the Authority.

(iii) The bidder including individual or any of its JV members or its related parties, who are already having three or more on-going Authority Engineer

Consultancy contract (s) in NHIDCL, as on date of financial bid opening, shall not be eligible to bid for this project.

Explanation:

(i) An LOA issued for any project shall be counted as an on-going project.

(ii) Projects with consultancy fee of Rs. 1.5 Crores or less shall not be counted for this purpose.

(iii) Projects wherein Draft DPR has been submitted after approval of Alignment & Feasibility Report shall not be counted for this purpose.

(iv) In case of a company, the Related Parties means Related Parties as defined in the Companies Act, 2013, and in case of a bidder other than a company, the Related Parties means bodies in which the bidder or its partners are partner, trustee or directors in other bodies whether incorporated or not.

To substantiate this, the bidder shall provide an undertaking giving list of all such related parties and projects being executed by the Related Parties in NHIDCL.

A certificate in this regard from Statutory Auditor (with UDIN) shall also be provided by the bidder.

1.13 No Consultancy firm will be awarded more than 03 (three) projects of Consultancy services as DPR Consultant in NHIDCL. If any consultancy firm either as a sole bidder or as JV partner/Associate has already been awarded or ongoing 03 consultancy projects as DPR Consultant in NHIDCL, then that consultancy firm will not be eligible for bidding for this work. Consultancy firms who are H1 in any of the projects of DPR Consultant under NHIDCL will be considered as awarded projects. Consultancy firms must submit an undertaking w.r.t. the above details in the specified format as per Appendix-IX.

2 Documents

2.1 To enable you to prepare a proposal, please find and use the attached documents listed in the Data Sheet. Proposal shall be received through INFRACON. The consultant should upload the proposal using INFRACON input sheets and the procedure prescribed therein.

2.2 Consultants requiring a clarification of the documents must notify the Client, in writing, by the scheduled date and time mentioned in critical date sheet. Any request for clarification in writing or by e-mail must be sent to the Client's address indicated in the Data Sheet. The Client will upload replies to pre-bid queries on CPP portal and its website.

2.3 At any time before the submission of proposals, the Client may, for any reason, whether at its own initiative or in response to a clarification requested by a Consulting firm, modify the Documents by amendment or corrigendum. The amendment will be uploaded on eprocure.gov.in, www.infracon.nic.in and www.nhidcl.com. The Client may at its discretion extend the deadline for the submission of proposals and the same shall also be uploaded on eprocure.gov.in, www.infracon.nic.in and www.nhidcl.com website.

3. Preparation of Proposal

The proposal must be prepared in three parts viz.,
Part 1: Proof of eligibility (single proposal for all the three tunnel packages)
Part 2: Technical Proposal (single proposal for all the three tunnel packages)
Part 3: Financial Proposal (separate proposal for each of the tunnel packages)

3.1 Document in support of proof of eligibility

3.1.1 The minimum essential requirement in respect of eligibility has been indicated in the Data Sheet. The proposal found deficient in any respect of these requirements will not be considered for further evaluation. The following documents must be furnished in support of proof of eligibility as per Formats given in Appendix-II:

(i) Forwarding letter for Proof of Eligibility in the Form-E1.

(ii) Firm's relevant experience and performance for the last 10 years: As derived through INFRACON in support of experience as specified in Data Sheet. The uploaded experience certificate should indicate clearly the firms DPR experience in Highway/Railway/Metro tunnel project, details (including configuration) of structures like Adits, vertical shafts, Avalanche Protection Structures, Designed HRR, type of tunnels, rock bolting, ground improvement, avalanche protection

structures etc. Scope of services rendered by the firm should be clearly indicated in the certificate obtained from the client.

(iii) **Firm's turnover for the last 5 years:** The information in this regard shall be obtained through INRACON in regard to the turnover of the applicant firm (s) for the last five years beginning with the latest financial year. INFRACON must have an uploaded certificate from Chartered Accountant in support of Firm's turnover.

(iv) **Document fee:** The fee for the document of amount specified in Data Sheet may be furnished in the form of (i) Demand Draft favouring "National Highways & Infrastructure Development Corporation Ltd." payable at New Delhi OR (ii) RTGS/NEFT/Other online mode to the NHIDCL's account. The details of Bank Account of NHIDCL is given in the Datasheet. The Demand Draft in original or copy of payment receipt (RTGS/NEFT/Other online mode) must be furnished in a separate envelop while submitting the proposal along with soft copy.

(v) **Bid Security:** Bid Security for an amount specified in Data Sheet may be furnished in the form of a Demand Draft issued by one of the Nationalized/Scheduled Banks in India in favour of the "National Highways and Infrastructure Development Corporation Ltd." payable at New Delhi OR pay online through RTGS/NEFT/Other online mode to the NHIDCL's account. The details of Bank account of NHIDCL are given in the Datasheet.

(vi) Power of Attorney on a stamp paper of Rs.100 and duly notarized authorizing to submit the proposal.

(vii) In case a Joint Venture/Association of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs.100, signed by all firms to the joint venture/Association as detailed at para 1.8.2 above.

3.1.2 The minimum essential requirement in respect of eligibility has been indicated in the data sheet, the proposal found deficient in any respect of these requirements will not be considered for further evaluation.

3.2 Technical Proposal

3.2.1 You are expected to examine all terms and instructions included in the Documents. Failure to provide all requested information will be at your own risk and may result in rejection of your proposal.

3.2.2 During preparation of the technical proposal, you must give particular attention to the following:

Total assignment period is as indicated in the enclosed TOR. ***A manning schedule in respect of requirement of key personnel is also furnished in the TOR.*** *You shall make your own assessment of support personnel both technical and administrative to undertake the assignment. Additional support and administrative staff need to be provided for timely completion of the*

project within the total estimated cost. ***It is stressed that the time period for the assignment indicated in the TOR should be strictly adhered to.***

3.2.3 The technical proposal shall be submitted strictly in the Format given in Appendix- III and shall comprise of following documents:

i) Forwarding letter for Technical proposal duly signed by the authorized person on behalf of the bidder, as in Form-T-1
ii) Deleted.
iii) Firm's references - This information shall be evaluated from the details uploaded on INFRACON.
iv) Deleted.
v) Deleted.
vi) Proposed methodology for the execution of the services illustrated with bar charts of activities, including any change proposed in the methodology of services indicated in the TOR, and procedure for quality assurance: The proposed methodology should be accompanied by the consultants initial view, key challenges they foresee and potential solutions suggested regarding: a) proposed alignment, b) land acquisition requirements, c) access control, rehabilitation of existing road, drainage and utilities, d) adoption of superior technology along with proof: limited to six A4 size pages in 1.5 space and 12 font including photographs, if any for items a to c, (Form-T-5) and information in Form-T-7 (as covered in para viii below) for item d.
vii) Deleted
viii) The proposal shall indicate as to whether the firm is having the facilities for carrying out the following field activities or these are proposed to be outsourced to specialized agencies in the Form- T-9.
   a) Deleted.
   b) Geo-technical Investigation

   In case the consultant envisages outsourcing any or all of the above services to the expert agencies, the details of the same indicating the arrangement made with the agencies need to be furnished. These agencies would however, be subject to approval of the client to ensure quality input by such agencies before award of the work. For out-sourced services, proposed firms/consultants should have such experience on similar projects.

ix) Details of office equipment and software owned by the firm to be used in Tunnel Projects in Form-T10.
x) CVs of 4 (four) Key Personnel (Team Leader cum Senior Tunnel Expert, Tunnel Design Expert, Senior Ventilation & Fire Safety Expert, Senior Geotechnical Expert) to be submitted only through INFRACON and Team ID must be submitted in physical form. For remaining key personnel, the CVs need to be submitted for approval prior to signing of contract.

3.2.3 CVs of Key Persons:

i. *The CVs of the five key personnel namely Team Leader cum Senior Tunnel Expert, Tunnel Design Expert, Senior Ventilation & Fire Safety Expert, Senior Geotechnical Expert is to be furnished on INFRACON portal. It may please be ensured that the information furnished therein is true and correct. The CV must indicate the work in*

hand and the duration till which the person will be required to be engaged in that assignment. Experience certificates shall also be submitted. If any information is found incorrect,/Fake/ inflated in the CV, at any stage, debarment of Key personnel from Future MoRT&H or NHIDCL projects up to 2 years may be taken by MoRT&H or NHIDCL .

ii. *No alternative to key personnel may be proposed and only one CV may be submitted for each position. The minimum requirements of Qualification and Experience of all key personnel are listed in Enclosure-II of TOR. CV of a person who does not meet the minimum experience requirement as given at enclosure-II of TOR shall be evaluated and the marks obtained shall be taken into consideration during evaluation of Technical Proposal (except Team leader). However if a firm with such key personnel is declared the "most preferred bidder" for a particular package , such key personnel should be replaced at the time of Contract Negotiations with a person meeting requirements of Qualification and Experience as given at enclosure-II of TOR and whose CV secures 75 % marks and above. If a proposed key personnel does not possess the minimum (essential) educational qualification as given at enclosure-II of TOR, Zero marks shall be assigned to such CV and such CV shall not be evaluated further.* ***The CV of the proposed Team Leader should score at least 75 % marks otherwise the entire proposal shall be considered to have failed in the evaluation of Technical Proposals*** *and shall not be considered for opening of Financial Proposals.*

iii. *Team Leader cum Senior Tunnel Expert, Tunnel Design Expert, Senior Ventilation & Fire Safety Expert, Senior Geotechnical Expert should be available as per proposed work programme of the project. Other Key Personnel namely Sr. E&M Engineer, Senior Survey Engineer, Environmental Engineer, Quantity Surveyor / Documentation Officer and Highway and Pavement Engineer, Material Engineer, should not have more than two work assignments at hand at a time.* ***If same CV is submitted by two or more firms, zero marks shall be given for such CV for all the firms.***

iv. *The availability of key personnel must be ensured for the duration of the project as per proposed work programme. If a firm claims that a key personnel proposed by them is a permanent employee of the firm (the personnel should have worked in the firm continuously for a period of at least 1 year), a certificate to the effect along with pay slips are required to be submitted at the time of negotiation.*

v. *The age limit for key personnel is 65 years as on the date of bid submission. The proof of age and qualification of the key personnel must be furnished in the technical proposal.*

vi. *An undertaking from the key personnel must be furnished that he/she will be available for entire duration of the project assignment as per the work programme and will not engage himself/herself in any other assignment during the currency of his/her assignment on the project. After the award of work, in case of non-availability of key personnel in spite of his/her declaration, he/she shall be debarred for a period of two years for all projects of NHIDCL.*

vii. ***In case, the information contained in the CV for the duration in which the key personnel was employed by the firm, proposing his candidature is found incorrect/fake/inflated, at any stage, action including termination of the consultancy agreement and debarment of the firm upto 2 years from future NHIDCL projects shall be taken by NHIDCL.***

viii. *Age limit for supporting staff to be deployed on project is 65 years as on the date of bid submission.*

ix. *A good working knowledge of English Language is essential for key professional staff on this assignment. Study reports must be in English Language.*

x. *Photo, contact address and phone/mobile number of key personnel should be furnished in the CV.*

xi. *Availability of few key personnel engaged for preparation of Detailed Project Report for the envisaged project may be ensured during first 3 to 4 months after start of the civil work at site during the period of survey and review of DPR by the Supervision consultant/Authority Engineer. For this purpose, payment shall be made as per actual site deployment of the key personnel at the man month rates quoted by the firm in their financial proposal.*

xii. *Deleted.*

xiii. *In case a firm is proposing key personnel from educational/research institutions, a* ***'No Objection Certificate'*** *from the concerned institution should be enclosed with the CV of the proposed key personnel committing his services for the instant project.*

xiv. *If any case of fake/incorrect/inflated CV is found, it shall be dealt with very severely and would result in all possible penal action including blacklisting from future projects of NHIDCL. This would also apply even when the consulting firm is not successful in getting the assignment. In case , the information contained in the CV for the duration in which the key personnel was not employed by the firm proposing*

his candidature is found incorrect/Fake/inflated at any stage , the consultancy firms will have to refund the twice of salary and perks drawn in respect of the person.

xv. Policy guidelines on action against the consultancy firm and key personnel for misrepresentation of facts & fraudulent practices and non-performance issued vide MoRT&H circular no. RW/NH-33044/24/2020-S&R (P&B) dated 06.01.2021 may also be please referred to .

3.2.5 The technical proposal must not include any financial information.

3.3 Financial Proposal

3.3.1 Separate Financial proposals for each of the Tunnel are to be submitted. The Financial proposal under Schedule 'A' should include all the costs associated with the assignment. These shall normally cover: remuneration for staff (foreign and local, in the field, office etc), office & residential accommodation, mobilisation & transportation, equipment, printing of documents, surveys etc. The Financial Proposal under Schedule 'B' is item/Unit rate basis. The financial proposal should be prepared strictly using, the formats uploaded on CPP Portal. Your financial proposal should clearly indicate the amount asked for by you without any assumptions of conditions attached to such amounts. Conditional offer or the proposal not furnished in the format uploaded on CPP Portal shall be considered non-responsive and is liable to be rejected. Forwarding letter for Financial Proposal duly signed by the authorised person on behalf of the bidder, as in Form-I of Appendix-IV must be submitted.

3.3.2 The financial proposal shall take into account all types of the tax liabilities excluding GST and cost of insurance specified in the Data Sheet.

3.3.3 Costs shall be expressed in Indian Rupees in case of domestic as well as for foreign Consultant. The payments shall be made in Indian Rupees by NHIDCL.

3.3.4 Consultants are required to charge only rental of equipments/ software(s) use so as to economize in their financial bid.

3.3.5 If any bidder is interested to apply for any particular package only, they should fill the respective BoQ accordingly, however, they are still required to fill the editable cells in other BoQs in which they are not interested to bid with 0 (zero) value and BoQ with zero values will not be considered for evaluation.

4 Submission of Proposals

4.1 The Applicants shall submit a single proposal (Proof of Eligibility and Technical Proposal) for all the three packages in soft form with all pages numbered serially and by

giving and index of submissions ***through e-tender*** (on-line bid submission) on CPP portal after creating Team ID at http://infracon.nic.in * for selection of Technical Consultant (the "**Consultant**") who shall prepare DPR and provide pre-construction activities**.** Consultant is not allowed to bid for a package with more than one team. For the sake of clarity, it is mentioned that one consultant cannot submit two proposals/ bids for the same package. Consultants are required to submit proposals in the manner as prescribed in the RFP. However, Consultant can submit proposals for all the three packages with single team of Key Personals. However sub-professionals required to be deployed must be separate. A Consultant may submit only "**Proof of eligibility** (Part 1)" and "**Technical Proposal** (Part II)" for the package. Financial proposal are only to be submitted online and no hard copy of the financial proposal should be submitted.

4.2 The proposal must be prepared in indelible ink and must be signed by the authorized representative of the consultants. The letter of authorization must be confirmed by a written power of attorney accompanying the proposals. All pages of the Proof of Eligibility and Technical Proposal must be initialled by the person or persons signing the proposal.

4.3 The proposal must contain no interlineations or overwriting except as necessary to correct errors made by the Consultants themselves, in which cases such corrections must be initialled by the person or persons signing the proposal.

4.4 Your bid must be submitted on or before the time and date at the address stated in Data Sheet. Proof of Eligibility, Technical Proposal and Financial Proposal shall have to be submitted online on or before the time and date at the address stated in Data Sheet.

4.5 Your proposal must be valid for the number of days stated in the Data Sheet from the closing date of submission of proposal.

5 Proposal Evaluation

5.1 The proposals would be evaluated by a Committee constituted by NHIDCL. A three-stage procedure will be adopted in evaluating the proposal. In the first stage- Proof of Eligibility, it will be examined as to whether:

i) The proposal is accompanied by Document fee
ii) The Proposal is accompanied by Bid Security of required value
iii) The firms(s) have required experience
iv) The firms(s) have required turnover
v) The documents are properly signed by the authorized signatories and whether the proposal contains proper POA as mentioned at para 1.8.1 above
vi) The proposals have been received on or before the dead line of submission.
vii) In case a Joint Venture/Association of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs.100, signed by all firms to the joint venture/Association as detailed at para 1.8.2 above

In case answers to any of the above items is 'No' the bid shall be declared as non-responsive and shall not be evaluated further.

A Consultant satisfying the minimum Eligibility Criteria as mentioned in the Data sheet and who had submitted the above mentioned documents shall be declared "pass" in Proof of Eligibility and the Technical Proposals of only those consultants shall be opened and evaluated further.

5.2 In the second stage the Technical proposal shall be evaluated as per the detailed evaluation criteria given in Data Sheet.

A proposal securing 75 points shall be declared pass in the evaluation of Technical Proposal. **The technical proposal should score at least 75 points out of 100 to be considered for financial evaluation**. **The CV of the proposed Team Leader should score at least 75 % marks otherwise the entire proposal shall be considered to have failed in the evaluation of Technical Proposals** and shall not be considered for opening of Financial Proposals.

5.3 Evaluation of Financial Proposal

5.3.1 For financial evaluation, total cost of financial proposal for each tunnel excluding Goods & Service Tax shall be considered. Goods & Services shall be payable extra.

5.3.2 The evaluation committee will determine whether the financial proposals are complete (i.e. whether they have included cost of all items of the corresponding proposals ; if not, then their cost will be considered as NIL but the consultant shall however be required to carry out such obligations without any compensation. In case, if client feels that the work cannot be carried out within overall cost of financial proposal, the proposal can be rejected. The client shall correct any computational errors and correct prices in various currencies to the single currency specified in Data Sheet. The evaluation shall exclude those GST, duties, fees, levies and other charges imposed under the applicable law & applied to foreign components/ resident consultants.

5.3.3 For each package, the procedure as mentioned at Clauses 5.3.4, 5.4 and, 5.5 as mentioned below shall be followed separately for determining the "**Most preferred bidder (H-1 bidder)**" for each package.

5.3.4 The lowest financial proposal (FM) will be given a financial score (SF) of 100 points. The financial scores of other proposals will be computed as follows:

SF = 100xFM/F
(SF = Financial Score, FM= Amount of lowest bid, F= Amount of financial proposal converted in the common currency)

5.4 Combined evaluation of Technical and Financial Proposals. Proposals will finally be ranked according to their combined technical (ST) and Financial (SF) scores using the weights indicated in the Data Sheet:

S= STxT + SFxf
Where,
S= Combined Score,
ST= Technical Score out of 100
SF= Financial Score out of 100

T and f are values of weightage for technical and financial proposals respectively as given in the Data Sheet.

5.5 A Consultant having the maximum Combined score (S) for each of the tunnel package shall be declared as the **most preferred bidder** (H-1) separately.

6. Performance Security

The consultant will furnish within 15 days of the issue of Letter of Acceptance (LOA), an unconditional Bank Guarantee the Public Sector Banks or Scheduled Private Banks having the Net Worth of Rs 1,000/- crores or more as per the latest annual report of the bank, in favour of the Authority. The list of such banks is mentioned below. The Authority reserves the right to add or remove any of names bank on which BG shall be accepted based on advisories from the Govt./RBI. The BGs issued by 'Foreign Banks' and Banks not mentioned in the given list shall not be accepted. In case of JV, the BG shall be furnished on behalf of the JV or by any member of the JVs for an amount equivalent to 5 % 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, or end of civil works contract, whichever earlier. The Bank Guarantee will be released by NHIDCL upon expiry of 3 years beyond the date of completion of services, or end of civil works contract, whichever earlier, provided rectification of errors if any, found during implementation of the contract for civil work and satisfactory report by NHIDCL in this regard is issued. If a Consultant fails to submit the Performance Security (as specified above), it shall attract penalty – encashment of Bid Security submitted by the Consultant.

List of Scheduled Public Sector Banks	List of Private Sector Banks	List of Scheduled Small finance Banks
1.Bank of Baroda	1.Axis Bank Ltd.	1.Au Small Finance Bank Ltd.
2.Bank of India	2.Bandhan Bank Ltd.	2.Equitas Small Finance Bank Ltd
3.Bank of Maharashtra	3.CSB Bank Ltd.	3.Suryoday Small Finance Bank Ltd.
4.Canara Bank	4.City Union Bank Ltd.	4.Ujjivan Small Finance Bank Ltd
5.Central Bank of India	5.DCB Bank Ltd.	5.Utkarsh Small Finance Bank ltd.
6.Indian Bank	6.Federal Bank Ltd.	6.ESAF Small Finance Bank Ltd.
7.Indian Overseas Bank	7. HDFC Bank Ltd.	7.Jana Small Finance Bank Ltd.
8.Punjab National Bank	8. ICICI Bank Ltd.	
9.Punjab & Sind Bank	9. Induslnd Bank Ltd.	
10.State Bank of India	10.IDFC First Bank Ltd.	
11.UCO Bank	11.Jammu & Kashmir Bank Ltd.	
12.Union Bank of India	12.Karnataka Bank Ltd.	

	13.Karur Vysya Bank Ltd. 14.Kotak Mahindra Bank Ltd. 15.Lakshmi Vilas Bank Ltd. 16.RBL Bank Ltd. 17.South Indian Bank Ltd. 18.Tamilnad Mercantile Bank Ltd. 19.IDBI Bank Ltd. 20.Yes Bank Ltd.	

7 Penalty

The consultant will indemnify for any direct loss or damage that accrue due to deficiency in services in carrying out Detailed Project Report. Penalty shall be imposed on the consultants for poor performance/deficiency in service as expected from the consultant and as stated in General Conditions of Contract.

8 Award of Contract

The Client shall issue letter of award to selected Consultant for each tunnel package and ask the Consultant to provide Performance Security as in Para 6 above. If the selected Consultant fail to provide performance security within the prescribed time or the Consultant fail to sign the Contract Agreement within prescribed time, the Client may invite/declare the 2nd highest ranking bidder Consultant as Most Preferred Bidder and follow the procedure outlined in Para 8 and 9 of this Letter of Invitation. The Client may choose not to award any of the package without assigning any reason.

9 Signing of Contract Agreement

After having received the performance security and verified it, the Client shall invite the selected bidder for signing of Contract Agreement on a date and time convenient to both parties within 15 days of receipt of valid Performance Security.

10 The Client shall keep the bidders informed during the entire bidding process and shall host the following information on its website:

i) Notice Inviting Tender (NIT)
ii) Request For Proposal (RFP)
iii) Replies to pre-bid queries, if any
iv) Amendments / corrigendum to RFP
v) List of bidders who submitted the bids up to the deadline of submission
vi) List of bidders who did not pass the eligibility requirements, stating the broad deficiencies
vii) List of bidders who did not pass the Technical Evaluation stating the reasons.
viii) List of bidders along with the technical score, who qualified for opening the financial bid
ix) Final Score of qualified bidders
x) Name of the bidder who is awarded the Contract

11. It is the NHIDCL policy that the consultants observe the highest standard of ethics during the selection and execution of such contracts. In pursuance of this policy, the NHIDCL:

(a) Defines, for the purpose of this paragraph, the terms set forth below as follows:
   i "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution;
   ii "fraudulent practice" means a misrepresentation or omission of facts in order to influence a selection process or the execution of a contract;
   iii "collusive practices" means a scheme or arrangement between two or more consultants with or without the knowledge of the Client, designed to establish prices at artificial, non-competitive levels;
   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 recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question;

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract; and

(d) will have the right to require that a provision be included requiring consultants to permit the Employer to inspect their accounts and records relating to the performance of the contract and to have them audited by authorized representatives of Employer."

12. Time period for the service

Time period envisaged for the study of the project is indicated at S. No**. 3 of Data Sheet and Schedule for submission of reports and documents is given in Enclosure III of TOR.** The final reports, drawings and documentation shall be completed within this time schedule.

13. Confirmation

We would appreciate you informing us by facsimile/e-mail w*hether or not you will submit a proposal.*

Thanking you.
Yours sincerely,

B. Shivprasad
General Manager (Technical)
NHIDCL, PTI Building, 2nd Floor,
4, Parliament Street, New Delhi-110001
e-mail: shivprasad.152p@gov.in

Tel: 011-23461674

Encl. as above

Annex-1

Details of the stretch proposed for DPR preparation

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla La, Namik La & Fotu La in the Union Territory of Ladakh.

Sr. No.	Section	Union Territory	Lengths (in km)	Package No.
1	2	3	4	5
1	**Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh. The details of packages and location of these tunnels are detailed below:**	**Ladakh**		
	Package-I: Construction of Highway Tunnel across Khardungla pass connecting Leh and Nubra valley from approx. km 28.000 to km 51.000 including approaches on Leh-Khalsar road .		**Indicative** Length of Tunnel-5.50 Km & Approaches	Ladakh/Tunnels-2021/DPR-01
	Package-II: Construction of Highway Tunnel across Namik La pass from approx. km 251.000 to km 260.000 including approaches on NH-01(Srinagar-Leh Road).		**Indicative** Length of Tunnel-2.50 Km & Approaches	Ladakh/Tunnels-2021/DPR-02
	Package-III: Construction of Highway Tunnel across Fotu La pass from approx. km 288.00 to km 297.00 including approaches on NH-01(Srinagar-Leh Road).		**Indicative** Length of Tunnel-1.70 Km & Approaches	Ladakh/Tunnels-2021/DPR-03

DATA SHEET

(References to corresponding paragraphs of LOI are mentioned alongside)

1. **The Name of the Assignment and description of project as mentioned in Annex-I. (Ref. Para 1.1)**

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

2. **The name of the Client is** : National Highways & Infrastructure Development Corporation Ltd.,
3rd Floor, PTI Building, 4, Parliament Street,
New Delhi-110001

3. Duration of the Project – Package I: 06 months
Package II: 06 months
Package III: 06 months

4. Date, Time and Venue of Pre-Proposal Conference Date: 15.09.2021,
Time: 1500 hrs
Venue: NHIDCL, PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001, Ph. 011-23461674 (Ref. Para 1.9)

5. The Documents are:

i) Appendix-I: Terms of Reference (TOR)
ii) Appendix-II: Formats for Proof of Eligibility
iii) Appendix-III: Formats for Technical Proposal
iv) Appendix-IV: Formats for Financial Proposal
v) Appendix –VI: Draft Contract Agreement *

(Ref. Para 2.1)

6. Bid Security: Rs 2.0 Lakh **(Ref Para 1.10)**

7. Tax and Insurance (Ref. Para 3.3.2)

(i). The Consultants and their personnel shall pay all taxes including Goods and Services Tax, custom duties, fees, levies and other impositions levied under the laws prevailing seven days before the last date of submission of the bids. The effects of any increase / decrease of any type of taxes levied by the Government shall be borne by the Client / Consultant, as appropriate.

(ii). Limitations of the Consultant's Liability towards the Client shall be as per Clause 3.4 of General and Special Conditions of Contract / Draft Contract Agreement.

(iii) The risk and coverage shall be as per Clause 3.5 of Draft Contract Agreement.

8. Details of NHIDCL's Bank Account (Ref para 1.10.1 and 3.1.1):

Sr. No.	Particulars	Details
1.	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2.	Beneficiary Bank Account No.	90621010002610
3.	Beneficiary Bank Branch Name and Address	Syndicate Bank, Transport Bhawan, 1st Parliament Street, New Delhi-110001
4.	Beneficiary Bank Branch IFSC	CNRB0019062

9. The address is **---**(Ref. para 4.2)
Col. B.Shivprasad
General Manager (Technical)
National Highway & Infrastructure Development Corporation Ltd.
3rd Floor, PTI Building, 4, Parliament Street,
New Delhi-110001, Ph. 011-23461674
e-mail: shivprasad.152p@gov.in

10 Address :
Shri. B. Shivprasad, General Manager (Technical)
National Highway & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001
Ph. 011-23461674
(Ref. Para 4.3)

11. Proposal Validity period (Number of days): 120 days (Ref. Para 4.4)

12 Evaluation criteria: (Ref. Para 3 & 5)
12.1 First stage evaluation – eligibility requirement. (Ref. Para 3.1 & 5.1)

Table-1: Minimum Eligibility Requirements

(Indicative Length of the Packages 5 km)

S.No.	Minimum experience and performance of Preparation of DPR of Road Tunnels/Highways in the last 10 years (NH/SH/Equivalent) (for past performance attach undertaking for any litigation history/ and arbitration).	Annual average turnover
A.	A Firm applying should have Experience of preparation of Detailed Project Report for Road/Rail/Metro tunnels of aggregate length equal to the indicative length of the package. Firm should have also prepared DPR for atleast one project of Road/ Rail/Metro tunnel of minimum 40% of the indicative length of the package or feasibility study of Road/Rail/Metro tunnels of minimum 60% of the indicative length of the package.	Annual average turnover for last 3 years of the firm should be equal to or more than **Rs 5.00 Crore.**

Note: The experience of a firm in preparation of DPR for a private concessionaire/contractor shall not be considered.

(i) The sole applicant shall fulfil all the requirements given in Table-1A.

(ii) In case of JV, the Lead Partner should fulfil at least 75% of eligibility requirements under Sr. No. A and the other partner shall fulfil at least 50% of eligibility requirement.

(iii) If the applicant firm has / have prepared the DPR/FS projects solely on its own, 100% weightage shall be given. If the applicant firm has prepared the DPR/FS projects as a lead partner in a JV, 75% weightage shall be given. If the applicant firm have prepared the DPR projects as the other partner (not lead partner) in a JV, 25% weightage shall be given.

12.2 **Second Stage Technical Evaluation (Refer 5.2)**

S.No.	Description	Points
1	Firm's relevant experience in last 10 years	40
2	Material testing, survey & investigation, equipment and software proposed to be used	20
3	Qualification and relevant experience of the proposed key personnel	40
	Total	**100**

Further break-up of each criterion has been detailed out below:

A. Firm's relevant experience in last 10 years

As tunnel projects require specialized capabilities and skill sets, the following is the break-up:

Sr No	Description	Maximum Points	Sub-Points
1	Specific experience of the DPR consultancy related to the assignment for eligibility	15	
1.1	Aggregate Length of DPR / Feasibility study of Road/Rail/Metro Tunnel projects	8	
1.1.1	More than the indicative Length of the package		6
1.1.2	More than 1.5 times the indicative length of the package		7
1.1.3	More than 2 times the indicative length of the package		8
1.2	**DPR for Road/Rail/Metro Tunnel projects each equal to or more than 40 % of indicative tunnel length (or Feasibility Study each equal to or more than 60 % of indicative tunnel length)**	7	
1.2.1	1 project		5
1.2.2	2 projects		6
1.2.3	3 projects or more		7
2	**Specific experience of firms in terms of turnover**	5	
2.1	Firm's Average Turnover of last 5 years >= 50 crore		5
2.2	Firm Average Turnover of last 5 years > = 20 crore but < 50 crore		4.5
2.3	Firm Average Turnover of last 5 years < 20 crore		4
3	**DPR for Road/Rail/Metro Tunnel projects in Hills or at an elevation of more than 1000 m**	10	
3.1	1 project		6
3.2	2 projects		8

3.3	3 or more projects		10
4	DPR for special category projects (Special tunnels or expressways, whichever applicable). It is to be noted that either 4.1 or 4.2 shall be applicable, and not both.		
4.1	**DPR of number of special tunnels (if applicable)**	5	
4.1.1	1 project		1
4.1.2	2 projects		2
4.1.3	3 projects		3
4.1.4	4 projects		4
4.1.5	≥ 5 projects		5
4.2	**Aggregate length of DPR/ Feasibility study for expressways**	5	
4.2.1	Upto 50 km		2
4.2.2	50km to 100 km		3
4.2.3	100km to 150 km		4
4.2.4	> 150 Km		5

Note: In case feasibility study is a part of DPR services the experience shall be counted in DPR only.

- The professionals who possess degree in Civil Engineering/Transport Planning/Transport Economics/Traffic Management/Geology/Environment Science or Engineering and 8 years Experience in highway/bridge/tunnel with employment in the firm for more than one year. The current Employment Certificate shall be uploaded by Key Personnel on INFRACON.

B. Material testing, survey and investigation, equipment and software proposed to be used

S. No.	Description	Maximum Points	Sub-Points

1	Availability of Material Testing Facilities with persons/resources having operational skills of the equipment	3	
1.1	Owned* (Available In House)		3.00
1.2	Outsourced (Hire basis/Through Associate)		2.25
* Shall be ascertained through the ownership evidence uploaded on INFRACON in regard to major equipments required for testing of materials to be used for construction of Highway Project.			
2	Availability of Field Investigation Facilities with persons/resources having operational skills of the equipment	2	
2.1	Owned** (Available In House)		2.00
2.2	Outsourced (Hire basis/Through Associate)		1.5
** Shall be ascertained through ownership evidence uploaded on INFRACON for construction of Highway Project.			
3	Availability of Office Equipment and Software with persons/resources having operational skills of the equipment	3	
3.1	Owned*** (Available In House)		3.00
3.2	Outsourced (Hire basis/Through Associate)		2.25
*** Shall be ascertained through ownership evidence uploaded on INFRACON for key hardware/software required for Highway consultancy assignment.			
4	Experience in LiDAR or better technology for topographic survey (Infrastructure sector)	5	
4.1	1 project		1
4.2	2 projects		2
4.3	3 projects		3
4.4	4 projects		4
4.5	≥ 5 projects		5
5	Experience in using GPR and Induction Locator or better technologies for detection of sub-surface utilities (Infrastructure sector)	4	
5.1	1 project		1
5.2	2 projects		2

5.3	3 projects		3
5.4	≥ 4 projects		4
6	Experience in digitization of cadastral maps for land surveys	3	
6.1	Area upto 100 ha		1
6.2	Area between 100-500 ha		2
6.3	Area > 500 ha		3

Note: The experience of firm in Lidar or equivalent technology, GPR and Induction Locator or equivalent technologies and Experience in digitization of cadastral maps for land acquisition shall be supported by experience certificate. The experience of a firm in Lidar or equivalent technology, GPR and Induction Locator or equivalent technologies and Experience in Digitization of cadastral maps for land acquisition for a private concessionaire/contractor shall be considered only if the experience certificate is authenticated by the concerned competent Government department/authority. In case of overseas experience the weightage to be assigned to the certificate for experience in use of the equipment, a self-certificate followed by the client certificate may be accepted.

C. Qualification and relevant experience of the proposed key personnel

The weightage for various key staff is as under:

S.No	Key personnel	Points
1	**Team Leader cum Senior Tunnel Expert**	**12**
2	**Tunnel Design Expert**	**10**
3	**Senior Geotechnical Expert**	**10**
4	**Senior Ventilation & Fire Safety Expert**	**08**
	Total	**40**

The number of points assigned during the evaluation of qualification and competence of key staff are as given:

S. No.	Description	Maximum Points	Sub-Points
1	**General Qualification**	**25**	
1.1	**Essential education qualification**		**20**
1.2	**Desirable education qualification**		**5**

2	**Relevant experience and adequacy for the project**	**70**	
2.1	**Total professional experience**		**15**
2.2	**Experience in Highway/Bridge/Tunnel Projects**		**25**
2.3	**Experience in Similar Capacity**		**30**
3	**Employment with the Firm**	**5**	
3.1	**Less than 1 Year**		**0**
3.2	**1 year**		**3**
3.3	**Add 0.5 marks for each subsequent year subject to maximum of 2 marks**		

12.3 Detailed evaluation criteria which is to be used for evaluation of technical bids is as indicated at Appendix-V.

The Consultant should carryout self-evaluation based on the evaluation criteria at Appendix-V. While submitting the self-evaluation along with bid, Consultant shall make references to the documents submitted in their proposal which have been relied upon in self-evaluation.

Result of technical evaluation shall be made available on the website giving opportunity to the bidders to respond within 7 days in case they have any objection.

12.4 Third stage – Evaluation of Financial proposal

Financial Proposals of all Qualified Consultants in accordance with clause 5.2 and 5.3 of Letter of Invitation shall be opened.
The consultancy services will be awarded to the consultant scoring highest marks in combined evaluation of Technical and Financial proposals in accordance with clause 1.3 and 5.4 hereof.
The Factors are:
The weight given to Technical Proposal (T) = 0.80
The weight given to Financial Proposal (f) = 0.20

13. The common currency is **"Indian Rupee".** (Ref. Para 3.3.3)

Domestic Consultant Consultants has to quote in Rupees.

14. Commencement of Assignment (Date, Location): The Consultants shall commence the Services within fifteen days of the date of effectiveness of the contract at locations as required for the project stretch stated in TOR. (Ref. Para 1.2 of LOI and 2.3 of GCC/SC).

APPENDIX I

TERMS OF REFERENCE (TOR)

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

Terms of Reference for Consultancy Services (TOR)

1. General

1.1 The National Highways & Infrastructure Development Corporation Ltd. (NHIDCL) has been entrusted with the assignment of ***Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.*** NHIDCL now invites proposal from Technical consultants for carrying out Detailed Project Report as per details given in **Annexure-I.**

1.2 National Highways & Infrastructure Development Corporation Limited (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. The selected Consultancy firm will solely be responsible for submission of quality work in stipulated period.

1.3 The Selected Consultancy firm shall prepare and submit Detailed Project Report (DPR) for each of the Tunnel along with Approach Road separately.

2. Objective

2.1 The main objective of the consultancy service is to prepare detailed project report for Construction of Tunnel along with the approach Roads, with a aim to construct/provide all weather road across Khardungla La, Namik La & Fotu La. The approach roads would be of 4/2-lane plus paved shoulders configuration based on the approved tunnel alignment & configuration. The above said project site locations are Avalanche and landslide prone and Hence, Avalanche Protection works and slope stabilization measures are required to be provided to make it all weather road. The consultants are expected to undertake detailed study in this regard in consultation with Snow and Avalanche Study Establishment (SASE) and other Authorities working in the region. The selected Consultant is required to establish the technical, economical, and financial viability of the project and prepare Detailed Project Reports for development and construction of Project Tunnels and their approach roads. The tunnel is required to be designed for Heat Release Rate (HRR) of 200 MW for Fire and Life Safety, so as to allow passage of vehicles carrying petroleum products and explosives.

2.2 The viability of the project shall be established taking into account the requirements with regard to construction of project tunnels as per Annexure-I based on Tunnel alignment & design, approach roads highway pavement design, avalanche protection measures, provision of service roads wherever necessary, type of intersections, rehabilitation and

widening of existing and/or construction of new bridges and structures (4-lane), Tunnel/road safety features, quantities of various items of works, cost estimates along with economic analysis.

2.3 Planning for a road tunnel requires multi-disciplinary involvement and assessments, and generally adopt the same standards as for surface roads and bridge options, with some exceptions. Certain considerations, such as lighting, ventilation, life safety, operation and maintenance, etc must be addressed specifically. In addition to the capital construction cost, a life cycle cost analysis should be performed taking into account the life expectancy of 120 years for a tunnel.

2.4 The preparation of Detailed Project Reports would inter-alia include

(A). Information Study and Conceptual Planning.
(B). Site Reconnaissance and Surveys.
(C). Alignment Finalisation, Geometric Requirements and Constructability.
(D). Subsurface Investigations and Design.
(E). Environmental Studies.
(F). Seismicity.
(G). Geospatial Data Management
(H). Geotechnical Reports

2.5 The DPR consultant should ensure detailed project preparation incorporating aspects of value engineering, quality audit and safety audit requirement in design and implementation.

2.6 The consultant should, along with Feasibility Report, clearly bring out through financial analysis the preferred mode of implementation on which the Tunnel Construction Works along with approaches are to be taken up. The consultant should also give cost estimates along with Feasibility Report/ Detailed Project Report.

2.7 If at Feasibility Stage, Employer desire to fore-close the contract, the contract will be fore-close after payment up to that stage.

2.8 The Authority at its discrediting may approved a expert/Proof check consultant to review the various reports prepared & submitted by the consultant.

3. SCOPE OF SERVICES – TUNNEL

3.1 The early investigations for planning and feasibility studies can be confined to information studies and preliminary reconnaissance. Geological mapping and minimum subsurface investigations are typically required for EIS, alternative studies and conceptual design. EIS studies may also include limited topographical and environmental investigations to identify potential "fatal flaws" that might stop the project at a later date. A substantial portion of the geotechnical investigation effort should go into the Preliminary

Design Phase to refine the tunnel alignment and profile once the general corridor is selected, and to provide the detailed information needed for design. As the final design progresses, additional test borings might be required for fuller coverage of the final alignment and for selected shaft and portal locations. Lastly, depending on the tunneling method selected, additional investigations may be required to confirm design assumptions, or to provide information for contractor design of temporary works.

3.2 INFORMATION STUDY & CONCEPTUAL PLANNING

3.2.1 The first phase of an planning & investigation program for a road tunnel project starts with collection and review of available information to develop an overall understanding of the site conditions and constraints to identify existing conditions and features that may impact the design and construction of the proposed tunnel, and can guide in planning the scope and details of the subsurface investigation program. Published topographical, hydrological, geological, geotechnical, environmental, zoning, and other information must be collected, organized and evaluated. Historical seismic records, records of Avalanches & landslides caused by earthquakes, documented by SASE and other Government Agencies be analyzed to avoid locating tunnel portals and shafts at these potentially unstable areas.

3.2.2 TOPOGRAPHICAL DATA

Topographic maps and aerial photographs useful in showing terrain and geologic features (i.e., faults, drainage channels, sinkholes, etc.) when overlapped with published geological maps can often, by interpretation, show geologic structures. Aerial photographs taken on different dates be used to reveal the site history in terms of Avalanches, erosion and scouring, past construction, etc. Survey of India's topographic maps may be used for preliminary route selection and defining the Project Corridor Influence Area. However, after the project corridor has been defined, new aerial photography should be obtained and photogrammetric maps should be prepared to facilitate portal and shaft design, site access, right-of-way, drainage, depth of cover, geologic interpretation and other studies.

3.3 SITE RECONNAISSANCE AND SURVEYS

3.3.1 Site Reconnaissance and Preliminary Surveys

Available contour maps published by Survey of India OR online available contour mapping are sufficient only for initial planning purposes. A preliminary survey will be needed for concept development and preliminary design to expand existing topographical data and include data from field surveys and an initial site reconnaissance. Initial on-site studies should start with a careful reconnaissance over the tunnel alignment, paying particular attention to the potential portal and shaft locations. Features identified on maps and air photos should be verified. Rock outcrops, often exposed along the existing highway and other locations, provide a source for information about rock mass fracturing and bedding and the location of rock type boundaries, faults, dikes, and other geologic features. Features identified during the site reconnaissance should be photographed, documented and if feasible located by hand-held GPS equipment.

The reconnaissance should cover the immediate project vicinity, as well as a larger regional area so that regional geologic, hydrologic and seismic influences can be accounted for. A

preliminary horizontal and vertical control survey may be required to obtain general site data for route selection and for design.

3.3.2 Geo-physical Investigations

Resistivity based Geo-physical investigations are required to be carried out at the portals locations of tunnel to determine the physical-mechanical parameters of sub-soil or rock mass. The results so obtained from the Geo-physical investigations need to be combined/compared with the Geo-logical investigations like borehole investigations so that a complete image can be obtained for interpreting the geological structures of the investigated area at the portals of tunnel. The results obtained from the Geo-physical investigations and preliminary borehole investigations will be useful in defining the type of layers of investigated area, to determine the depth of bedrock, ground water table, rock mass cavities and caverns, etc.

3.4 ALIGNMENT FINALISATION, GEOMETRIC REQUIREMENTS AND CONSTRUCTIBILTY

3.4.1 Finalisation of Alignment and Portal Locations

Based on geological model developed and Alignment finalised using survey data, the Consultant Shall suggest the most viable, economical alignment after carrying out Risk Assessment. As far as possible portal locations shall not be near avalanche prone areas.

3.4.2 Topographic Surveys

After finalisation of Alignment and Portal location, detailed topographic maps, plans and profiles must be developed to establish primary control for final design and construction based on a high order horizontal and vertical control field survey. As on a road tunnel system, center line of the roadway and center line of tunnel may not identical because of clearance requirements for walkways and emergency passages, A tunnel center line developed during design should be composed of tangent, circular, and transition spiral sections that approximate the complex theoretical tunnel centerline within a specified tolerance. This center line should be incorporated into the drawings of the tunnel, and all tunnel control should be based on this center line.

Topographical survey and mapping, structural and stratographical maps, preparation of cross sections. (Quantum of Survey shall be as per relevant Indian standard (IS Code) or international Code(s) for Highway Tunnels)

Ground marking of alignment and report on tentative tunnel alignment, section, grade, portal positions and finding altitude and grid reference of the portal

3.4.3 Geometric Design and Constructability Cross Section

3.4.3.1 A road tunnel cross section must be able to accommodate the horizontal and vertical traffic clearances, as well as the other required elements. The typical cross section elements include:

- Travel lanes
- Shoulders
- Sidewalks/Curbs
- Tunnel drainage
- Tunnel ventilation
- Tunnel lighting
- Tunnel utilities and power
- Water supply pipes for fire-fighting
- Cabinets for hose reels and fire extinguishers
- Signals and signs above roadway lanes
- CCTV surveillance cameras
- Emergency telephones
- Communication antennae/equipment
- Monitoring equipment of noxious emissions and visibility
- Fire & Life Safety Provisions
- Emergency egress illuminated signs at low level
- Additional elements may also be needed under certain design requirements and should be taken into consideration when developing the tunnel geometrical configuration.

3.4.3.2 HORIZONTAL AND VERTICAL ALIGNMENTS

Planning and design of road tunnel alignments must consider Maximum grade, horizontal and vertical curves, and other requirement/constraints for road tunnel

3.4.3.3 MAXIMUM GRADES

Road tunnel grades should be evaluated on the basis of driver comfort while striving to reach a point of economic balance between construction costs and operating and maintenance expenses. Maximum effective grades in main roadway tunnels preferably should not exceed 3% as per IRC SP-91.

3.4.3.4 HORIZONTAL AND VERTICAL CURVES

Horizontal and vertical curves shall satisfy IRC's geometrical requirements. The horizontal alignment for a road tunnel should be as short as practical and maintain as much of the tunnel length on tangent as possible, which will limit the numbers of curves, minimize the length and improve operating efficiency. When horizontal curves are needed, the minimum acceptable horizontal radii should consider traffic speed, sight distances, and the super-elevation provided.

3.4.3.5 SIGHT AND BRAKING DISTANCE REQUIREMENTS

Sight and braking distance requirements cannot be relaxed in tunnels. When designing a tunnel with extreme curvature, sight distance should be carefully examined, otherwise it may result in limited stopping sight distance.

3.4.3.6 TUNNEL CONFIGURATION

Based on the traffic studies and safety requirement, the consultant shall suggest the Tunnel Configuration.

3.4.3.7 TRAVEL CLEARANCE PROFILE (TCP)

Clearance profile of all potential vehicles traversing the tunnel shall be established using dynamic vehicle envelopes which consider not just the maximum allowable static envelope, but also other dynamic factors such as bouncing, suspension failure, overhang on curves, lateral motion, resurfacing, etc. The clearance profile should take into consideration potential future vehicle heights, vehicle mounting on curbs, construction tolerances, and any potential ground and structure settlement. Ventilation equipment, lighting, guide signs, and other equipment should not encroach within the clearance profile. Vertical clearance should be selected as per IRC's recommendations. The vertical clearance shall also take into consideration for future resurfacing of the roadway once. Consideration should also be given for potential truck mounting on the barrier in the tunnel or on low sidewalk and measures shall be used to prevent such mounting from damaging the tunnel ceiling or tunnel system components mounted on the ceiling or the walls.

3.5 SUB-SURFACE INVESTIGATION

Subsurface investigation is the most important type of investigations to obtain ground conditions, as it is the principal means for:

• Defining the subsurface profile (i.e. stratigraphy, structure, and principal soil and rock types)

• Determining soil and rock material properties and mass characteristics;

• Identify geological anomalies, fault zones and other hazards (squeezing soils, methane gas, etc.)

• Defining hydrogeological conditions (groundwater levels, aquifers, hydrostatic pressures, etc.); and

• Identifying potential construction risks.

Subsurface investigations will involve borings, sampling, in situ testing, geophysical investigations, and laboratory material testing. These investigations shall provide factual information about the distribution and engineering characteristics of soil, rock and groundwater at a site, allowing an economical design, determining a reliable construction cost estimate, and reducing the risks of construction.

Induction of a complete drilling equipment and complete set of accessories including water pumps etc. required for the job at the tunnel site (bore hole location) in good serviceable condition for the first time.

Shifting of a complete drilling equipment and complete set of accessories including water pumps etc. required for the job from one bore hole location to the other at proposed tunnel site

Notes :

1. Core recovery in bed rock portions shall not be less than 80% for hard rock in general. However the percentage of core-recovery may vary with the type of rock encountered for which the minimum percent recovery will be guided by relevant code provisions. Drilling activity to includes the followings:-

a) Boring holes and carrying out all relevant tests for ascertaining rock properties. This includes geological logging, electrical logging, geothermal logging and Geohydrological logging of bore holes.

b) Determination of in situ stress field by over coring methods or any other techniques available such as hydro-fracture technique.

c) Water percolation tests are to be conducted in the hole at ground level, at every six metre depth intervals, at proposed tunnel grade level and at the junction of different lithological strata at three different pressures as per relevant IS Codes.

d) Any deviation of holes from verticality is to be actually measured accurately and reflected.

2 (a) Bore hole locations, their depths, dimensions, choice of field tests and their interval, choice of drilling equipment, establishing the correct procedure for drilling, sampling and field tests including any additional holes are to be suitably finalised with approval of department.

2 (b) The report is to bring out clearly the technical and other problems that may be encountered during the construction and maintenance of the tunnel and also clear recommendations regarding the feasibility of the tunnel in the prevailing conditions. Final portal locations, tunnel sections and geometrics to be defined in this report.

2 (c) Preliminary indications of cost of the tunnel project and the time involved for the construction to be indicated. In short, report should be self explanatory to enable the department to take a decision regarding feasibility of the tunnel, expertise available within the country for construction and preliminary costs for purposes of getting Administrative Approval for the works. This report should also bring out other detailed studies involved at pre-construction stage, construction stage and post construction stage.

3.5.1 VERTICAL AND INCLINED TEST BORINGS

Vertical and inclined test borings and soil/rock sampling are key elements of any subsurface investigations for underground projects. The location, depth, sample types and sampling intervals for each test boring must be finalised based on geological models developed. In general, borings should be extended to at least 1.5 tunnel diameters below the proposed tunnel invert. However, if there is uncertainty regarding the final profile of the tunnel, the borings should extend at least two or three times the tunnel diameter below the preliminary tunnel invert level.

Drilling four(4) Inclined holes (core drilling)at an angle of 30 degrees (Approx) with vertical , one at 50 mtr distance & another at 100 mtr distance from each portal sites measured along the proposed Tunnel alignment or as required, down to the tunnel grade as specified in IRC:SP:91 which may involve diamond drilling using NX-Bits to the extent of 400 meters for an individual hole. The inclined drill holes must intersect the proposed tunnels cross section at tunnel grade level (IRC:SP:91). Additional holes if required in this area shall be under taken. BX- Bits, if unavoidable, will be resorted to only with prior approval of the NHIDCL.

3.5.2 HORIZONTAL AND DIRECTIONAL CORING

Deleted

3.5.3 SAMPLING – ROCK CORE

In rock, continuous rock core should be obtained below the surface of rock. Double and triple tube core barrels should be used to obtain higher quality core more representative of the in situ rock. For deeper holes, coring should be performed with the use of wire-line drilling equipment to further reduce potential degradation of the recovered core samples. Boring shall be carried out using at least NX size coring bits. Core runs should be limited to a maximum length of 3 M in moderate to good quality rock, and 2 M in poor quality rock. The rock should be logged soon after it was extracted from the core barrel. Following information is to be noted for each core run on the rock coring logs:

- Depth of core run
- Core recovery in length and percent
- Rock Quality Designation (RQD) percent
- Rock type, including color texture, degree of weathering and hardness
- Character of discontinuities, joint spacing, orientation, roughness and alteration
- Nature of joint infilling materials.

In addition, drilling parameters, such as type of drilling equipment, core barrel and casing size, drilling rate, and groundwater level logged in the field shall also be recorded.

3.5.4 BOREHOLE SEALING

All borings should be properly sealed at the completion of the field exploration, if not intended to be used as monitoring wells. This is typically required for safety considerations and to prevent cross contamination of soil strata and groundwater.

3.5.5 TEST PITS

Test pits are to be excavated to investigate the shallow presence, location and depth of existing utilities, structure foundations, top of bedrock and other underground features that may interfere or be impacted by the construction of shafts, portals and tunnels. The excavation pits are to be backfilled with excavation spoil, and the backfill is compacted to avoid excessive future settlement. Tampers and rollers may be used to facilitate compaction of the backfill.

3.5.6 SOIL AND ROCK IDENTIFICATION AND CLASSIFICATION

3.5.6.1 SOIL IDENTIFICATION AND CLASSIFICATION

Distinguish between visual identification and classification is important to minimize conflicts between general visual identification of soil samples in the field versus a more precise laboratory evaluation supported by index tests. The field classification of soil for a tunnel project shall be similar to that for other geotechnical applications except that special attention must be given to accurately defining and documenting soil grain size characteristics and stratification features since these properties may have greater influence on the ground and groundwater behavior during tunnelling than they may have on other types of construction, such as for foundations, embankments and cuts.

Items of particular importance to tunnel projects which greatly influence ground behaviour and groundwater inflow during construction, and the selection of the tunnelling equipment and methods are listed below:

- Groundwater levels (general and perched levels), ground permeability (loss of drilling fluid; rise or drop in borehole water level; etc.), and artesian conditions
- Consistency and strength of cohesive soils
- Composition, gradation and density of cohesionless soils
- Presence of lenses and layers of higher permeability soils
- Presence of gravel, cobbles and boulders, and potential for nested boulders
- Maximum cobble/boulder size from coring and/or large diameter borings (and also based on understanding of local geology), and the unconfined compressive strength of cobbles/boulders (from field index tests and laboratory testing of recovered samples)

• Presence of cemented soils
• Presence of contaminated soil or groundwater.

3.5.6.2 ROCK IDENTIFICATION AND CLASSIFICATION

In rock, rock mass characteristics and discontinuities typically have a much greater influence on ground behaviour during tunnelling and on tunnel loading than the intact rock properties. Therefore, rock classification needs to be focused on rock mass characteristics, as well as its origin and intact properties for typical highway foundation application. Special intact properties are important for tunnelling application particularly for selecting rock cutters for tunnel boring machines and other types of rock excavators, and to predict cutter wear. Typical items included in describing general rock lithology include:

• General rock type
• Colour
• Grain size and shape
• Texture (stratification, foliation, etc.)
• Mineral composition
• Hardness
• Abrasivity
• Strength
• Weathering and alteration.

Rock discontinuity descriptions to be noted in rock classification include:
• Predominant joint sets (with strike and dip orientations)
• Joint roughness
• Joint persistence
• Joint spacing
• Joint weathering and infilling

Other information typically noted during subsurface rock investigations include:
• Presence of faults or shear zones
• Presence of intrusive material (volcanic dikes and sills)
• Presence of voids (solution cavities, lava tubes, etc.)
• Groundwater levels, and evidence of rock mass permeability (loss of drilling fluid; rise or drop in borehole water level; etc.)

Method of describing discontinuities of rock masses is in accordance with International Society of Rock Mechanics (ISRM)'s "Suggested Method of Quantitative Description of Discontinuities of Rock Masses" (ISRM 1981). Index properties obtained from inspection of the recovered rock core include core recovery (i.e., the recovered core length expressed as a percentage of the total core run length), and Rock Quality Designation or RQD (the

combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length). Often, materials encountered during subsurface investigations represent a transitional (intermediate) material formed by the in place weathering of rock. Such conditions may sometimes present a complex condition with no clear boundaries between the different materials encountered. Tunnelling through the intermediate geomaterial (IGM), in some cases referred as mixed-face condition, can be extremely difficult especially when groundwater is present. In the areas where tunnel alignment must cross this transition zone, the subsurface investigation is conducted much as for rock, and when possible cores are retrieved and classified, and representative intact pieces of rock should be tested.

3.5.6.3 PRESERVATION OF CORES SAMPLES

It is desirable to preserve the rock cores retrieved from the field properly for years until the construction is completed and disputes/claims are settled. The rock cores is to photograph in core boxes and scan the core samples for review by designers and contractors.

3.5.6.4 GEOTECHNICAL REPORTS

Preparation of a Geotechnical Interpretative Report (GIR) which includes a detailed analysis and interpretation of data contained in the Geotechnical Data Report (GDR) culminating in preparation of a final Geological Model of the ground within the route corridor. This final geological model will be created on the basis of direct inference from surface mapping, groundwater chemical studies, petro-graphical studies, and mineralogical studies as well as the reasonable and appropriate extrapolating of the geology and structures from the results of surface mapping.

Based on the final geological model, geotechnical hazards shall be identified and characterized allowing the review of selected alignment, if needed the alignment can be modified and freezed.

The final geological model will be presented in the form of a geological longitudinal section (A1 size) clearly demarcating the various interred lithological boundaries and ground types along the alignment, the groundwater conditions permeability and relevant structural information such as the width of fault zones, shear zones and lineaments/discontinuities with attitude and orientation.

3.5.6.5 GEOTECHNICAL BASELINE REPORT (GBR)

The consultant is also required to prepare a GBR describing the sub surface physical condition to serve as the basis for the execution of the excavation and lining works, including design and construction methods, and the reaction of the ground to such methods.

This GBR must set out the location of the risk between the parties for such sub-surface physical conditions.

3.6 ENVIRONMENTAL ISSUES

Although tunnels are generally considered environmentally-friendly structures, certain short-term environmental impacts during construction are unavoidable. Long-term impacts from the tunnel itself, and from portals, vent shafts and approaches on local communities, historic sites, wetlands, and other aesthetically, environmentally, and ecologically sensitive areas must be identified and investigated thoroughly during the project planning and feasibility stages, and appropriately addressed in environmental studies and design. The specific environmental data needed for a particular underground project very much depend on the geologic and geographic environment and the functional requirement of the underground facility. Some common issues can be stated, however, and are identified below in the form of a checklist:

• Existing infrastructure, and obstacles underground and above
• Surface structures within area of influence
• Land ownership and uses (public and private)
• Ecosystem habitat impacts
• Contaminated ground or groundwater
• Long-term impacts to groundwater levels, aquifers and water quality
• Control of runoff and erosion during construction
• Naturally gassy ground, or groundwater with deleterious chemistry
• Access constraints for potential work sites and transport routes
• Sites for muck transport and disposal
• Noise and vibrations from construction operations, and from future traffic at approaches to the completed tunnel
• Air quality during construction, and at portals, vent shafts and approaches of the completed tunnel
• Maintenance of vehicular traffic and transit lines during construction
• Maintenance of utilities and other existing facilities during construction
• Access to residential and commercial properties
• Pest control during construction
• Long-term community impacts
• Long-term traffic impacts
• Temporary and permanent easements
• Tunnel fire life safety and security
• Legal and environmental constraints, enumerated in environmental statements or reports, or elsewhere.

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.

3.7 SEISMICITY

The release of energy from earthquakes sends seismic acceleration waves travelling through the ground. Such transient dynamic loading instantaneously increases the shear stresses in the ground and decreases the volume of voids within the material which leads to an increase in the pressure of fluids (water) in pores and fractures. Thus, shear forces increase and the frictional forces that resist them decrease. Other factors also can affect the response of the ground during earthquakes.

- Distance of the seismic source from the project site.
- Magnitude of the seismic accelerations.
- Earthquake duration.
- Subsurface profile.
- Dynamic characteristics and strengths of the materials affected.

In addition to the distance of the seismic source to the project site, and the design (anticipated) time history, duration and magnitude of the bedrock earthquake, the subsurface soil profile can have a profound effect on earthquake ground motions including the intensity, frequency content, and duration of earthquake shaking.

3.8 Submission of reports covering all above information including preliminary indication of cost for the Project and recommendation for further detailed studies

Framing and submission of report covering all the following aspects:-
(a) Preparation of preliminary design and schedule of quantities
b) Study and analysis of working faces, tunnelling method, cost analysis and types of equipments for various operations such as drilling, blasting, mucking, haulage and disposal of muck, fire-fighting, extrication of poisonous gases, ventilation, lighting, side cover, power and water supply systems etc. Possibilities of using TBM are to be evaluated with specific limitations
c) Engineering studies pertaining to leakage, de-watering, grouting, blasting, ground acceleration due to blasting, tunnel closures supports system etc.
(d) Tentative constructions schedule including critical path analysis
(e) Listing of various codes of practice both Indian and Foreign applicable

4 Scope of Services- Roadwork and Structures (Including portion of existing road)

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/Approach Road 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. *Detailed reconnaissance;*
iii. *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;*
iv. *traffic studies including traffic surveys and Axle load survey and demand forecasting for next thirty years;*
v. *Inventory and condition surveys for road;*
vi. *Inventory and condition surveys for bridges, cross-drainage structures, other Structures, river Bank training/Protection works and drainage provisions;*
vii. *Detailed topographic survey using conventional high precision instruments i.e. total stations or equivalent technology*
viii. *Pavement investigations;*
ix. *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;*
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.
x. *Identification of the type and the design of intersections;*
xi. *Design of complete drainage system and disposal point for storm water*

4.2 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.

4.3 Engineering Surveys and Investigations

4.3.1. Reconnaissance and Alignment

1. The Consultants should make an in-depth study of the available land width(ROW) topographic maps, satellite imageries and aerial 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 new/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 (with in 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 to the proposed tunnels.

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.

4.3.2 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 airborne 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 airborne 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 NHIDCL. 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 of100 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, in case 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 of250 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.*

4.3.2.1 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.

4.3.2.2 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, severs, 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.

4.3.3 Road and Pavement Investigations (if applicable)

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

4.3.3.1 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.

4.3.3.2 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.*

4.3.3.3 Sub grade 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 finalized in consultation with the NHIDCL's 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.

4.3.4 Investigations for Bridges and Structure (if applicable)

4.3.4.1 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.

4.3.4.2 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 RFP 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.

4.3.4.3 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 taking 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.

4.3.4.4 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 NHIDCL's 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 either through the Geotechnical Consultants empanelled by MORT&H or approved by NHIDCL.. 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.

4.4 Detailed Design of Road and Pavements, Bridges, Structures

4.4.1 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 @ 50mintervals;*
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.*

4.4.2 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.

4.4.3 Geometric Design

3. The design of geometric elements shall, therefore, take into account the essential requirements of such facilities.

4. 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.

5. 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.

6. 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.

4.4.4. 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.

9.

4.4.5 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 within 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 that 6 m based on relevant IRC publications.
3. The design of embankments should include the requirements for protection works and traffic safety features.

4.4.6 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 pat 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.

4.4.7 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.

5. Scope of Services- Tunnels, Roadwork and Structures (Including portion of existing road).

5.1

i. *Environmental and social impact assessment, including such as related to cultural properties, natural habitants, involuntary resettlement etc.*

ii. *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. *Identification of sources of construction materials;*
iv. *Value analysis / value engineering and project costing;*
v. *Economic and financial analyses;*
vi. *Contract packaging and implementation schedule.*
vii. *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;*
viii. *To find out financial viability of project for implementation and suggest the preferred mode on which the project is to be taken up.*
ix. *Preparation of detailed project report, cost estimate, approval for construction Drawings, rate analysis, detailed bill of quantities, bid documents for execution of civil works through budgeting resources.*
x. *Design of toll plaza and identification of their numbers and location and office cum residential complex including working drawings*
xi. *Design of weighing stations, parking areas and rest areas.*
xii. *Any other user oriented facility en-route toll facility.*
xiii. *Tie-in of on-going/sanctioned works of MORT&H/ NHAI/ other agencies.*
xiv. *Preparation of social plans for the project affected people as per policy of the lending agencies/ Govt. of India R & R Policy.*

5.2 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.

5.3 The consultant shall study the possible locations and design of toll plaza, wayside amenities required and arboriculture along the highway shall also be planned.

5.4 Standards and Codes of Practices

5.4.1 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.

5.4.2 All notations, abbreviations and symbols used in the reports, documents and drawings shall be as per IRC:71.

5.5 Quality Assurance Plan (QAP) & Method Statements (MS)

5.5.1 The Consultants should have detailed Quality Assurance Plan (QAP) & Method Statements along with data formats for all field studies including topographic surveys, traffic surveys, engineering surveys and investigations, design and documentation activities. The quality assurance plans & Method Statements for separate and different field studies, exclusive to tunnels (As per the scope of work) and roads engineering surveys and investigation, design and documentation activities should be presented as separate sections for highway tunnels like General geology, Topographical survey and mapping, Rock mass property, Photo-geological and remote sensing studies, geo-physical studies, Chemical analysis of water and QAP for road portion 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.

5.6 Review of Data and Documents

5.6.1 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 condition , year of original construction , year and type of major maintenance/rehabilitation works;*
iii. *Condition of bridges and cross-drainage structures;*
iv. *sub-surface and geo-technical data for existing bridges;*
v. *Hydrological data, drawings and details of existing bridges;*
vi. *Existing geological maps, catchment area maps, contour plans etc. for the project area*
vii. *Condition of existing river bank / protection works, if any.*
viii. *Details of sanctioned / on-going works on the stretch sanctioned by MoRT&H/other agencies for Tie-in purposes*
ix. *Survey and evaluation of locally available construction materials;*
x. *Historical data on classified traffic volume (preferably for 5 years or more);*
xi. *Origin-destination and commodity movement characteristics; if available*
xii. *Speed and delay characteristics; if available;*

xiii. Commodity-wise traffic volume; if available;
xiv. Accident statistics; and,
xv. Vehicle loading behavior (axle load spectrum), if available.
xvi. 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.)
xvii. Environmental setting and social baseline of the project.

5.7 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 .

5.8 Traffic Surveys (if applicable)

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

5.8.1 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 part 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.

5.8.2 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.

3. 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.

5.8.3 Origin-Destination and Commodity Movements Surveys

5.8.3.1 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.

5.8.3.2 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.

5.8.3.3 The trip matrices shall be worked out for each vehicle type information and 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 in the table and also in the graphical representations.

5.8.3.4 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.

5.8.3.5 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.

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

5.8.4 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.

5.8.5 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 weighe**d 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

3. 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).

4. 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.

5.8.6 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.

5.8.7 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.

5.8.8 Truck Terminal Surveys

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

5.9 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 behavior 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.

5.10 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. 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.

5.11 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.

5.12 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.

5.13 Weighing Station, Parking Areas and Rest Areas and other way side amenities

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.

4.14 Office-cum-Residential Complex for Project Execution Unit

The Consultant shall plan and suggest location of Office-cum-Residential Complex for Project Execution Unit.

5.15 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.

5.16 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/NHIDCL. 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.

5.16.1 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.

5.16.2 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 socio-economic 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 provides 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.

5.16.3 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.

- o A detailed EMP for construction and operational phases with recourse to the mitigation measures for all adverse impacts.
- o Detailed plans for highway-side tree plantation (as part of the compensatory afforestation component).
- o Environmental enhancement measure would be incorporated.
- o Enhancement measures would include items described in the scope of work and shall be complete with plans, designs, BOQ and technical specifications.
- o Environmental monitoring plans during and after construction including scaling and measurement techniques for the performance indicators selected for monitoring.
- o The EMP should be amendable to be included in the contract documents for the works.
- o 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.

5.16.4 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

5.17 For the realigned portion i.e. tunnels including approach roads leading to the tunnel portals, 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.

5.18 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 Consultants shall prepare documents for EPC/PPP contracts for each DPR assignment alongwith all ready to implement 'General Arrangement Drawing and Tender Drawings'' shall be prepared.

5.19 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.

5.20 Wherever required, consultant will liaise with concerned authorities and arrange all clarifications. Consultant will also obtain final approval from Forest Department, Ministry of Environment and Forest for all applicable clearances and also NOC from Army/Defence Authorities. 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 as per requirement (or equivalent)

5.21 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.

5.22 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.

5.23 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.

5.24 The consultant shall be guided in its assignment by the Model Concession/ Contract Agreements for PPP/ EPC projects, as applicable and the Manual of Specifications and Standards for two/ four/ six laning of highways and tunnels published by IRC (IRC:SP:73 or IRC:SP:84 or IRC:SP:87, IRC:SP:91 as applicable) (the "**Manual**") along with relevant IRC codes for design of long bridges.

5.25 The consultant shall prepare comparative statement of Standards & specifications w.r.t Geometric, fire and life safety, ventilation, illumination etc. allowed as per Codal Provision in India, America , Europe (Austria, Norway) & PIARC and Prepare a design basis reports (DBR)

5.26 The consultant shall prepare the bid documents including required schedules (as

mentioned above) as per EPC/ PPP documents. For that it is suggested that consultant should also go through the EPC/PPP documents of Ministry before bidding the project. The Consultant shall assist the NHIDCL and it's 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.

5.27 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.

5.28 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 guideline son the principal issues that need to be examined during the course of the safety audits.

Stage 1-During Feasibility Study

1. The audit team should review the proposed design from a road safety perspective

and heck the following aspects

CONTENTS	ITEMS
Aspects to be checked	Safety and operational implications of proposed alignment and junction strategy with particular references to expected road A. 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 Safety implications of the scheme beyond its physical limits E. i.e. how the scheme fits into its environs and road Hierarchy
A1 : General	➢ Departures from standards ➢ Cross-sectional variation ➢ Drainage ➢ Climatic conditions ➢ Landscaping ➢ Services apparatus ➢ Lay-byes ➢ Footpath ➢ Pedestrian crossings ➢ Access (minimize number of private accesses)
	➢ Emergency vehicles ➢ Public Transport ➢ Future widening ➢ Staging of contracts ➢ Adjacent development
A2 : Local Alignment	➢ Visibility ➢ New/Existing road interface ➢ Safety Aids on steep hills
A3 : Junctions	➢ Minimise potential conflicts ➢ Layout ➢ Visibility
A4 : Non-Motorised road users Provision	➢ Adjacent land ➢ Pedestrians ➢ Cyclists ➢ Non-motorised vehicles

A5 : Signs and Lighting	➢ Lighting ➢ Signs/Markings
A6 : Construction and Operation	➢ Buildability ➢ Operational ➢ Network Management

Stage 2-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	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
B1 : General	➢ 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	➢ Visibility ➢ New/Existing road interface ➢ Safety Aids on steep hills
B3 : Junctions	➢ Minimise potential conflicts ➢ Layout ➢ Visibility
B4 : Non-Motorised road users Provision	➢ Adjacent land ➢ Pedestrians ➢ Cyclists ➢ Non-motorised vehicles
B5 : Signs and Lighting	➢ Lighting ➢ Signs/Markings
B6: Construction and Operation	➢ Buildability ➢ Operational ➢ Network Management

Stage 3 – 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	A. Any design changes since Stage 1.
	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).

C1 : General	➢ Departures from standards ➢ Drainage ➢ Climatic conditions ➢ Landscaping ➢ Services apparatus ➢ Lay-byes ➢ Access ➢ Skid-resistance ➢ Agriculture ➢ Safety Fences ➢ Adjacent development
C2 : Local Alignment	➢ Visibility ➢ New/Existing road interface
C3 : Junctions	➢ Layout ➢ Visibility ➢ Signing ➢ Lighting ➢ Road Marking ➢ T,X,Y-junctions ➢ All roundabouts ➢ Traffic signals
C4 : Non-Motorised road users Provision	➢ Adjacent land ➢ Pedestrians ➢ Cyclists ➢ Non-motorised vehicles
C5 : Signs and Lighting	➢ Advanced direction signs ➢ Local traffic signs ➢ Variable message signs ➢ Other traffic signs ➢ Lighting
C6 : Construction and Operation	➢ Buildability ➢ Operational ➢ Network Management

6. Others

6.1 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

6.2 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.

6.3 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.

6.4 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.

6.5 The consultant shall be guided in its assignment by the Model Concession/ Contract Agreements for PPP/ 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.

6.6 The consultant shall prepare the bid documents including required schedules (as mentioned above) as per EPC/ PPP documents. For that it is suggested that consultant should also go through the EPC/PPP documents of ministry before bidding the project. The Consultant shall assist the NHIDCL and it's 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.

6.7 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.

7. Estimation of Quantities and Project Costs

a. 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 project (Both Tunnel and Highway portion). The estimation of quantities and costs would have to be worked out separately for civil work Package as defined in this TOR.

b. 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.

c. The project cost estimates so prepared are to be checked against rates for similar on-going works in India road sector projects as Rohtang Tunnel.

8. Viability and Financing Options

a. 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.

b. 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.

c. 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.

d. The economic and commercial analyses should bring out the priority of the different homogenous links in terms of project implementation.

8.1 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.

8.2 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's 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.

9. 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.

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.

10. Reports to be submitted by the Consultant to NHIDCL

10.1 All reports, documents and drawings are to be submitted separately for each of the tunnel and its approaches. The analysis of data and the design proposals shall be based on the data derived from the 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.

10.2 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 soft copy (editable & non-editable version) 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.

10.3 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 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.

10.4 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 Report

Stage 4: Detailed Project Report (DPR)

Stage 5: Technical Schedules

Stage 6: LA & Clearances II Report

10.4.1 STAGE 1

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 for both Tunnels /Road portion finalised in consultation with The National Highways and Infrastructure Development Corporation Ltd 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. Performa 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);
   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.

3. **Quality Assurance Plan (QAP) Document**

(i) 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 both Tunnel and Road & Bridge portions in separate 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.

(ii) 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.

10.4.2 STAGE 2:

10.4.2.1 Feasibility Report

1. The consultant shall commence the Feasibility Study of the project in accordance with the accepted IR and the report for both Tunnel and Road & Bridges 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 and Geophysical Report
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 forTunnels, 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 separately for Tunnel works and Road & Bridge works 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 for both Tunnels and Road & Bridge 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 separately for both Tunnel and Road & Bridge works.

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.

10.4.2.2 Strip Plan and Clearances

1. The Consultants shall submit the following documents:
   i(a) Ground Marking of alignment and report on tentative tunnel alignment, section, garade, portal positions and finding altitude and grid reference of the portal and proposed *right-of-way limits to appreciate the requirements of land acquisition;*

   i. *(b)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

10.4.3 STAGE 3:

10.4.3.1 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 Performa 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 organizations 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.

10.4.4 STAGE: 4

Draft Detailed Project Report (Separately for each tunnel and its approaches)

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 including what not limited to the reports such as General Project Description, Horizontal and Vertical Tunnel Alignment, Typical cross section, Pavement, Tunnel Safety concept, Ventilation Concept and design , Ventilation shafts etc., Hydraulic Design , Construction Method, Geotechnical/Geological evaluation (Geotechnical Factual report, Geotechnical Interpretive Report, High Resolution Satellite Imagery)and Rock Mass classification , Tunnel Support System, Portal Design and Construction Time, Construction Cost etc.*

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.

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 bridges, tunnels and cross-drainage structures while Part-II shall deal with the design of road features and pavement composition. The sub-soil exploration report including the complete details of boring done, bore log report, geotechnical base line report, comparison between conventional and TBM construction, 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.

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. Reports such as Seismicity and Siesmo-Techtonics, Construction Material Survey, Chemical Analysis, Geological Report, Report of Water sample, Topographic Survey Report, Rock Analysis etc.*

> *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

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. The report should invariably include but not limited to the reports such as Muck Disposal Plan, Landslide mitigation, Snow Avalanche Mitigation, Solid Waste Management, Energy Alternatives, Health Care, Noise Pollution & Air control, R & R reposts, Environmental Monitoring, Summary of cost, etc. in addition to relevant report for road portion.*

Volume - V, Technical Specifications: *The MORT&H's Technical Specifications Tunnel and Road works shall be followed for this study(IRC :SP:91 and Ministry Circular No. RW/NH-34072/1/2015-S&R (B) dated 18.08.2016). However, Volume IV: Technical Specifications shall contain the special technical specifications which are not covered by MOST Specifications for Tunnels and Roads Bridges (latest edition / revision) and also specific quality control norms for the construction of works.*

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
The rates for material, labour and machinery should be based on the "Standard Data Book for Analysis of Rates" (SoR) of Ministry of Road Transport and Highways published by Indian Road Congress (IRC). Where the SoR rates do not cover all items for tunnel construction works, all machinery, labour and/or material rates concerning tunnel construction should be determined from international price data of the relevant year and verified with actual Indian highway tunnel projects with similar layout and boundary conditions (such as Pahtnitop Tunnel and Rohtang Tunnel).
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.*

Volume - VIII, Bill of Quantities: *This volume shall contain the package-wise detailed Bill of Quantities for all items of works.*

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:*

- *General*

  (i) Area Map (1:200000/ 1:75000)

  (ii) General Layout Tunnel – Plan view (1:10000)

  (iii) General layout Tunnel- Longitudinal Section (1:10000)

  (iv) Geotechnical Longitudinal Section of Tunnel with Ground condition and support (1:10000)

  (v) Tunnel System and Installations – (N.T.S)

  (vi) General Construction Sequence – (N.T.S)

- *Geometry*

  (i) Typical cross Section of Tunnel, Clearance profile and installations, Jet Fan Cabinet, clearance profile and installations , Inner Lining - (1:50)

- *Hydraulic System*

  (i) General Schematic layout, plan view (N.T.S.)

- *Excavation*

  Excavation and primary support of tunnel and ventilation shafts in all support categories- 1:100

- *Ventilation shafts*

  Typical cross section- 1:50, 1:1000

  Main & Subsidiary measuring sections- 1:100

- *E&M*

  (i) Elementary diagram of safety installations- 1:10000

  (ii) Typical cross section installations: 1:100

  (iii) Power supply scheme: N.T.S

  (iv) Schematic Layout of technical equipment in front and in the inner area of the tunnel - N.T.S

  (v) Schematic layout of main tunnel lighting - N.T.S

  (vi) Schematic diagram of video surveillance system- N.T.S

  (vii) Schematic diagram of Fire alarm and detection system- N.T.S

  (viii) Schematic diagram of Integrated tunnel control system- N.T.S

  (xi) Operators workplaces main control center - N.T.S

Road Portion

- *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

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

1. The Final DPR consisting of Main Report, Tunnel 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.

10.4.5 STAGE: 5

10.4.5.1 Technical Schedules

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

10.4.6 STAGE: 6

10.4.6.1 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 carryout 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 National Highways and Infrastructure Development Corporation Ltd 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 this Head Quarter (2 copies) and also at Project Monitoring Unit (1 Copy) so that progress could be monitored by The National Highways and Infrastructure Development Corporation Ltd. 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 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:

Roads: *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.*

Tunnels :*General Geology, Structural data, Engineering Geology, description of Ground pattern, salinity and coefficient of permeability.*

Topographical Survey and mapping, Structural Stereographical maps Isopak maps,

preparation of cross section, Rock Mass property, Rock stresses, Ground water conditions, Geothermal Ground gradient, Inflammable gases,

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 CD's containing any general software including the financial model which has been specifically developed for the project.

   The CD's should be properly indexed and a catalogue giving contents of all 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.
3. 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.

Enclosure-I

MANNING SCHEDULE

Package No. Ladakh/Tunnels-2021/DPR-01/02/03

SI. No	Key Personnel	Total Man Months		
		Khardungla La (06 Months)	Namik La (06 Months)	Fotu La (06 Months)
1	Team Leader Cum Senior Tunnel Expert	6	6	6
2	Tunnel Design Expert	6	6	6
3	Senior Geotechnical Expert	6	6	6
4	Senior Ventilation & Fire Safety Expert	3	3	3
5	Senior E& M Engineer	3	3	3
6	Senior Geologist	6	6	6
7	Senior Surveyor Engineer (1 Nos.)	6	6	6
8	Environmental Engineer	2	2	2
9	Material Engineer	6	6	6
10	Highway cum Pavement Engineer	3	3	3
11	Quantity Surveyor/Documentation Officer	3	3	3
	Total	**50**	**50**	**50**

Enclosure-II

Qualification and Experience Requirement of Key Personnel

Team Leader cum Senior Tunnel Expert

I	**Educational Qualification**	
	Essential	Graduate in Civil Engineering/Tunnel Engineering/Mining Engineering
	Desirable	Post Graduate in Civil Engineering/Tunnel Engineering/Mining Engineering
II	**Essential Experience**	
a)	Total Professional Experience	Min. 20 years
b)	Experience in Tunnel projects	(i) Professional experience in handling major tunnel projects (Road/Rail/Metro)
		(ii) Experience in major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(iii) Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)
		(iv) Experience in DPR preparation of minimum 5 km Tunnel length
		(v) Experience in construction/construction supervision/ preparation of DPR/feasibility report of major tunnel projects (Road/Rail/metro) using NATM
c)	Experience in similar capacity	(i) Experience as Team Leader or similar capacity in major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(ii) Experience as Team Leader or similar capacity in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)
III	**Age Limit**	65 years on the date of submission of proposal

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Tunnel Design Expert

	Educational Qualification	
	Essential	Degree in Civil/ Mining Engineering
	Desirable	Post Graduation in Design/ Structural Engineering or equivalent.
II	**Essential Experience**	
	a)Total Professional Experience	Min. 15 years
	b) Experience in Tunnel projects	(i) Professional Experience in handling major tunnel projects (Road/Rail/Metro)
		(ii) Experience of major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(iii) Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)
	c) Experience in similar capacity	(i) Professional Experience as Tunnel Design Engineer (Structural)
		(ii) Experience as Tunnel Design Engineer (Structural) of major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(iii) Experience as Tunnel Design Engineer (Structural) of major tunnel for preparation of DPR projects (Road/Rail/Metro)
		(iv)Experience as Tunnel Design Engineer (Structural) in preparation of DPR/ Feasibility report of major tunnel projects (Road/Rail/Metro) using NATM
III	**Age Limit**	65 years on the date of submission of Proposal

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Senior Geotechnical Expert

I	**Educational Qualification**	
	Essential	Civil Engineering/Mining Engineering / Engineering Geology
	Desirable	Geotechnical Engineering /Foundation Engineering/Rock Mechanics/Geo science or equivalent
II	**Essential Experience**	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Tunnel Projects	(i) Professional experience in handling major tunnel projects (Road/Rail/Metro)
		(ii) Experience in major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(iii)Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)
	c) Experience in similar capacity	(i) Professional Experience as Senior Geotechnical Engineer
		(ii) Experience as Senior Geotechnical Engineer or similar capacity in major tunnel construction/construction supervision projects (Road/Rail/Metro)
		(iii) Experience as Senior Geotechnical Engineer or similar capacity in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)
		(iv) Experience as Senior Geotechnical Engineer or similar capacity in preparation of DPR/ Feasibility report of major tunnel projects (Road/Rail/Metro) using NATM
III	**Age Limit**	65 years on the date of submission of proposal

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Senior Ventilation and Fire Safety Expert

I	**Educational Qualification**	
	Essential	Graduate in Electrical/Mechanical/Ventilation Engineering or equivalent
	Desirable	Post Graduation in Ventilation/Fire Safety or equivalent
II	**Essential Experience**	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Relevant works	(i) Professional Experience in Ventilation &/or Fire and Life Safety
		(ii) Experience in Design of Ventilation for tunnelling projects on major Tunnels in preparation of DPR
		(iii) Experience in Fire & Life Safety Design for tunnelling projects on major Tunnels in preparation of DPR
		(iv) Experience in Fire & Life Safety Design for tunnelling projects having design HRR of 200 MW or more on major Tunnel
III	**Age Limit**	65 years on the date of submission of proposal

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Senior Geologist

i)	**Educational Qualification**	
	Essential	Post Graduate Degree in Geology/Related field.
	Desirable	Phd in Geology/Related fields.
ii)	**Essential Experience**	
	a)Total Professional Experience	Min. 15 years
	b) Experience in Tunnel projects	He should have a minimum 10 years of professional experience and should have involved in project preparation/ DPR/ Tunnel Design for atleast two major Tunnel projects.
	c) Experience in similar capacity	He should have experience in similar capacity per five years on Design/ Construction/ Supervision of Tunnel Projects. The minimum cost of the project handled in the similar capacity should be 2500 Millions
iii)	**Age Limit**	**65 years on the date of submission of Proposal**

Enclosure-II(contd.)

Qualification and Experience Requirement of Key Personnel

Senior E&M Engineer

i)	**Educational Qualification**	
	Essential	Degree in Electrical/Mechanical Engineering.
	Desirable	**Post Graduation in Degree in Electrical/Mech Engineering.**
ii)	**Essential Experience**	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Tunnel projects	10 years in Tunnel Projects and should have worked for atleast five years as an E&M Engineer for Tunnel Design/ Construction projects.
	c) Experience in similar capacity	He should have handled atleast two tunnelling projects in similar capacity.
iii)	**Age Limit**	**65 years on the date of submission of Proposal**

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Senior Survey Engineer

i)	**Educational Qualification**	
	Essential	Degree or equivalent in Civil Engineering /Diploma in Surveying
	Desirable	Post Graduation in Survey Engineering/Surveying /Remote Sensing
ii)	**Essential Experience**	
	a) Total Professional Experience	**Min. 15 years**
	b) Experience in Tunnel Projects	Min. 5 years on similar projects in project preparation and construction & thorough understanding of modern computer based methods of surveying
	c) Experience in similar capacity	**Senior Survey Engineer for projects preparation of highway project (NH/SH/Expressways) involving 2/4/6 laning of minimum aggregate length of 80 km.**
iii)	**Age Limit**	**65 years on the date of submission of Proposal**

Enclosure-II(contd.)

Qualification and Experience Requirement of Key Personnel

Environmental Engineer

i)	**Educational Qualification**	
	Essential	Graduate in Civil Engineering/Environmental Engineering /Masters in Environmental Sciences.
	Desirable	**Post Graduate in Environmental Engineering.**
ii)	**Essential Experience**	
	a) Total Professional Experience	Min. 10 years
	b) Experience in Tunnel projects	Minimum. 5 years in environment impact assessment of highway projects (2/4/6 laning)
	c) Experience in similar capacity	Environmental Specialist in at least two highway projects(2/4/6 laning).
iii)	**Age Limit**	**65 years on the date of submission of Proposal**

Enclosure-II(contd.)

Qualification and Experience Requirement of Key Personnel

Highway cum Pavement Engineer

i)	**Educational Qualification**	
	Essential	Degree in Civil Engineering or Equivalent
	Desirable	**Post Graduation in Highway Engg/ Transportation Engineering.**
ii)	**Essential Experience**	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Tunnel projects	Minimum 10 years experience in pavement design and maintenance of highways
	c) Experience in similar capacity	Pavement design for major highway projects (2/4/6 lane NH/SH/ Expressways) of minimum aggregate length of 80 km
iii)	**Age Limit**	**65 years on the date of submission of Proposal**

Enclosure-II (contd.)

Qualification and Experience Requirement of Key Personnel

Quantity Surveyor/Documentation Officer

i)	**Educational Qualification**	
	Essential	Graduate or equivalent in Civil Engineering / Certificate course from 'Institution of Quantity Surveying'
	Desirable	Post Graduation or Equivalent in Civil Engineering
ii)	**Essential Experience**	
	a) Total Professional Experience	**Min. 15 years**
	b) Experience in Highway Projects	Min. 5 years in Preparation of Bill of Quantities, Contract documents and documentation for major highway projects involving two/ four laning. Experience in Tunnel projects shall be preferred.
	c) Experience in similar capacity	Quantity Surveyor / Documentation Officer in Tunnel projects
iii)	**Age Limit**	**65 years on the date of submission of proposal**

Qualification and Experience Requirement of Key Personnel

Material Engineer

i)	**Educational Qualification**	
	Essential	Graduate in Civil Engineering/Material Science and Engineering or equivalent
	Desirable	Post graduation in Material Science and Engineering or equivalent
ii)	**Essential Experience**	
	a) Total Professional Experience	**Min. 15 years**
	b) Experience in Highway Projects	Minimum 8 years on Tunnel projects in design and /or construction. Experience on Tunnel projects shall be preferred.
	c) Experience in similar capacity	Material Engineer on highway projects (2/4/6 lane NH/SH/Expressway) of minimum aggregate length of 80 km.
iii)	**Age Limit**	**65 years on the date of submission of proposal**

Enclosure-III

Schedule for submission of Reports and Documents

Stage No.	Activity	No. of copies/Sets	Time Period in days from date of commencement		
			Khardungla La (I)	Namik La (II)	Fotu La (III)
1	**Monthly Reports**	3	by 10th day of every month		
2	**Inception Report**				
	(i) Draft Inception Report including QAP document	2	15	15	15
	(ii) Final Inception Report including QAP document	3	30	30	30
3	**F.S. REPORT**				
	i) Draft Feasibility Study Report including option study report	2	55	55	55
	ii) Comments of client	1	60	60	60
	iii) Final Feasibility Study Report incorporating compliance of comments of Client.	4	80	80	80
4	**LA & Clearances I Report**				
	i) Draft LA & Clearances I Report	2	100	100	100
	ii) Comments of client	1	105	105	105
	iii) Final Geotechnical Factual report	2	105	105	105
	iv) Final Geotechnical Interpretative Report	2	105	105	105
	v) High Resolution Satellite Imagery	2	105	105	105
	(vi) Final LA & Clearances	2			
	I Report incorporating	4	120	120	120
	compliance of comments of Client				
	Detailed Project Report				
5	i) Draft DPR	2	145	145	145

Stage No.	Activity	No. of copies/Sets	Time Period in days from date of commencement		
			Khardungla La (I)	Namik La (II)	Fotu La (III)
	ii) Comments of client	1	150	150	150
	iii) Final DPR incorporating compliance of comments of Client	6	170	170	170
6	**Technical Schedules**				
	i) Draft Technical Schedules	2	135	135	135
	ii) Comments of client	1	150	150	150
	iii) Final Technical schedule	3	165	165	165
7	**LA & Clearances II Report**	6			
	Approval of Project clearances from concerned agencies e.g. from MOEF; Irrigation Dept., Land Acquisitions: 3(a),3(A), 3(D) Notifications or equivalent	Original letters from the concerned agencies and 5 photocopies of each.3 copies each	180	180	180

*Note: In addition to Hard Copy the Consultant is required to submit the soft copy of the reports to the HQ & PMU

APPENDIX-II

Form-E1

Proof of Eligibilty

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) having 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 (hard copies as well as Infracon portal including Team ID no) and in the Appendices are true and correct and all documents accompanying such Proposal 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 Joint Venture, are/is not a Member of any other Joint Venture 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. 2,00,000/- (Rupees Two Lakh only) in the form of a 'Demand Draft/ Receipt of the online payment' 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/JV being selected as the Consultant, I/we agree to enter into any Agreement in accordance with the form Appendix VI 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 online also through Infracon and CPP portal where applicable. 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)

Appendix III

(Form-T1)

TECHNICAL PROPOSAL

FROM: TO:

_____ _____

_____ _____

Sir:

Subject: Consultancy Service for …… in the Union Territory of Ladakh.
- Regarding Technical Proposal

I/We _____ (name of Bidder) Consultant/ Consultancy firm herewith enclose Technical Proposal for selection of my /our firm/organization as Consultant for _____ .

The detail of our submission through the INFRACON Portal of NHIDCL are available under the following IDs:

1. Our Firm email ID _____
2. Our Unique Team ID _____
3. Our proposed Key Personnel email ID alongwith designation
   1.
   2.
   3.

This is to confirm that the information submitted in INFRACON is true and correct to the best of my knowledge and I would be personally responsible for any mis-representation in this regard.

Yours faithfully,

Signature
Full Name
Designation
Address

(Authorized Representative)

Appendix III

Form-T2

(Deleted)

Appendix III

Form- T3

(Deleted)

Appendix III

Form- T4

(Deleted)

Appendix III

Form- T5

COMMENTS/ SUGGESTIONS OF CONSULTANT ON THE TERMS OF REFERENCE

1.

2.

3.

4.

5.

….

….

Appendix III

Form- T6

(Deleted)

Appendix III

Form- T7

APPROACH PAPER ON METHODOLOGY PROPOSED FOR PERFORMING THE ASSIGNMENT

The approach and methodology will be detailed precisely under the following topics.

1)	Composition of the team	[not more than 2 page]
2)	Methodology for services, surveying, data collection and analysis	[not more than 10 pages]
3)	Quality Assurance system for consultancy assignment	[not more than 5 page]

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Appendix III

Form- T8

Details of Material Testing Facility
(Detail are to be uploaded on the INFRACON portal along with the certificates)

1 . State whether the Applicant has in-house Material Testing Facility Available / Outsourced / Not Available

2. In case answer to 1 is Available, attach a list of Lab equipment and facility for testing of materials and location of laboratory

3. In case laboratory is located at a distance of more than 400 km from the project site, state arrangements made/proposed to be made for testing of materials

4. In case answer to 1 is Outsourced/ Not Available state arrangements made/proposed to be made for testing of materials

Appendix III

Form- T9

Facility for Field investigation and Testing

1. State whether the Applicant has in-house Facility for

a) **Deleted**

b) Geo-technical investigation Available/ Outsourced/ Not Available

2. In case answer to 1 is Available a list of field investigation and testing equipments available in-house.

3. In case answer to 1 is Outsourced/ Not Available arrangements made/proposed to be made for each of above Field investigation and testing.

Appendix III

Form- T10

Office Equipment and Software

Attach a list of office equipment and software for Tunnelling owned by the Applicant

Appendix III

Form- T11

(Curriculum Vitae for Key Personnel and Undertakings)

1) CVs of the Key Personnel should be uploaded on INFRACON.

2) Undertakings.

UNDERTAKING FROM THE PROFESSIONAL

Name of Work:

Position in the Team:

I, ……. (Name and INFRACON registered ID) have not left any assignment with the consultants/ contractors engaged by Client viz. MoRT&H /NHAI/NHIDCL/ IAHE/BRO/ State PWD or any other MoRTH implementing agency without completing my assignment. I will be available for the entire duration of the current project for which I am being included in the team. If I leave this assignment in the middle of the completion of the work, I may be debarred for an appropriate period to be decided by Client. I shall also have no objection if my services are extended by Client for this work in future.

I, the undersigned, also certify that to the best of my knowledge and belief, my biodata, information and credentials uploaded on INFRACON portal truly describe myself, my qualification and my experience. I shall be liable for any action, as deemed fit, in case there is any mis-representation in this regard.

Date:
Place:

Signature
(Name of Key Personnel)

UNDERTAKING FROM CONSULTING FIRM

Name of Work:

The undersigned on behalf of ……..(Name of Consulting Firm) with …….(INFRACON ID) certify that none of the Key Personnel included in our team to the best of our knowledge has left his/her assignment with any consulting/ contracting firm engaged by MoRT&H /NHAI/NHIDCL/ IAHE/BRO/ State PWD or any other MoRTH implementing agency. We also confirm the truthfulness of the credentials uploaded by our firm/JV Member/Associate and all the Key Personnel proposed in our team on INFRACON.

We understand that if any information about our firm/JV Member/Associate / Key Personnel is found contrary to what has been uploaded on INFRACON, the Client would be at liberty to remove the concerned personnel from the present assignment and debar our firm/JV Member/Associate / Key Personnel for an appropriate period to be decided by the Client.

Date:
Place:

Signature

(Name of Authorized Signatory)

Appendix IV

(Form-I)

FINANCIAL PROPOSALS

FROM: TO:

_____ _____
_____ _____
_____ _____

Sir:

Subject: Consultancy Services for……..in the state of Jammu & Kashmir.
- Financial proposal

I/We ……. Consultant/consultancy firm herewith confirm that the duly filled financial proposal has been uploaded in the CPP Portal for the subject work.

Yours faithfully,

Signature_____

Full Name_____

Designation_____

Address_____

(Authorized Representative)

(Form-II)

Format of Financial Proposal
Summary of Cost in Local Currency

Sl No	Package	Name of the Participant/bidder for respective packages
BoQ1	**I (**Khardungla La**)**	
BoQ 2	**II (**Namik La**)**	
BoQ 3	**III (**Fotu La**)**	

(Form-III)

Note:

Package I: BoQ1 (Khardungla La)

Package II: BoQ2 (Namik La)

Package III: BoQ3 (Fotu La)

If any bidder is interested to apply for any particular package only, they should fill the respective BoQ accordingly, however, they are still required to fill the editable cells in other BoQs in which they are not interested to bid with 0 (zero) value and BoQ with zero values will not be considered for evaluation.

Package I - Estimate of Costs for Khardungla La Tunnel

Validate	Print	Help	Item Rate BoQ			
Tender Inviting Authority: MD, NHIDCL						
Name of the Project: Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla La Pass in the Union Territory of Ladakh.						
Contract No: Ladakh/Tunnels-2020/DPR-01						
Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE **(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)**						
NUMBER #	**TEXT #**	**NUMBER #**	**TEXT #**	**NUMBER #**	**NUMBER #**	**TEXT #**
Sl. No.	**Item Description**	**Quantity**	**Units**	**BASIC RATE (excluding GST) In Figures To be entered by the Bidder in Rs.**	**TOTAL AMOUNT (excluding GST) in Figures Rs.**	**TOTAL AMOUNT (excluding GST) In Words Rs.**
1	**2**	**4**	**5**	**13**	**53**	**55**
1	**Schedule A (Fixed Lumpsum Cost)**					
1.01	**Remuneration for Local/ Expatriate Staff (including per diem allowance)**					
1.02	**A. KEY PROFESSIONALS**					
1.03	Team Leader Cum Senior Tunnel Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only
1.04	Tunnel Design Expert (1 no)	6.000	Month		**0.00**	INR Zero Only
1.05	Senior Geotechnical Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only

1.06	Senior Ventilation & Fire Safety Expert (1 no)	3.000	Month		**0.00**	INR Zero Only
1.07	**B. OTHER PROFESSIONALS**					
1.08	Senior E& M Engineer	3.000	Month		**0.00**	INR Zero Only
1.09	Senior Geologist	6.000	Month		**0.00**	INR Zero Only
1.10	Senior Surveyor Engineer (1 Nos.)	6.000	Month		**0.00**	INR Zero Only
1.11	Environmental Engineer	2.000	Month		**0.00**	INR Zero Only
1.12	Material Engineer	6.000	Month		**0.00**	INR Zero Only
1.13	Highway cum Pavement Engineer	3.000	Month		**0.00**	INR Zero Only
1.14	Quantity Surveyor/Documentation Officer	3.000	Month		**0.00**	INR Zero Only
1.15	**Sub-Professional Staff: (To be assessed by Consultant as per requirement of assignment, Minimum 6 to be deployed)**					
1.16	TBN	1.000	Nos		**0.00**	INR Zero Only
1.17	TBN	1.000	Nos		**0.00**	INR Zero Only
1.18	**Support Staff (Fixed Rates)**					
1.19	Office Manager (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.20	Typist (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.21	Office Boy (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.22	Night Watchman (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.23	**Transportation (Fixed costs)**					
1.24	The vehicles hired by the Consultants shall include the cost for rental, drivers, operation, maintenance, repairs, insurance, etc. for use of consultants (3 Vehicle for 6 month each)	18.000	Months		**0.00**	INR Zero Only
1.25	**Duty Travel to Site (Fixed Costs)**					
1.26	All Trips	1.000	LS		**0.00**	INR Zero Only
1.27	**Office Rent (Fixed Costs)**					
1.28	The rent cost includes operation & maintenance, cleaning, repairs, etc for entire duration of services.	6.000	Months		**0.00**	INR Zero Only
1.29	**Office Supplies, Utilities and Communication (Fixed Costs)**					
1.30	Office Supplies,Drafting Supplies,Computer Running Costs,Domestic and International Communication	6.000	Months		**0.00**	INR Zero Only
1.31	**Office Furniture and Equipment (Fixed costs)**					
1.32	Office Furniture and Equipment	1.000	LS		**0.00**	INR Zero Only
1.33	**Reports and Document (For all three Tunnel DPRs)**					
1.34	Monthly Report (03 sets)	18.000	Nos		**0.00**	INR Zero Only

1.35	Inception Report & QAP	3.000	Nos		**0.00**	INR Zero Only
1.36	Environment and Social Impact Screening Report	4.000	Nos		**0.00**	INR Zero Only
1.37	Draft Feasibility Report	4.000	Nos		**0.00**	INR Zero Only
1.38	Final Feasibility Report	6.000	Nos		**0.00**	INR Zero Only
1.39	Strip Plan with L.A. Reports	6.000	Nos		**0.00**	INR Zero Only
1.40	Draft LA and Clearances I Report	4.000	Nos		**0.00**	INR Zero Only
1.41	Final LA and Clearances I Report	4.000	Nos		**0.00**	INR Zero Only
1.42	Draft Environmental Assessment report & RAP	4.000	Nos		**0.00**	INR Zero Only
1.43	Final Environmental Assessment report & RAP	6.000	Nos		**0.00**	INR Zero Only
1.44	Draft Detailed Design Report & Drawings etc.	4.000	Nos		**0.00**	INR Zero Only
1.45	Draft EMP	4.000	Nos		**0.00**	INR Zero Only
1.46	Draft Bidding Documents	4.000	Nos		**0.00**	INR Zero Only
1.47	Final Detailed Project Report with Bill of Quantities, Cost Estimates, Updated Drawings etc.	6.000	Nos		**0.00**	INR Zero Only
1.48	Final EMP	6.000	Nos		**0.00**	INR Zero Only
1.49	Final Bidding Documents	6.000	Nos		**0.00**	INR Zero Only
1.50	Draft 3(a) ,3(A) and 3(D) notification for land acquisition(3 copies each)	9.000	Nos		**0.00**	INR Zero Only
1.51	LA & Clearances II Report	6.000	Nos		**0.00**	INR Zero Only
1.52	**Survey and Investigation**					
1.53	**A. Topographical Survey (Fixed Rate)**					
1.54	Complete Topographic Survey using mobile/ aerial LiDAR or equivalent technology for project approach area including hire charges for equipment and supply of survey teams comprising of project survey filed staff etc. inclusive of cost of materials, labourer, preparation of Drawings and their submission as per contract provision.	1.000	LS		**0.00**	INR Zero Only
1.55	**B. Investigation (Fixed cost)**					
1.56	All investigations/surveys including Material Survey and Investigation, Sub-grade Investigation, Traffic Survey, Socio-economic & Census Survey / Studies.	1.000	LS		**0.00**	INR Zero Only
1.57	**Schedule B (Item rate costs)**					
1.58	**Sub-soil Investigation & Other Works**					
1.59	Sub-Soil Investigation for Khardungla La Tunnel, Boring					
1.60	a) Boring in all type of soils (other than hard rock)	2000.000	Meter		**0.00**	INR Zero Only

1.61	b) Boring in hard rock	500.000	Meter		**0.00**	INR Zero Only
1.62	Resistivity based Geo-physical Investigation at portal locations of Tunnel	1.000	LS		**0.00**	INR Zero Only
1.63	**Cost of supply and fixing Boundary Pillars**					
1.64	Procuring and fixing boundary pillars and its installation, complete in all respect as per IRC:25,1967: Consultant shall fix boundary pillars along the proposed alignment on the extreme boundary on either side of the project Highway at 50 m interval.	1.000	LS		**0.00**	INR Zero Only
1.65	**Land Acquisition Team including support staff and logistics/transportation**					
1.66	A. Land acquisition Team including support staff					
1.67	Ex-Land Revenue Inspector/Officer or equivalent	3.000	Months		**0.00**	INR Zero Only
1.68	Ex-Kanoogo/ Girdwar orequivalent	3.000	Months		**0.00**	INR Zero Only
1.69	Ex-Patwari or equivalent	3.000	Months		**0.00**	INR Zero Only
1.70	Typist	3.000	Months		**0.00**	INR Zero Only
1.71	Peon	3.000	Months		**0.00**	INR Zero Only
1.72	**A. Logistics for Land acquisition Team**					
1.73	Computer including necessary peripherals	6.000	Months		**0.00**	INR Zero Only
1.74	Printers	6.000	Months		**0.00**	INR Zero Only
1.75	Vehicles (Bolero or equivalent) with monthly running limit of 4000 km	6.000	Months		**0.00**	INR Zero Only
Total in Figures					**0.00**	INR Zero Only
Quoted Rate in Words		**INR Zero Only**				

** Total Cost excluding GST 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.

Package II - Estimate of Costs for Namik La Tunnel

Validate	Print	Help	Item Rate BoQ			
Tender Inviting Authority: MD, NHIDCL						
Name of the Project: Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Namik La Pass in the Union Territory of Ladakh.						
Contract No: Ladakh/Tunnels-2020/DPR-02						
Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE **(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)**						
NUMBER #	**TEXT #**	**NUMBER #**	**TEXT #**	**NUMBER #**	**NUMBER #**	**TEXT #**
Sl. No.	**Item Description**	**Quantity**	**Units**	**BASIC RATE (excluding GST) In Figures To be entered by the Bidder in Rs.**	**TOTAL AMOUNT (excluding GST) in Figures Rs.**	**TOTAL AMOUNT (excluding GST) In Words Rs.**
1	**2**	**4**	**5**	**13**	**53**	**55**
1	**Schedule A (Fixed Lumpsum Cost)**					
1.01	**Remuneration for Local/ Expatriate Staff (including per diem allowance)**					
1.02	**A. KEY PROFESSIONALS**					
1.03	Team Leader Cum Senior Tunnel Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only
1.04	Tunnel Design Expert (1 no)	6.000	Month		**0.00**	INR Zero Only
1.05	Senior Geotechnical Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only
1.06	Senior Ventilation & Fire Safety Expert (1 no)	3.000	Month		**0.00**	INR Zero Only
1.07	**B. OTHER PROFESSIONALS**					
1.08	Senior E& M Engineer	3.000	Month		**0.00**	INR Zero Only
1.09	Senior Geologist	6.000	Month		**0.00**	INR Zero Only
1.10	Senior Surveyor Engineer (1 Nos.)	6.000	Month		**0.00**	INR Zero Only
1.11	Environmental Engineer	2.000	Month		**0.00**	INR Zero Only
1.12	Material Engineer	6.000	Month		**0.00**	INR Zero

						Only
1.13	Highway cum Pavement Engineer	3.000	Month		**0.00**	INR Zero Only
1.14	Quantity Surveyor/Documentation Officer	3.000	Month		**0.00**	INR Zero Only
1.15	**Sub-Professional Staff: (To be assessed by Consultant as per requirement of assignment, Minimum 6 to be deployed)**					
1.16	TBN	1.000	Nos		**0.00**	INR Zero Only
1.17	TBN	1.000	Nos		**0.00**	INR Zero Only
1.18	**Support Staff (Fixed Rates)**					
1.19	Office Manager (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.20	Typist (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.21	Office Boy (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.22	Night Watchman (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.23	**Transportation (Fixed costs)**					
1.24	The vehicles hired by the Consultants shall include the cost for rental, drivers, operation, maintenance, repairs, insurance, etc. for use of consultants (3 Vehicle for 6 month each)	18.000	Months		**0.00**	INR Zero Only
1.25	**Duty Travel to Site (Fixed Costs)**					
1.26	All Trips	1.000	LS		**0.00**	INR Zero Only
1.27	**Office Rent (Fixed Costs)**					
1.28	The rent cost includes operation & maintenance, cleaning, repairs, etc for entire duration of services.	6.000	Months		**0.00**	INR Zero Only
1.29	**Office Supplies, Utilities and Communication (Fixed Costs)**					
1.30	Office Supplies,Drafting Supplies,Computer Running Costs,Domestic and International Communication	6.000	Months		**0.00**	INR Zero Only
1.31	**Office Furniture and Equipment (Fixed costs)**					
1.32	Office Furniture and Equipment	1.000	LS		**0.00**	INR Zero Only
1.33	**Reports and Document (For all three Tunnel DPRs)**					
1.34	Monthly Report (03 sets)	18.000	Nos		**0.00**	INR Zero Only
1.35	Inception Report & QAP	3.000	Nos		**0.00**	INR Zero Only
1.36	Environment and Social Impact Screening Report	4.000	Nos		**0.00**	INR Zero Only

1.37	Draft Feasibility Report	4.000	Nos		**0.00**	INR Zero Only
1.38	Final Feasibility Report	6.000	Nos		**0.00**	INR Zero Only
1.39	Strip Plan with L.A. Reports	6.000	Nos		**0.00**	INR Zero Only
1.40	Draft LA and Clearances I Report	4.000	Nos		**0.00**	INR Zero Only
1.41	Final LA and Clearances I Report	4.000	Nos		**0.00**	INR Zero Only
1.42	Draft Environmental Assessment report & RAP	4.000	Nos		**0.00**	INR Zero Only
1.43	Final Environmental Assessment report & RAP	6.000	Nos		**0.00**	INR Zero Only
1.44	Draft Detailed Design Report & Drawings etc.	4.000	Nos		**0.00**	INR Zero Only
1.45	Draft EMP	4.000	Nos		**0.00**	INR Zero Only
1.46	Draft Bidding Documents	4.000	Nos		**0.00**	INR Zero Only
1.47	Final Detailed Project Report with Bill of Quantities, Cost Estimates, Updated Drawings etc.	6.000	Nos		**0.00**	INR Zero Only
1.48	Final EMP	6.000	Nos		**0.00**	INR Zero Only
1.49	Final Bidding Documents	6.000	Nos		**0.00**	INR Zero Only
1.50	Draft 3(a) ,3(A) and 3(D) notification for land acquisition(3 copies each)	9.000	Nos		**0.00**	INR Zero Only
1.51	LA & Clearances II Report	6.000	Nos		**0.00**	INR Zero Only
1.52	**Survey and Investigation**					
1.53	**A. Topographical Survey (Fixed Rate)**					
1.54	Complete Topographic Survey using mobile/ aerial LiDAR or equivalent technology for project approach area including hire charges for equipment and supply of survey teams comprising of project survey filed staff etc. inclusive of cost of materials, labourer, preparation of Drawings and their submission as per contract provision.	1.000	LS		**0.00**	INR Zero Only
1.55	**B. Investigation (Fixed cost)**					
1.56	All investigations/surveys including Material Survey and Investigation, Sub-grade Investigation, Traffic Survey, Socio-economic & Census Survey / Studies.	1.000	LS		**0.00**	INR Zero Only
1.57	**Schedule B (Item rate costs)**					

1.58	**Sub-soil Investigation & Other Works**					
1.59	Sub-Soil Investigation for Khardungla La Tunnel, Boring					
1.60	a) Boring in all type of soils (other than hard rock)	2000.000	Meter		**0.00**	INR Zero Only
1.61	b) Boring in hard rock	500.000	Meter		**0.00**	INR Zero Only
1.62	Resistivity based Geo-physical Investigation at portal locations of Tunnel	1.000	LS		**0.00**	INR Zero Only
1.63	**Cost of supply and fixing Boundary Pillars**					
1.64	Procuring and fixing boundary pillars and its installation, complete in all respect as per IRC:25,1967: Consultant shall fix boundary pillars along the proposed alignment on the extreme boundary on either side of the project Highway at 50 m interval.	1.000	LS		**0.00**	INR Zero Only
1.65	**Land Acquisition Team including support staff and logistics/transportation**					
1.66	A. Land acquisition Team including support staff					
1.67	Ex-Land Revenue Inspector/Officer or equivalent	3.000	Months		**0.00**	INR Zero Only
1.68	Ex-Kanoogo/ Girdwar orequivalent	3.000	Months		**0.00**	INR Zero Only
1.69	Ex-Patwari or equivalent	3.000	Months		**0.00**	INR Zero Only
1.70	Typist	3.000	Months		**0.00**	INR Zero Only
1.71	Peon	3.000	Months		**0.00**	INR Zero Only
1.72	**A. Logistics for Land acquisition Team**					
1.73	Computer including necessary peripherals	6.000	Months		**0.00**	INR Zero Only
1.74	Printers	6.000	Months		**0.00**	INR Zero Only
1.75	Vehicles (Bolero or equivalent) with monthly running limit of 4000 km	6.000	Months		**0.00**	INR Zero Only
Total in Figures					**0.00**	INR Zero Only
Quoted Rate in Words		**INR Zero Only**				

** Total Cost excluding GST 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.

Package III - Estimate of Costs for Fotu La Tunnel

Validate Print Help **Item Rate BoQ**						
Tender Inviting Authority: MD, NHIDCL						
Name of the Project: Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Fotu La Pass in the Union Territory of Ladakh.						
Contract No: Ladakh/Tunnels-2020/DPR-03						
Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE **(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)**						
NUMBER #	**TEXT #**	**NUMBER #**	**TEXT #**	**NUMBER #**	**NUMBER #**	**TEXT #**
Sl. No.	**Item Description**	**Quantity**	**Units**	**BASIC RATE (excluding GST) In Figures To be entered by the Bidder in Rs.**	**TOTAL AMOUNT (excluding GST) in Figures Rs.**	**TOTAL AMOUNT (excluding GST) In Words Rs.**
1	**2**	**4**	**5**	**13**	**53**	**55**
1	**Schedule A (Fixed Lumpsum Cost)**					
1.01	**Remuneration for Local/ Expatriate Staff (including per diem allowance)**					
1.02	**A. KEY PROFESSIONALS**					
1.03	Team Leader Cum Senior Tunnel Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only
1.04	Tunnel Design Expert (1 no)	6.000	Month		**0.00**	INR Zero Only
1.05	Senior Geotechnical Engineer (1 no)	6.000	Month		**0.00**	INR Zero Only
1.06	Senior Ventilation & Fire Safety Expert (1 no)	3.000	Month		**0.00**	INR Zero Only
1.07	**B. OTHER PROFESSIONALS**					
1.08	Senior E& M Engineer	3.000	Month		**0.00**	INR Zero Only
1.09	Senior Geologist	6.000	Month		**0.00**	INR Zero

						Only
1.10	Senior Surveyor Engineer (1 Nos.)	6.000	Month		**0.00**	INR Zero Only
1.11	Environmental Engineer	2.000	Month		**0.00**	INR Zero Only
1.12	Material Engineer	6.000	Month		**0.00**	INR Zero Only
1.13	Highway cum Pavement Engineer	3.000	Month		**0.00**	INR Zero Only
1.14	Quantity Surveyor/Documentation Officer	3.000	Month		**0.00**	INR Zero Only
1.15	**Sub-Professional Staff: (To be assessed by Consultant as per requirement of assignment, Minimum 6 to be deployed)**					
1.16	TBN	1.000	Nos		**0.00**	INR Zero Only
1.17	TBN	1.000	Nos		**0.00**	INR Zero Only
1.18	**Support Staff (Fixed Rates)**					
1.19	Office Manager (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.20	Typist (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.21	Office Boy (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.22	Night Watchman (1 Nos.)	6.000	Months		**0.00**	INR Zero Only
1.23	**Transportation (Fixed costs)**					
1.24	The vehicles hired by the Consultants shall include the cost for rental, drivers, operation, maintenance, repairs, insurance, etc. for use of consultants (3 Vehicle for 6 month each)	18.000	Months		**0.00**	INR Zero Only
1.25	**Duty Travel to Site (Fixed Costs)**					
1.26	All Trips	1.000	LS		**0.00**	INR Zero Only
1.27	**Office Rent (Fixed Costs)**					
1.28	The rent cost includes operation & maintenance, cleaning, repairs, etc for entire	6.000	Months		**0.00**	INR Zero Only

	duration of services.					
1.29	**Office Supplies, Utilities and Communication (Fixed Costs)**					
1.30	Office Supplies,Drafting Supplies,Computer Running Costs,Domestic and International Communication	6.000	Nos		**0.00**	INR Zero Only
1.31	**Office Furniture and Equipment (Fixed costs)**					
1.32	Office Furniture and Equipment	1.000	LS		**0.00**	INR Zero Only
1.33	**Reports and Document (For all three Tunnel DPRs)**					
1.34	Monthly Report (03 sets)	18.000	Nos		**0.00**	INR Zero Only
1.35	Inception Report & QAP	3.000	Nos		**0.00**	INR Zero Only
1.36	Environment and Social Impact Screening Report	4.000	Nos		**0.00**	INR Zero Only
1.37	Draft Feasibility Report	4.000	Nos		**0.00**	INR Zero Only
1.38	Final Feasibility Report	6.000	Nos		**0.00**	INR Zero Only
1.39	Strip Plan with L.A. Reports	6.000	Nos		**0.00**	INR Zero Only
1.40	Draft LA and Clearances l Report	4.000	Nos		**0.00**	INR Zero Only
1.41	Final LA and Clearances l Report	4.000	Nos		**0.00**	INR Zero Only
1.42	Draft Environmental Assessment report & RAP	4.000	Nos		**0.00**	INR Zero Only
1.43	Final Environmental Assessment report & RAP	6.000	Nos		**0.00**	INR Zero Only
1.44	Draft Detailed Design Report & Drawings etc.	4.000	Nos		**0.00**	INR Zero Only
1.45	Draft EMP	4.000	Nos		**0.00**	INR Zero Only
1.46	Draft Bidding Documents	4.000	Nos		**0.00**	INR Zero Only
1.47	Final Detailed Project Report with Bill of Quantities, Cost Estimates, Updated Drawings etc.	6.000	Nos		**0.00**	INR Zero Only

1.48	Final EMP	6.000	Nos		**0.00**	INR Zero Only
1.49	Final Bidding Documents	6.000	Nos		**0.00**	INR Zero Only
1.50	Draft 3(a) ,3(A) and 3(D) notification for land acquisition(3 copies each)	9.000	Nos		**0.00**	INR Zero Only
1.51	LA & Clearances II Report	6.000	Nos		**0.00**	INR Zero Only
1.52	**Survey and Investigation**					
1.53	**A. Topographical Survey (Fixed Rate)**					
1.54	Complete Topographic Survey using mobile/ aerial LiDAR or equivalent technology for project approach area including hire charges for equipment and supply of survey teams comprising of project survey filed staff etc. inclusive of cost of materials, labourer, preparation of Drawings and their submission as per contract provision.	1.000	LS		**0.00**	INR Zero Only
1.55	**B. Investigation (Fixed cost)**					
1.56	All investigations/surveys including Material Survey and Investigation, Sub-grade Investigation, Traffic Survey, Socio-economic & Census Survey / Studies.	1.000	LS		**0.00**	INR Zero Only
1.57	**Schedule B (Item rate costs)**					
1.58	**Sub-soil Investigation & Other Works**					
1.59	Sub-Soil Investigation for Khardungla La Tunnel, Boring					
1.60	a) Boring in all type of soils (other than hard rock)	2000.000	Meter		**0.00**	INR Zero Only
1.61	b) Boring in hard rock	500.000	Meter		**0.00**	INR Zero Only

1.62	Resistivity based Geo-physical Investigation at portal locations of Tunnel	1.000	LS		**0.00**	INR Zero Only
1.63	**Cost of supply and fixing Boundary Pillars**					
1.64	Procuring and fixing boundary pillars and its installation, complete in all respect as per IRC:25,1967: Consultant shall fix boundary pillars along the proposed alignment on the extreme boundary on either side of the project Highway at 50 m interval.	1.000	LS		**0.00**	INR Zero Only
1.65	**Land Acquisition Team including support staff and logistics/transportation**					
1.66	A. Land acquisition Team including support staff					
1.67	Ex-Land Revenue Inspector/Officer or equivalent	3.000	Months		**0.00**	INR Zero Only
1.68	Ex-Kanoogo/ Girdwar orequivalent	3.000	Months		**0.00**	INR Zero Only
1.69	Ex-Patwari or equivalent	3.000	Months		**0.00**	INR Zero Only
1.70	Typist	3.000	Months		**0.00**	INR Zero Only
1.71	Peon	3.000	Months		**0.00**	INR Zero Only
1.72	**A. Logistics for Land acquisition Team**					
1.73	Computer including necessary peripherals	6.000	Months		**0.00**	INR Zero Only
1.74	Printers	6.000	Months		**0.00**	INR Zero Only
1.75	Vehicles (Bolero or equivalent) with monthly running limit of 4000 km	6.000	Months		**0.00**	INR Zero Only
Total in Figures					**0.00**	INR Zero Only
Quoted Rate in Words		**INR Zero Only**				

* Total Cost excluding GST 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.

Appendix-V

DETAILED EVALUATION CRITERIA

1. First Stage Evaluation -Proof of Eligibility (Para 12.1 of Data Sheet)

1.1 Eligibility criteria for sole applicant firm.

The sole applicant firm shall satisfy all the criteria of 12.1 (A) of Table-1.

(i) A Firm applying should have Experience of preparation of Detailed Project Report for Road/Rail/Metro tunnels of aggregate length equal to the indicative length of the package (5 km). Firm should have also prepared DPR for at least one project of Road/ Rail/Metro tunnel of minimum length of 2 Km or feasibility study of Road/Rail/Metro tunnels of minimum length of 3 Km.

S. No.	Package No.	Indicative Length of Tunnel for all packages	Minimum Aggregate Length required of Tunnel	Minimum length of one Eligible Project of Tunnel	
			DPRy = Tentative Length	DPR = 0.4 x Indicative Length	Feasibility = 0.6 x ndicative Length
1	2	3	4	5	6
A					
	I/II/III	5 Km	=5 Km	2 Km	3 Km

(ii) Annual Average Turn Over for the last 3 years {In cases where, Audited/Certified copy of Balance Sheet for the FY 2020-21 is available, last three years shall be counted from 2016-17 to 2020-21. However, where audited/certified copy of the Balance Sheet for the FY 2019-20 is not available (as certified by the Statutory auditor) then in such cases last three years shall be considered from 2015-16 to 2019-20} of the firm from Consultancy services should be equal to more than Rs 5 crore.

1.2 Eligibility criteria for Lead Partner/Other Partner in case of JV.

In case of JV, the Lead Partner should fulfil at least 75% of eligibility requirements under Sr. No. 12.1 (A) of Table-1 and the other partner shall fulfil at least 50% of eligibility requirement under Sr. No. 12.1 (A) of Table-1 or 100% of eligibility requirement under Sr. No. 12.1 (B) or 12.1 (C) of Table-1. Combinedly the JV must satisfy 100% of eligibility requirements under Sr. No. 12.1 (A) of Table-1..

Note: (i) Weightage to be given when experience by a Firm as Sole Firm/Lead Partner in a JV/Other Partner in a JV/As Associate

No.	Status of the firm in carrying out DPR/ Feasibility Study	Weightage for experience
1	Sole firm	100%
2	Lead partner in a JV	75%
3	Other partner in a JV	50 %
4	As Associate	25%

(ii) The experience of a firm in preparation of DPR for a private Concessionaire/contractor shall not be considered.

2. Second Stage Evaluation -Technical Evaluation (Para 12.2 of Data Sheet)

2.1. Firm's Relevant Experience

Sr No	Description	Maximum Points	Sub-Points
1	Specific experience of the DPR consultancy related to the assignment for eligibility	15	
1.1	Aggregate Length of DPR / Feasibility study of Road/Rail/Metro Tunnel projects	8	
1.1.1	More than the indicative Length of the package		6
1.1.2	More than 1.5 times the indicative length of the package		7
1.1.3	More than 2 times the indicative length of the package		8
1.2	**DPR for Road/Rail/Metro Tunnel projects each equal to or more than 40 % of indicative tunnel length (or Feasibility Study each equal to or more than 60 % of indicative tunnel length)**	7	
1.2.1	1 project		5
1.2.2	2 projects		6
1.2.3	3 projects or more		7
2	**Specific experience of firms in terms of turnover**	5	

2.1	Firm's Average Turnover of last 5 years >= 50 crore		5
2.2	Firm Average Turnover of last 5 years > = 20 crore but < 50 crore		4.5
2.3	Firm Average Turnover of last 5 years < 20 crore		4
3	**DPR for Road/Rail/Metro Tunnel projects in Hills or at an elevation of more than 1000 m**	10	
3.1	1 project		6
3.2	2 projects		8
3.3	3 or more projects		10
4	DPR for special category projects (Special bridges/ tunnels or expressways, whichever applicable). It is to be noted that either 4.1 or 4.2 shall be applicable, and not both.		
4.1	**DPR of number of special tunnels (if applicable)**	5	
4.1.1	1 project		1
4.1.2	2 projects		2
4.1.3	3 projects		3
4.1.4	4 projects		4
4.1.5	≥ 5 projects		5
4.2	**Aggregate length of DPR/ Feasibility study for expressways**	5	
4.2.1	Upto 50 km		2
4.2.2	50km to 100 km		3
4.2.3	100km to 150 km		4
4.2.4	> 150 Km		5

Note: (i) Weightage to be given when experience by a Firm as Sole Firm/Lead Partner in a JV/ Other Partner in a JV/As Associate

No.	Status of the firm in carrying out DPR/ Feasibility Study	Weightage for experience
1	Sole firm	100 %
2	Lead partner in a JV	75%
3	Other partner in a JV	50 %
4	As Associate	25%

(ii) The experience of a firm in preparation of DPR for a private Concessionaire/contractor shall not be considered.

2.2 **Material testing, Survey and investigation, equipment and software proposed to be used**

S. No.	Description	Maximum Points	Sub-Points
1	Availability of Material Testing Facilities with persons/resources having operational skills of the equipment	3	
1.1	Owned* (Available In House)		3.00
1.2	Outsourced (Hire basis/Through Associate)		2.25
* Shall be ascertained through the ownership evidence uploaded on INFRACON in regard to major equipments required for testing of materials to be used for construction of Highway Project.			
2	Availability of Field Investigation Facilities with persons/resources having operational skills of the equipment	2	
2.1	Owned** (Available In House)		2.00
2.2	Outsourced (Hire basis/Through Associate)		1.5
** Shall be ascertained through ownership evidence uploaded on INFRACON for construction of Highway Project.			
3	Availability of Office Equipment and Software with persons/resources having operational skills of the equipment	3	
3.1	Owned*** (Available In House)		3.00
3.2	Outsourced (Hire basis/Through Associate)		2.25
*** Shall be ascertained through ownership evidence uploaded on INFRACON for key hardware/software required for Highway consultancy assignment.			
4	Experience in LiDAR or better technology for topographic survey (Infrastructure sector)	5	

4.1	1 project		1
4.2	2 projects		2
4.3	3 projects		3
4.4	4 projects		4
4.5	≥ 5 projects		5
5	Experience in using GPR and Induction Locator or better technologies for detection of sub-surface utilities (Infrastructure sector)	4	
5.1	1 project		1
5.2	2 projects		2
5.3	3 projects		3
5.4	≥ 4 projects		4
6	Experience in digitization of cadastral maps for land surveys	3	
6.1	Area upto 100 ha		1
6.2	Area between 100-500 ha		2
6.3	Area > 500 ha		3

2.4. Qualification and Competence of the Key Staff for adequacy of the Assignment. (Para 12.2 of Data Sheet and Enclosure II of TOR)

2.4.1 TEAM LEADER cum SENIOR TUNNEL EXPERT

S. No.	Description		Max. Points
I	**General Qualification**		**25**
i)	Degree in Civil Engineering/Tunnel Engineering / Mining Engineering		20
ii)	Post Graduation in Civil Engineering /Tunnel Engineering/Mining Engineering		5
II	**Relevant Experience & Adequacy for the Project**		**65**
a)	**Total Professional Experience**		10
	<20 years	0	
	20-25 years	8	
	>25-28 years	9	
	>28 years	10	
(b)	**Experience in Tunnel Projects**		**40**
	(i) Professional experience in handling major tunnel projects (Road/Rail/Metro)		8
	<12 years	0	

	>=12 – 14 years	6	
	>14 – 15 years	7	
	>15years	8	
	(ii) Experience in major tunnel construction/construction supervision projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10 – 12 years	7	
	>12 years	8	
	(iii)**Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)**		8
	<10 years	0	
	>=10 – 12 years	7	
	>12 years	8	
	(iv) Experience in DPR preparation of minimum 5 km Tunnel length		8
	< 3 projects	0	
	3 or more projects	8	
	(v) Experience in construction/construction supervision/ preparation of DPR/feasibility report of major tunnel projects (Road/Rail/metro) using NATM		8
	<10 years	0	
	>=10 – 12 years	7	
	>12 years	8	
c)	**Experience in Similar Capacity**		**15**
	(i) Experience as Team Leader or similar capacity in major tunnel construction/construction supervision projects (Road/Rail/Metro)		7
	=2 projects	5	
	= 3 to 5 projects	6	
	> 5 or more	7	
	(ii) Experience as Team Leader or similar capacity in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)		8
	=2 projects	6	
	= 3 to 5 projects	7	
	> 5 or more	8	
III	**Employment with Firm**		**10**
	Less than 1 Year	0	
	1-2 years	7.5	
	Add 0.5 marks for each subsequent year subject to maximum of 2.5 marks		
	Total		**100**

- **Major Tunnel Project = having length more than 1.5 km.**

2.4.2 **Tunnel Design Expert**

Sr. No.	Description		Max. Points
I	**General Qualification**		**25**
i)	Degree in Civil/ Mining Engineering		20
ii)	Post Graduation in Design/Structural Engineering or equivalent		5
II	**Relevant Experience & Adequacy for the Project**		**65**
a)	**Total Professional Experience**		10
	<15 years	0	
	15-20 years	8	
	>20 -25years	9	
	>25years	10	
b)	**Experience in Tunnel Projects**		**24**
	(i) Professional Experience in handling major tunnel projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
	(ii) Experience of major tunnel construction/construction supervision projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
	(iii) Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
c)	**Experience in Similar Capacity**		**31**
	(i) Professional Experience as Tunnel Design Engineer (Structural)		8
	<8 years	0	
	>=8-10 years	6	
	>10 – 12 years	7	
	>12 years	8	
	(ii) Experience as Tunnel Design Engineer (Structural) of major tunnel construction/construction supervision projects (Road/Rail/Metro)		8
	<8 years	0	
	>=8 – 10 years	6	
	>10-12 years	7	
	>12 years8	8	
	(iii) Experience as Tunnel Design Engineer (Structural) of major tunnel for preparation of DPR projects (Road/Rail/Metro)		8
	<8 years	0	

	>=8 – 10 years	6	
	>10-12 years	7	
	>12 years	8	
	(iv)Experience as Tunnel Design Engineer (Structural) in preparation of DPR/ Feasibility report of major tunnel projects (Road/Rail/Metro) using NATM		**7**
	< 3 projects	0	
	>=3-5 projects	6	
	5 or more projects	7	
III	**Employment with Firm**		**10**
	Less than 1 Year	0	
	1-2 years	7.5	
	Add 0.5 marks for each subsequent year subject to maximum of 2.5 marks		
	Total		**100**

- **Major Tunnel Project = having length more than 1.5 km.**

2.4.3 Senior Ventilation and Fire Safety Expert

Sr. No.	Description		Max. Points
I	**General Qualification**		**25**
i)	Graduate in Electrical/Mechanical/Ventilation Engineering or equivalent		20
ii)	Post Graduation in Ventilation/Fire Safety or equivalent		5
II	**Relevant Experience & Adequacy for the Project**		**70**
a)	**Total Professional Experience**		15
	<15 years	0	
	15-20 years	10	
	>20 -25years	13	
	>25years	15	
b)	**Experience in Relevant works**		**50**
	(i) Professional Experience in Ventilation &/or Fire and Life Safety		12
	<10 years	0	
	>=10-12 years	9	
	>12 -14 years	11	
	>14 years	12	
	(ii) Experience in Design of Ventilation for tunnelling projects on major Tunnels in preparation of DPR		12
	< 2 projects	**0**	
	2 projects	9	
	3 projects	11	
	4 or more projects	12	
	(iii) Experience in Fire & Life Safety Design for tunnelling projects on major Tunnels in preparation of DPR		12
	< 2 projects	**0**	
	2 projects	9	
	3 projects	11	
	4 or more projects	12	
	(iv) Experience in Fire & Life Safety Design for tunnelling projects having design HRR of 200 MW or more on major Tunnel		14
	< 1 projects	**0**	
	1 projects	9	
	2 projects	12	
	3 or more projects	14	
II	**Employment with Firm**		**5**
	Less than 1 Year	0	
	1-2 years	3	
	Add 0.5 marks for each subsequent year subject to maximum of 2 marks	5	
	Total		**100**

- **Major Tunnel Project = having length more than 1.5 km.**

2.4.4 Senior Geotechnical Expert

S. No.	Description		Max. Points
I	**General Qualification**		**25**
i)	Degree in Civil Engineering/Mining Engineering / Engineering Geology		20
ii)	Post Graduation in Geotechnical Engineering /Foundation Engineering/Rock Mechanics/Geo science or equivalent		5
II	**Relevant Experience & Adequacy for the Project**		**65**
a)	**Total Professional Experience**		10
	<15 years	0	
	15-20 years	8	
	>20 -25years	9	
	>25years	10	
(b)	**Experience in Tunnel Projects**		**24**
	(i) Professional experience in handling major tunnel projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
	(ii) Experience in major tunnel construction/construction supervision projects (Road/Rail/Metro)		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
	(iii)**Experience in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)**		8
	<10 years	0	
	>=10-12 years	6	
	>12 -14 years	7	
	>14 years	8	
c)	**Experience in Similar Capacity**		31
	(i) Professional Experience as Tunnel Design Engineer (Structural)		**8**
	<8 years	0	
	>=8 – 10 years	6	
	>10-12 years	7	
	>12 years	8	
	(ii) Experience as Senior Geotechnical Engineer or similar capacity in preparation of DPR or Feasibility report of major tunnel projects (Road/Rail/Metro)		**8**
	<8 years	0	
	>=8 – 10 years	6	
	>10-12 years	7	
	>12 years8	8	

	(iv) Experience in construction/construction supervision/ preparation of DPR/feasibility report of major tunnel projects (Road/Rail/metro) using NATM		7
	<8 years	0	
	>=8 – 10 years	6	
	>10-12 years	7	
	<8 years	0	
III	**Employment with Firm**		10
	Less than 1 Year	0	
	1-2 years	7.5	
	Add 0.5 marks for each subsequent year subject to maximum of 2.5marks		
	Total		**100**

- **Major Tunnel Project = having length more than 1.5 km.**

Assumptions to be made regarding Similar Capacity for various positions

1. **Team Leader cum Senior Tunnel Expert**	
i) On behalf of the Consultant/Contractor:	Team Leader/Senior Highway Engineer.
ii) In Government Organizations:	Superintending Engineer (or equivalent) and above
2. Tunnel Design Expert	
i) On behalf of the Consultant/Contractor:	Tunnel Design Engineer
ii) In Government Organizations:	----------
3. Senior Ventilation & Fire Safety Expert	
i) On behalf of the Consultant/Contractor:	Senior Ventilation & Fire Safety Expert
ii) In Government Organizations:	----------
4. Senior Geotechnical Expert	
i) On behalf of the Consultant/Contractor:	Senior Geotechnical Expert
ii) In Government Organizations:	----------
5. Senior E&M Engineer	
i) On behalf of the Consultant/Contractor:	Senior E&M Expert (Tunnels)
ii) In Government Organizations:	----------
6. Senior Geologist	
i) On behalf of the Consultant/Contractor:	Geologist
ii) In Government Organizations:	Geologist
7. Senior Surveyor Engineer	
i) On behalf of the Consultant/Contractor:	Senior Survey Engineer/Survey Engineer/Senior Surveyor
ii) In Government Organizations:	Surveyor/ Engineer (or equivalent)
8. Environmental Engineer	
i) On behalf of the Consultant/Contractor:	Environmental Expert
ii) In Government Organizations:	Officers who have dealt /forest matter
9. Material Engineer	

i) On behalf of the Consultant/Contractor:	Material Engineer/ Material Expert/ Geo-Technical Engineer
ii) In Government Organizations:	Executive Engineer (or equivalent) and above
10. Highway cum Pavement Engineer	
i) On behalf of the Consultant/Contractor:	Highway Engineer/Highway Design Engineer/ Pavement Engineer
ii) In Government Organizations:	Executive Engineer (or equivalent) and above
11. Quantity Surveyor/ Documentation Officer	
i) On behalf of the Consultant/Contractor:	Quantity Surveyor
ii) In Government Organizations:	Assistant Engineer (or equivalent)

Appendix VI

DRAFT CONTRACT AGREEMENT

Between

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

And

M/s ……..in JV with M/s……. and in Association with M/s……
For

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

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Appendix B: Consultants' Sub consultants, Key Personnel and Sub Professional Personnel, Task assignment, work programme, manning schedule, qualification requirements of key personnel, schedule for submission of various report.
Appendix C: Hours of work for Consultants' Personnel
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DRAFT CONTRACT FOR CONSULTANT'S SERVICES

Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh.

This CONTRACT (hereinafter called the "Contract") is made on the__ day of the month of__2020, 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: Consultants' Sub consultants, Key Personnel and Sub Professional Personnel, Task assignment, work programme, manning schedule, qualification requirements of key personnel, and schedule for submission of various report.
Appendix C: Hours of work for Consultants' Personnel
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 acceptance
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)	Witness
	1. Signature Name Address
By Authorised Representative	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 at New Delhi shall 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**

1.6.1 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.

1.6.2 Notice will be deemed to be effective as specified in the SC.

1.6.3 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 Acceptance (Appendix-I)** 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. However GST will be paid separately.

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 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.

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 Majuere 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 Clause2.9.1, 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.

2.9.1.1

The Authority may, at its discretion, without terminating the contract and allowing the Consultants to continue with the existing consultancy contract, place the DPR Consultant in the Negative List for any of the following reasons: -

(a) Failure to submit the deliverables as per the schedule for submission of Reports and Documents of the Consultancy Contract Agreement.

(b) Submission of incomplete/incorrect site data, inaccurate and incorrect plans, deficient designs and drawings and incorrect reports and estimates.

(c) Discrepancy in land to be acquired or utilities to be shifted.

(d) Deficiencies of designs resulting in change of scope of more than 10% of the Contract Amount.

(e) Failure to deploy all key personnel as per the Contract Agreement in the project on site.

(f) Submission of incorrect/fake CV of personnel.

(g) Failure to replace in reasonable time frame key personnel who have left the site or are asked to be replaced by the Authority due to poor performance.

(h) Showing total lack of ability (whether managerial/technical) for the execution of the given consultancy contract.

(i) Failure to comply with any other conditions of TOR and any other lawful directions of the Authority.

Provided that, the Authority shall issue a notice giving 15 days time to the consultant before placing them in the 'Negative List' and upon evaluation of reply, if any, shall take a final decision. Such notice shall not be issued without the approval of an office below the rank of an Executive Director.

Provided, upon satisfactory action on the matter for which the Consultant was placed in the list, the Competent Authority may allow the name of the Consultant to be removed from the 'Negative List'.

2.9.1.2 Consequence of placement in the Negative List:-

"The consultant to include all the JV partners and Associates and their related parties shall not be eligible to bid in any of the Authority's Consultancy contracts for a period of 2 years from date of being placed in the negative list or till the completion of the ongoing consultancy service, or till removal from the Negative List whichever is earlier."

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,

(iii) 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.

2.9.7

As a natural consequence of the termination, due to the Consultant's failure, the Consultant shall deemed to have been debarred for a period of 2 years and shall not be able to bid any contract of the Authority either singularly or in a JV or its Related Parties.

(*Explanation* :- Such debarment shall be a natural consequence of termination. No separate Show Cause / proceeding shall be initiated for placing such contractor under debarment).

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 **Description of Personnel**

(a) The titles, agreed job descriptions, minimum qualification and estimated periods of engagement in the carrying out of the Services of each of the Consultants' Key Professional / Sub Professional Personnel are described in Appendix B.

(b) If required to comply with the provisions of Clause 3.1.1 of this Contract, adjustments with respect to the estimated periods of engagement of Key Professional / Sub Professional Personnel set forth in Appendix B may be made by the Consultants by written notice to the Client, provided

(i) that such adjustments shall not alter the originally estimated period of

engagement of any individual by more than 10% or one week, whichever is larger, and

(ii) that the aggregate of such adjustments shall not cause payments under this Contract to exceed the ceilings set forth in Clause 6.1 (b) of this Contract. Any other such adjustments shall only be made with the Client's written approval.

(c) If additional work is required beyond the scope of the Services specified in Appendix A, the estimated periods of engagement of Key Personnel set forth in Appendix B may be increased by agreement in writing between the Client and the Consultants**.**

4.3 **Approval of Personnel**

The Key Personnel and Sub consultants listed by title as well as by name in Appendix B are hereby approved by the Client. In respect of other Key Personnel which the Consultants propose to use in the carrying out of the Services, the Consultants shall submit to the Client for review and approval a copy of their biographical data. If the Client does not object in writing (stating the reasons for the objection) within twenty-one (21) calendar days from the date of receipt of such biographical data, such Key Personnel shall be deemed to have been approved by the Client.

4.4 **Working Hours, Overtime, Leave, etc.**

(a) Working hours and holidays for Key Professional / Sub Professional Personnel are set forth in Appendix C hereto. To account for travel time, foreign Personnel carrying out Services inside the Government's country shall be deemed to have commenced (or finished) work in respect of the Services such number of days before their arrival in (or after their departure from) the Government's country as is specified in Appendix C hereto.

(b) The Key Professional / Sub Professional Personnel shall not be entitled to be paid for overtime nor to take paid sick leave or vacation leave except as specified in Appendix C hereto, and except as specified in such Appendix, the Consultants' remuneration shall be deemed to cover these items. All leave to be allowed to the Personnel is included in the staff- months of service set for in Appendix B. Any taking of leave by Personnel shall be subject to the prior approval of the Client by the Consultants, who shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.

4.5 **Removal and/or Replacement of Personnel**

Removal and/or replacement of Personnel shall be regulated as under:

4.5.1 In case notice to commence services pursuant to Clause 2.1 of this Contract is not ordered by Client within 120 days of negotiations the key personnel can excuse themselves on valid

grounds, e.g., selection on some other assignment, health problem developed after contract negotiation, etc. In such a case no penalty shall be levied on the Firm or on the person concerned. The firm shall however be asked to give a replacement by an equal or better scoring person, whenever mobilization is ordered.

4.5.2 The replacement shall be as below:

a. Replacement up to 33%: Replacement shall be by an equal or better scoring person with one time fine of Rs 5,00,000/- from the next payment.
b. Replacement of more than 33% and up to 50%: Replacement shall be by an equal or better scoring person with one time fine of Rs 7,50,000/- from the next payment.
c. Replacement beyond 50% and upto 66%. Replacement shall be by an equal or better scoring person with one time fine of Rs 10,00,000/- from the next payment.
d. Replacement beyond 66 %shall normally not be considered. However in exceptional circumstances, where it becomes absolutely essential the same may be permitted with a fine of Rs 25,00,000/-. Replacement shall be by an equal or better scoring person, The Department may initiate action for termination/debarment of such consultant for future projects of NHIDCL for a period of 6 months to 24 months depending upon the severity of case.

4.5.3 Replacement after original contract period is over:

There shall be no limit on the replacements and no reduction in remunerations shall be made. The replacement shall however be of equal or better score.

4.5.4 If the Employer (i) finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action or (ii) has reasonable ground to be dissatisfied with the performance of any of the Personnel, then the consultant shall, at the Employer's written request specifying the grounds therefore, forthwith provide a replacement with qualifications and experience acceptable to him.

4.5.5 If the team leader or any other key personnel/ specialist considered pivotal to the project is replaced, the substitute may be interviewed by NHIDCL to assess their merit and suitability.

4.5.6 If any member of the approved team of a consultant engaged by NHIDCL leaves that consultant before completion of the job, he shall be barred for a period of 6 months to 24 months from being engaged as a team member of any other consultant working (or to be appointed) for any other NHIDCL projects.

4.6 Resident Team Leader and Coordinator

The person designated as the Team Leader of the Consultant's Personnel shall be responsible for the coordinated, timely and efficient functioning of the Personnel. In addition, the Consultant shall designate a suitable person from its Head Office as Project Coordinator who shall be responsible for day to day performance of the Services..

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 lumpsum price quoted under Schedule-A of the contract as per the details given below:

S. No.	Item	Percentage payment of Schedule 'A'
1	Submission of Final Inception Report	10
2	Submission of Final alignment Report	10
3	Submission of Final Feasibility Report	10
4	Submission of Final Geotechnical Data Report	5
5	Final Geotechnical Interpretive Report	5
6	High Resolution Satellite Imagery	5
7	Submission of final land acquisition Report	5
8	Submission of clearance proposals	5
8	Submission of Draft DPR	5
9	Approval of Final DPR	10
10	Approval of Technical Schedule	5
11	3 (D) Publication	5
12	Clearance Stage I approval	5
13	Clearance Stage II/ Final approval	5
14	Retention to be released after 3 years	10
15	**Total**	**100**
16	Bonus on submission of Draft 3A within 1 month of alignment finalization	2.5
17	Bonus on submission of Draft clearances within 1 month of alignment finalization	2.5

As regard the payment under Schedule-B, the consultant will be paid based on actual quantity executed on site. GST will be paid to the consultant along with the RA Bill, however the consultant has to submit the proof of depositing GST to the Govt. in the next RA Bill. The Consultant will be paid an amount of 5% of Schedule-B for mobilizing each drilling machine at site subject to maximum limit of 10% of Schedule-B. The consultant has to demonstrate to

the authority that the machine being mobilized is capable of carrying out horizontal drilling upto minimum 900mts. This money will be deducted from RA bill @10% of Schedule-B amount.

Note: Consultants have to provide a certificate that all key personnel as envisaged in the Contract Agreement has been actually deployed in the project.

(c) 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.

(d) The Client shall cause the payment of the Consultants in Para 6.3 (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 certified bill with a maximum limit of 5% of the Total 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)**
	Topographic Surveys	0.5 to 1.0
	a) The horizontal alignment does not match with ground condition.	

1		
	b) The cross sections do not match with existing ground.	
	c) The co-ordinates are defective as instruments of desired accuracy not used.	
2	Geotechnical Surveys	0.5 to 1.0
	a) Incomplete surveys	
	b) Data not analysed properly	
	c) The substrata substantially different from the actual strata found during construction.	
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

10.1 Change in length of proposed tunnel or /and its approaches will not be considered as change in scope of work and no change in lumpsum price under Schedule-A will be applicable.

10.2 Increase in quantities of items under Schedule-B, will be considered as Change in Scope, however, any increase in quantity having financial implication of more than 5% of Schedule-B shall be got approved from the Authority before its execution.

10.3 The Authority on their discretion may ask the consultant to carry out additional work, however, the same will be considered as Change in Scope only if both the parties agrees on terms & conditions and costs.

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

Attention : **General Manager (Technical)**
National Highways & Infrastructure Development Corporation Ltd.
PTI Building, 3rd Floor, 4, Parliament Street, New Delhi-110001
Ph. 011-23461674
Email: shivprasad.152p@gov.in

For the Consultants:

Attention:
Name :
Designation :
Address :
Tel :
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.

1.8 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: **Sh. B. Shivprasad**

General Manager (Technical), 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 acceptance, an unconditional Bank Guarantee from a Nationalized Bank, IDBI or ICICI/ICICI Bank/Foreign Bank/EXIM Bank / Any Scheduled Commercial Bank approved by RBI having a net worth 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 Nationalized 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 "four months" or such other time period as the parties may agree in writing.

2.3 The time period shall be "fifteen days" or such other time period as the Parties may agree in writing.

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 thereby the Consultant does not cancel the policy midterm without the consent of NHIDCL. 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 Goods and Services 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 8.2.1 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 12months.
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/-
	Other expenses (As per actual against bills subject to maximum of the prescribed celling given below)	
5	Traveling expenses	Economy class (by air), First class AC (by train) and AC Car (by road)
	Lodging and Boarding	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:-	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 NHIDCL before appointment of the Arbitrator,

Appendix A

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

Appendix B

Consultants' Sub consultants, Key Personnel and Sub Professional Personnel

Appendix C

Hours of work for Consultants' Personnel

The Consultant's personnel shall normally work for 8 hours in a day and six days a week. Normally Sundays shall be closed for working. In addition they shall also be allowed to avail holidays as observed by the Client's office in the relevant state without deduction of remunerations. In case any person is required to work on Sunday or Holiday due to exigency of work, he/she shall be given compensatory leave within the next 15 days.

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 acceptance

Appendix - I

Format for Bank Guarantee for Performance Security (For individual work)

To,
Managing Director,
National Highwa1 and Infrastructure Development Corporation ltd.
PTI Building, 3' 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 Acceptance 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 Carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of "***Consultancy Services for Preparation of Detailed Project Report and providing Pre-Construction activities for Construction of Highway Tunnel including approaches across Khardungla Pass, Namik La & Fotu La in the Union Territory of Ladakh*****"** under – 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 to ……..without 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.

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 including ……and 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)

This guarantee shall also be operable at our ..... Branch, New Delhi office, 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 there under 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 of the Bank.

NOTE for Issuing Bank (Not to be included in the BG):-

(i) The bank guarantee(s) contain(s) 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 Bank Guarantee shall be transmitted through SFMS gateway to our banker with following details:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch IFSC	CNRB0019062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank transport Bhawan, 1st Parliament Street, New Delhi-110001

(v) The confirmation with supporting details if any shall be specifically mentioned in the covering letter issued with the Bank Guarantee.

Appendix J : Reply to Queries of the Bidder

FORM OF AGREEMENT

This agreement made the _____day of _____ 2020 between the National Highway Infrastructure Development Corporation Ltd, New Delhi (hereinafter called "the Employer" of the one part and_____ (here in after called "the Contractor") of the other part.

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

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

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

AND WHEREAS pursuant to the bid submitted by the Contractor vide _____(hereinafter referred to as the "the Offer"), the employer has by his letter of acceptance no. _____- dated_____ accepted the offer submitted by the Contractor for the execution and completion of such works and the remedying of any defects therein, on terms and conditions in accordance in the conditions of particular application and condition included hereinafter;

AND WHEREAS the contractor has agreed to undertake such works and has furnished a performance security pursuant to clause 7.1 of Section-3.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement works and expressions shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to;
2. The following documents shall be deemed to form and be read and constructed as part of this agreement viz.
    a) The Contract Agreement,
    b) Letter of Acceptance,
    c) Contractor's Bid,
    d) Contract Data, if any
    e) Conditions of Contract
    f) Bill of Quantities
    g) Any other document
3. The foregoing documents shall be constructed as complementary and mutually explanatory

one with another. Should any ambiguities or discrepancy be noted then the order of precedence of these documents shall subject to the condition of particular applications be as listed above.

4. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and remedy any defects therein in conformity in all respect with the provisions of the contract.
5. the employer hereby covenants to pay the contractor in consideration of the execution and completion of the works and the remedying of defects therein the contract price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS WHEREOF the parties here to have caused this agreement to be executed the day and year first before written.

Signed, sealed and delivered by the said Employer through his Authorized Representative and the said Contractor through his Power of Attorney holder in the presence of:

Binding Signature of Employer _____

For and on behalf of National Highway& Infrastructure Development Corporation Ltd, New Delhi – 110 001

Binding Signature of Contractor _____

In the presence of	In the Presence of
1. Name:	1. Name:
Address:	Address:
2. Name:	2. Name:
Address:	Address:

_____

For and on behalf of National Highway& Infrastructure Development Corporation Ltd, New Delhi – 110 001

Binding Signature of Contractor _____

In the presence of	In the Presence of
1. Name:	1. Name:
Address:	Address:
2. Name:	2. Name:

Address: Address:

INTEGRITY PACT

BETWEEN

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(NHIDCL) hereinafter referred to as **"The Principal"** (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

AND

..... hereinafter referred to as **"The Bidder/Contractor"** (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

Preamble

The Principal intends to award, under laid down organizational procedures, contract(s) for **(Name of the contract) (hereinafter referred to as the 'Project').** The Principal necessarily requires full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, the Principal may appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the Integrity Pact by all parties concerned, for all works covered in the Project.

Section 1 - Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

a. No employee of the Principal, personally or through family members or through any other channel, will in connection with the tender for or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit, which the person is not legally entitled to.

b. The Principal will, during the tender process treat all Contractor(s)/Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Contractor(s)/Bidder(s) the same information and will not provide to any Contractor(s)/Bidder(s), confidential/additional information through which the Contractor(s)/Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. The Principal willexclude from the process all known prejudiced persons. **The Principal shall** obtain bids from **only** those parties who have been short-listed or pre qualified or through a process of open advertisement/web publishing or any combination thereof.

(2) If the Principal obtains information on the conduct of any of its employees, Contractor(s) and/or Bidder(s), which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and **subject to its discretion,** can **additionally** initiate disciplinary actions.

(3) The Principal will enter into agreements with identical conditions with all Contractor(s)/Bidder(s) **for the different Work Packages in the aforesaid Project**

(4) The Principal will disqualify from the tender process all Contractor(s)/Bidder(s) in the range of Rs 50 Crore and above, who do not sign this Pact or violate its provisions.

Section 2 - Commitments of the Bidder(s) / Contractor(s)

(1) The Bidder(s) / Contractor(s) commit(s) itself/themselves to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

(a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage, of any kind whatsoever, during the tender process or during the execution of the contract.

(b) The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

(c) The Bidder(s)/Contractor(s) will not use improperly, for purpose of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/Contractor(s) of Indian Nationality shall furnish the name and

address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is annexed and marked as Annex-"A".

(e) The Bidder(s)/ Contractor(s) will, when submitting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3: Disqualification from tender process and/ or exclusion from future contracts.

(1) If the Bidder(s)/ Contractor(s), before awarding the Project or during execution has committed a transgression by violating Section 2 above or in any other form so as to put his reliability or credibility in question, the Principal, at its sole discretion, is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or terminate the contract, if already awarded, for that reason, without prejudice to any other legal rights or remedies available to the Principal under the relevant clauses of GCC /SCC of the tender/contract.

(2) If the Contractor(s)/Bidder(s) has committed a transgression through a violation of any of the terms under Section 2 above or in any other form such as to put his reliability or credibility into question, the Principal will also be entitled to exclude such Contractor(s)/Bidder(s) from future tenders/contract award processes. The imposition and duration of the exclusion will be determined by the Principal, keeping in view the severity of the transgression. The severity will be determined by the circumstances of the case, in particular, the number of transgressions and/or the amount of the damage.

(3) If it is observed after payment of final bill but before the expiry of validity of Integrity Pact that the contractor has committed a transgression, through a violation of any of the terms under Section 2 above or any other term(s) of this Pact, during the execution of contract, the Principal will be entitled to exclude the contractor from further tender/contract award processes.

(4) The exclusion will be imposed for a minimum period of six (6) months and a maximum period of three (3) years.

(5) If the Contractor(s)/Bidder(s) can prove that he has restored/recouped the damage to the Principal caused by him and has

installed a suitable corruption prevention system, the Principal may, at its sole discretion, revoke or reduce the exclusion period before the expiry of the period of such exclusion.

Section 4: Compensation for Damages

(1) If the Principal has disqualified the Bidder(s)/Contractor(s) from the tender process prior to the awarding of the Project according to Section 3, the Earnest Money Deposit (BID SECURITY)/Bid Security furnished, if any, along with the offer, as per terms of the Invitation of Tender, shall also be forfeited. The Bidder(s)/Contractor(s) understands and agrees that this will be in addition to the disqualification and exclusion of the Contractor (s)/Bidder(s) as may be imposed by the Principal, in terms of Section 3 above.

(2) If, at any time after the awarding of the Project, the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Security Deposit/Performance Bank Guarantee furnished by the contractor, if any, as per the terms of the NIT/Contract shall be forfeited without prejudice to any other legal rights and remedies available to the Principal under the relevant clauses of General/ Special Conditions of Contract.

The Contractor(s)/Bidder(s) be in addition to the Bidder(s)/Contractor(s), as terms of Section 3 *above.* understands and agrees that this will disqualification and exclusion of the may be imposed by the Principal in

Section 5: Previous transgression

(1) The Bidder(s)/Contractor(s) herein declares that it has committed no transgressions in the last 3 years with any other Company in any country conforming to the anti corruption approach as detailed herein or with government/ any other Public Sector Enterprise in India that could justify its exclusion from the tender process.

(2) If at any point of time during the tender process or after the awarding of the Contract, it is found that the Bidder(s)/Contractor(s) has made an incorrect statement on this subject, he can be disqualified from the tender process or if, as the case may be, that the Contract, is already awarded, it will be terminated for such reason and the Bidder(s)/Contractor(s) can be black listed in terms of Section 3 above.

Section 6: Independent External Monitor / Monitors

(1) The Principal shall, in case where the Project Value is in excess of Rs 50 Crore and above, appoint competent and credible Independent External Monitor(s) with clearance from Central Vigilance Commission. The Monitor shall review independently, the cases referred to it to assess whether and to what extent the parties concerned comply with the obligations under

this Integrity Pact.

(2) In case of non-compliance of the provisions of the Integrity Pact, the complaint/non-compliance is to be lodged by the aggrieved party with the Nodal Officer only, as shall be appointed by the MD, NHIDCL. The Nodal Officer shall refer the complaint/non-compliance so received by him to the aforesaid Monitor.

(3) The Monitor will not be subject to any instructions by the representatives of the parties and will perform its functions neutrally and independently. The Monitor shall report to the Managing Director, NHIDCL.

(4) The Bidder(s)/Contractor(s) accepts that the Monitor shall have the right to access, without restriction, all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/her request and demonstration of a valid interest, unrestricted and unconditional access to its project documentation. The Monitor is under contractual obligation to treat the information and documents of the Bidder (s) /Contractor(s) with confidentiality.

(5) The Principal will provide to the Monitor, sufficient information about all meetings among the parties related to the Project, provided such meetings could have an impact on the contractual relations between the Principal and the Contractor.

(6) As soon as the Monitor notes, or believes to note, a violation of this Pact, he will so inform the Principal and request the Principal to discontinue and/or take corrective action, or to take other relevant action (s). The Monitor can in this regard submit non-binding recommendations. However, beyond this, the Monitor has no right to demand from the parties that they act in a specific manner and/or refrain from action and/or tolerate action.

(7) The Monitor will submit a written report to the MD, NHIDCL within 4 to 6 weeks from the date of reference or intimation to it and, should the occasion arise, submit proposals for corrective actions for the violation or the breaches of the provisions of the agreement noticed by the Monitor.

(8) If the Monitor has reported to the MD, NHIDCL, of a substantiated suspicion of an offence under relevant IPC/PC Act, and the MD, NHIDCL, has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Chief Vigilance Officer, NHIDCL / MD.

(9) The word 'Monitor' means Independent External Monitor and includes both singular and plural forms.

Section 7 Criminal Contractor(s)/charges against violating Bidder(s) /

Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder/Contractor or any employee or a representative or an associate of a Bidder/Contractor, which constitutes a criminal offence under the IPC/PC Act, or if the Principal has substantive suspicion in this regard, the Principal will forthwith inform the same to the Chief Vigilance Officer, NHIDCL/MD.

Section 8 - Duration of the Integrity Pact

This Pact shall come into force when both parties have legally signed it. The Pact shall expire, in case of the Contractor(s), 3 (three) months after the last payment under the Contract is made and in case of the unsuccessful Bidder(s), 2 (two) months after the contract for the project has been awarded.

If any claims is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by MD of NHIDCL.

The Bidder(s)/Contractor(s), however, understands and agrees that even upon the completion of the Project and/or the last payment under the Contract having been made, if any transgression/violation of the terms of this Pact comes/is brought to the notice of the Principal, it may, subject to its discretion, blacklist and/or exclude such Bidder(s)/Contractor(s) as provided for in Section 3, without prejudice to any other legal right or remedy so available to the Principal.

Section 9 - Other provisions

(1) This Agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

(2) Changes and supplements as well as termination notices need to be made in writing.

(3) If the Bidder/Contractor is a partnership or a consortium, this Agreement must be signed by all partners or consortium members.

(4) Should one or several provisions of this Agreement turn out to be invalid, the remainder of this Agreement shall remain valid and binding. In such a case, the parties will strive to come to an Agreement in accordance to their original intentions.

(5) Wherever he or his as indicated in the above sections, the same may be read as he/she or his/her, as the case may be.

(For & On behalf of the Principal)

(For & On behalf of Bidder/ Contractor)

(Office Seal) (Office Seal)

Place _

Date _

Witness 1:

(Name & Address)

Witness 2:

(Name & Address)