

**CONSULTANCY SERVICES FOR AUTHORITY'S ENGINEER FOR SUPERVISION OF
'Rehabilitation & Upgrading the State Highways &
Major District Roads, having varying width, by
Climatic Resilient Reconstruction, 6 roads in the
Northern Districts of Kannur, Kasargode,
Kozhikkode & Wayanad of Kerala State (Package - 1
& 2) under Rebuild Kerala Initiative' ON EPC**

**REQUEST FOR PROPOSAL
(RFP)**

Kerala State Transport Project (KSTP)

August 2020

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REQUEST FOR PROPOSAL (RFP)

SECTION 1: INFORMATION TO CONSULTANTS

Sub.: Consultancy services for Authority's Engineer for Supervision of 'Rehabilitation & Upgrading the State Highways & Major District Roads, having varying width, by Climatic Resilient Reconstruction, 6 roads in the Northern Districts of Kannur, Kasargode, Kozhikkode & Wayanad of Kerala State (Package - 1 & 2) under Rebuild Kerala Initiative' on EPC Basis

- The Kerala State Transport Project (the '**Employer**') invites proposals from eligible Consultants for engaging an Authority's Engineer (AE) on the basis of International Competitive Bidding for the following contract package in the State of Kerala

TABLE1: DETAILS OF PROJECT

Sl. No.	District	Constituency	Road Name	Road length (Km)	Assignment Period
1	Kannur	Peravoor	Edoor – Companynirath - Anapanthy - Angadikkadavu- Vaniyappara - Charal - Valavupara - Kacherikkadavu - Palathumkadav road	24.246	18 Months+ 60 Months maintenance
2	Kannur	Mattannur	Uruvachal- Manakkayivalayal(including bridge pallel to aqueduct at valayal)- KeezhallurTherurPalayod-VellaparambaKarimbala Colony Maruthaayi road	20.579	18 Months+ 60 Months maintenance
3	Kasargode	Kasaragod, Manjeswaram	Kumbla- badiadka-Mulleria road	29.135	18 Months+ 60 Months maintenance
4	Kozhikkode	Koyilandy, Balussery, Koduvally, Thiruvambady,	KoyilandyThamrasseryMukkamAreekodeEdavanna road: 1) km 0.00 to 25.31-Koyilandy to Poonoor: 2) km 25.31 to 37.93-Poonoor- Omassery 3) km 37.93 to 51.02Omassery to Eranhimav	51.020	24 Months+ 60 Months maintenance
5	Wayanad	Kalpetta	Vythiri-Tharuvana road	21.835	18 Months+ 60 Months maintenance
6	Wayanad	Mananthavady	Mananthavady to Periya Road	27.30	18 Months+ 60 Months maintenance
Total Length				146.815	

- The RFP has been uploaded in Kerala State Transport Project(KSTP) website <https://www.kstp.org.in>. Duly prepared bids must be submitted to KSTP office on or before **16.00 Hrs**, 23rd September 2020.
- Selection of AE shall be as per selection procedures given in the Model Agreement for Engineering Procurement and Construction. The selected AE shall be intimated to the Contractor.
- The proposal shall be submitted in English Language and all correspondence would be in

the same language.

5. Kerala State Transport Project, *intends to appoint a Consultant to act as Authority's Engineer for implementation of the EPC project.* As per the Terms and Conditions of the EPC Agreement(s), the Authority's Engineer shall perform all the duties as per TOR given in this RFP along with any amendment thereof. The selection of Authority's Engineers shall follow the laid down procedure given in the Contract Agreement signed between Employer and Contractor.
6. The interested consultancy firms may download the RFP document from the **official** website of the Employer w.e.f. 12th August 2020 to 18th September 2020 upto 1700 hrs. The Consultant who download the RFP document from the website will be required to pay the non-refundable fee of Rs.5,000/- towards cost of RFP at the time of the submission of the Bid proposal through Demand Draft in favour of Project Director, KSTP.
7. Unqualified bidders would be informed regarding their non qualification, without any explanation.
8. The proposal should be submitted by consultancy firms in two parts. The two parts of the proposal are **Part1: Technical Proposal** and **Part2: Financial Proposal**. For a given EPC Project, Stage -1 of the Evaluation shall consider the evaluation of the Technical Proposal (i.e. Part1). The firm scoring the qualifying marks (minimum 75%) as mentioned in RFP shall only be considered for further evaluation. Under stage 2, the financial proposal of such firms as selected above shall be opened and evaluated. Proposals will finally be ranked according to their combined technical and financial scores as specified in clause 5 of section 2.
9. The total time period for the assignment as Authority's Engineer will be for Construction Period + Maintenance Period of 60 Months with reduced man power.
10. Consultants may apply either as a sole firm or forming Joint Venture with other consultants. In case of Joint Venture, the maximum number of Joint Venture partners is limited to 2 (i.e. one lead + 1 JV partners). Formulation of more than one JV/association with different partners for the same work is not allowed and all such proposal involving the firms shall be treated as non-responsive. If the Consultant submits bids as sole applicant and also in JV/Association with another consultant, both bids shall be summarily rejected. No Consultant shall submit more than one bid.
11. (A) The Applicant whether a sole applicant or lead member with joint venture may include any number of Associate to provide technology in assignment (refer para 10 (iii) of data sheet). The Associate firm can provide equipment based road inspection services for any of the 4 equipment viz., (i) Network Survey Vehicle including all modules required as per technical specifications, (ii) Falling Weight Deflectometer, (iii) Mobile Bridge Inspection Unit and (iv) Retro Reflectometer. However, the Associate(s) cannot be common for 2 or more bidders. If any Associate is common with 2 or more bidders, all those bids shall be declared non-responsive. Hence, the bidder may ensure on his own that the associate proposed by him is not proposed by any other bidder

participating in the same assignment and the bidder is solely responsible in this regard.

(B) In addition, the applicant whether a sole applicant or lead member with joint venture may also include an Associate for providing key personnel. In such case, the applicant should submit an MOU with associate regarding role and responsibility of Associate Company. However the maximum no. of key personnel from Associate firm during RFP proposal and implementation of contract should be limited to two (2).

12. The Applicant, by submitting its Application pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the KSTP PMT any other right or remedy hereunder or in law or otherwise, the Applicants shall be debarred from participating in the future projects of the KSTP PMT 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.
13. Consulting firms meeting the following criteria are only eligible for applying for this assignment. Firms not meeting these criteria, need not apply.

A). Eligibility criteria for sole applicant firm.

S. No.	Experience of the firm in last 7 years		Annual Turnover***
	Preparation of DPR (NH/SH/Equivalent)	Project Supervision/IC (NH/SH/Equivalent)	
1 (a).	The firm should have minimum experience of preparation of detailed Project Report/Feasibility Study cum Preliminary Design Report of 2/4/6** laneing/Bridge project of aggregate length equal to 2 times or more of similar category for which RFP is invited.	The firm should have minimum experience of Project Supervision/Independent Engineer/Consultant of 2/4/6** laneing/Bridge project of aggregate length equal to 3 times or more of similar category** for which RFP is invited.	Annual turnover (updated average of last 3 years) of the firm from consultancy business should be equal to or more than Rs. 15 crores
1 (b)		Firm should also have experience of Project Supervision/ Independent Engineer/ Authority' Engineer of at least one project of similar category of two/four/six** laneing/bridge work of length equal to 40% of project length.	
		Additional requirement in case of specialized projects***	

** Similar project means 2/4/6 lane as applicable for the project for which RFP is invited. For 2-lane projects experience of 4/6 lane also to be considered with a multiplication

factor of 1.5. Experience of 4/6 lanes shall be considered interchangeably for 4/6 laning projects. For 4/6 laning projects, experience of 2 lane will be considered with a multiplication factor of 0.4, but only for those 2 lane projects whose cost of consultancy services was more than Rs.3.0 crores. For standalone bridge projects, experience in bridgework (either standalone project or as a part of road project) only be considered.

*** In case the project includes any specialized nature of work such as tunnels, specialized structures etc. in substantial quantum, this requirement may be suitably included.

B) Eligibility Criteria for partners in case of JV (not more than 1 JV partners shall be allowed) shall be as under:

The lead partner must fulfill at least 50% of requirements at 1(a) of table in para (A) above and other JV partner should fulfill at least 30% of eligibility criteria as indicated at 1(a) of table in para (A) above. Also the lead partner and JV partner jointly should meet the eligibility criteria as mentioned at 1(a) of table in para (A) above. Lead partner should meet the criteria 1 (b) of table in para (A) above.

Note: The weightage given for experience of a firm would depend on the role of the firm in the respective assignments. The firm's experience would get full credit if it was the sole firm in the respective assignment. If the applicant firm has completed projects as JV with some other firms, weightage shall be given as per the JV share***. However if the applicant firm has executed the project as associate with some other firms, 25% weightage shall be given to the applicant firm for the projects completed under such association.

***For weightage of experience in any past Consultancy assignment, experience certificate from the clients shall be submitted. In absence of clear demarcation of JV share in client certificate, the weightage will be treated as 60 % for lead partner and 40% for minor partner. Annual turnover duly certified by Chartered Accountant shall be accepted. In case of non-availability of such documents no weightage of turnover/experience will be considered.

14. In case the financial figures and values of services provided are in foreign currency current market exchange rate (State Bank of India BC Selling rate as on last date of submission of the bid) will be applied for the purpose of conversion of amount in foreign currency into Indian Rupees.
15. The Bidder including individual or any of its Joint Venture Members should, in the last 2 years, have neither failed to perform for the consultancy services pertaining to Expressways, National Highways, ISC (Inter State Connectivity) & EI (Economic Importance) works, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder including individual or any of its Joint Venture Member, as the case may be, nor has been expelled or terminated by Ministry of Road Transport & Highways or its implementing agencies for breach by such Bidder including individual or any of its Joint Venture Member. Consultants (sole firm or lead firm and any of the JV partners) who do not fulfil the aforesaid condition as on last date of submission of proposal, need not apply as their RFP proposal will not be entertained.

16. The Consultants / firms who are already engaged in any of the projects under Government of Kerala should apply only with separate team of key personnel as envisaged in ToR. The personnel who are already engaged in any of such projects shall not be included in their proposal. The proposals not meeting this condition will be summarily rejected.
17. Employer will not be responsible for any delay, loss or non-receipt of RFP document sent by post/courier. Further, Employer shall not be responsible for any delay in receiving the proposal and reserves the right to accept/reject any or all applications without assigning any reason thereof.
18. The two parts of the Proposal (Technical proposal and Financial proposal) must be submitted in separate envelops with all pages numbered serially, along with an index of submission as per procedure. In the event, any of the instructions mentioned herein have not been adhered to, the Employer may reject the Proposal.
19. Employer will be at liberty to keep the credentials submitted by the Consultants at bidding stage, in public domain and the same may be uploaded by Employer on Employer's web-site. Consultants should have no objection if Employer uploads the information pertaining to their credentials as well as of their key personnel.
20. The individual key personnel proposed in the bid by the consultants or any replacement thereof should undertake that they shall have no objection in uploading/hoisting of their credentials by Employer in public domain.
21. RFP submission must be received not later than **1600hrson23rdSeptember 2020** in the manner specified in the RFP document at the address given below.

Address of Employer:

**Project Director,
Kerala State Transport Project-Project Management Team (KSTP PMT),
Sree Bala Building, Keston Road, Kowdiar P.O,
Thiruvananthapuram – 695 003, Kerala State, India.
Telephone: 0471 – 2318985, 2318946
Facsimile: 0471 – 2318985, 2318946
E-mail: cepmtkstp@gmail.com; pdkstp@gmail.com**

SECTION 2: LETTER OF INVITATION TO CONSULTANTS

1 INTRODUCTION

Bids are invited from consulting firms either as a sole firm/ joint venture with other Consultant willing to act as AE to submit a proposal for providing consulting services required for the assignment named in the attached Letter of Invitation.

A brief description of the assignment and its objectives are given in the Terms of Reference(TOR).

The assignment shall be implemented in Construction Period (24 Months/ 18 Months)and Maintenance Period (60 Months) as indicated in Section 1.1..

This RFP is neither an agreement nor an offer by the Authority to the prospective Applicants or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their Proposals pursuant to this RFP. This RFP includes statements and assumptions, which reflect various assessments arrived at by the Authority in relation to the Consultancy. Such assessments and statements do not purport to contain all the information that each Applicant may require. The information contained in this RFP, may not be complete, accurate, adequate or correct. Each Applicant should, therefore, conduct its own investigations about the assignment and the local conditions before submitting the proposal by paying a visit to the Client and the project site, sending written queries to the client, before the date and time specified in the Data Sheet.

Please note that (i) the costs of preparing the proposal and negotiating for the contract, including a visit to site, are not reimbursable as a direct cost of assignment and (ii) Employer is not bound to accept any of the proposals received by it and reserves the right to annul the selection process at any time prior to contract award, without thereby incurring any liability to the Consultants.

Consultant have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of their Client, or than may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Consultant

Or the termination of its Contract and/or any other action as deemed fit by the Authority at any stage.

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

- (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.

Consultants, their JV partner, their Sub-Consultants, and their associates shall not be under a declaration of ineligibility for corrupt and fraudulent practices. Furthermore, the Consultants shall be aware of the provisions on fraud and corruption stated in the specific clauses in the General Conditions of Contract.

Consultants shall furnish information on commissions and gratuities, if any, paid or to be paid to agents relating to this proposal and during execution of the assignment if the Consultant is awarded the Contract, in the Financial Proposal.

The Data Sheet indicates how long Consultants’ Proposals must remain valid after the submission date. During this period, Consultants shall maintain the availability of Professional staff nominated in the Proposal. The Client will make its best effort to complete the process within this period. Should the need arise, however, the Client may request Consultants to extend the validity period of their proposals. Consultants who agree to such extension shall confirm that they maintain the availability of the Professional staff nominated in the Proposal, or in their confirmation of extension of validity of the Proposal, consultants could seek replacement upto a maximum of 50% key personnel .If any Consultant seeks any replacement(s), while extending the bid validity, then the same shall be evaluated for ascertaining suitability of replacement as per the provisions of the RFP and remuneration shall not be reduced for any such replacement(s). However, the technical evaluation shall take into account of the originally submitted CV(s) only irrespective of replacement sought.

2. CLARIFICATIONS AND AMENDMENT OF RFP DOCUMENTS

The Consultants may request a clarification of any of the RFP documents up to the number of days indicated in the Data Sheet before the Proposal submission date. Any request for clarification must be sent in writing by paper mail, facsimile, or electronic mail to the Client's address indicated in the Data Sheet. The Client will respond by cable, facsimile, or electronic mail to such requests and will send copies of the response (including an explanation of the query but without identifying the source of inquiry) to all consultants who have purchased the RFP document. Clarification/amendment will also be hosted on the website for information of all probable bidders. Bidders are advised to verify the website before preparing final submission.

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 RFP documents by amendment. Any amendment shall be issued in writing through addendum. Addendum may be sent by mail, cable, telex, facsimile or electronic mail to consultants or/and will be hosted on Employer's website which will be binding on them. The Client may at its discretion extend the deadline for the submission of Proposals.

3. PREPARATION OF PROPOSAL

You are requested to submit your proposal in Two Parts strictly using the formats enclosed herewith (refer section 3,4 and 5) in 2 separate envelopes/ packages and put together in one single outer envelope/package. The two parts shall be:

Part 1: Technical Proposal and

Part 2: Financial Proposal.

The proposal shall be written in the English language as specified in the Data Sheet. All pages of the Proposal shall be signed by an authorized representative. The representative's authorization shall be confirmed by written Power of Attorney duly notarized to be submitted with the proposal. In case of JV or inclusion of Associate company, a MoU indicating the specific Projects, input and role of each Partner etc. shall be submitted with the proposal.

Part 1: Technical Proposal

You are expected to examine all terms and conditions included in the documents.

Failure to act or to provide all requested information will be at your own risk and may result in rejection of your proposal.

During preparation of the Technical proposal you may give particular attention to the following:

- i. The man-months for the assignment shall be that stated in the Terms of Reference. The same shall be considered for the purpose of evaluation as well as award. In case the man months of TOR are amended in view of Client's own initiative or in response to clarification sought by any Consulting firm, the

man months so amended and published shall be considered for the purpose of evaluation as well as award.

- ii. The Consultants should prefer to field as many of their permanent staff as possible. The permanent staff would be considered those already employed with the firm prior to one year from the month during which this Tender Notice is issued. Applicant shall submit the details of the period of employment of the proposed personnel with the firm.
- iii. A good working knowledge of the language specified in the data sheet is essential for key professional staff on this assignment. Reports must be in the language (s) specified in the data sheet

Your Technical Proposal must provide the following information, using but not limited to the formats attached in the Section 3 & 4.

- i. A brief description of the firm's organization and an outline of recent experience of the Consultants and, in the case of Joint Venture, for each partner, on assignments of a similar nature. The information which you shall provide on each assignment should indicate, *inter-alia*, the profiles of the staff provided, duration, contract amount and firm's involvement. ***The details of assignments on hand shall also be furnished by the Consultant and their JV partner, separately.***
- ii. Any comments or suggestions on the ToR and a description of the methodology (work plan) which the firm proposes to execute the services, illustrated with bar charts of activities.
- iii. Site Appreciation: limited to four A4 size pages in 1.5 space and 12 font including photographs, if any;
- iv. 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: Maximum 4 pages;
- v. The proposed methodology should be accompanied by the consultants initial view, key challenges they foresee and potential solutions. It should also include details on adoption of superior technology along with proof: limited to six A4 size pages in 1.5 space and 12 font including photographs;
- vi. 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.
 - Surface defects detection and roughness measurement using Network Survey Vehicle
 - Pavement strength measurement using FWD
 - Bridge inspection using Mobile Bridge Inspection Unit
 - Road signs inspection using Retro Reflectometer

- vii. Proposed Quality Audit Methodology including Quality Assurance Plan
- viii. 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. The composition of the proposed staff team, the tasks which shall be assigned to each and their timing;
- x. Requirement for submission of CVs.
 - a. The CVs of following [six/seven] key personnel in the format as per Appendix- B-6 is to be furnished.

It may please be ensured that the format is strictly followed and 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. The Firm shall ensure that details furnished in the CV by the personnel are correct. If any information is found incorrect, at any stage, action including termination and debarment from future KSTP projects for a minimum period of 2 years may be taken by KSTP on the personnel and the Firm.
 - b. Key information should include years with the firm and degree of responsibility held in various assignments. In CV format, at summary, the individual shall declare his qualification & total experience (in years) against the requirements specified in TOR for the position (Ref. Enclosure-B of TOR). If any information is found incorrect, at any stage, action including termination and debarment from future KSTP projects upto 2 years may be taken by KSTP on the personnel and the firm.
 - c. CVs of Key Personnel having intermittent inputs will be considered only if the assignments on hand as on 7 days before due date of proposal including those for which LOA has been received from the Client or for which Consultant has been declared as H1 are such that the key personnel is able to proportionately devote the given man months for this project.
 - d. All the CVs which are to be evaluated should be complete in all respects including signing and certification by the individual and the firm.
 - e. Minimum 75% marks required. CV of [six/seven] Key Personnel will be evaluated. CV of proposed Team Leader should score at least 75% marks. If not, the proposal shall not be considered further.
 - f. If a CV score less than 75% marks, whatever marks it score will be carried forward for maximum 3 nos. key personnel for determining the total score of the firm. However, if the Key Personnel does not fulfill the minimum academic qualification (as mentioned at Enclosure-B of TOR of RFP), the overall score of his CV will be evaluated as zero. If the Key Personnel does not fulfill the minimum qualification related to experience (as mentioned at Enclosure-B of TOR of RFP), then zero marks will only be assigned for that sub-criteria, but the marks obtained by the CV of the Key Personnel will be carried forward for maximum 3 nos. key personnel for determining the total score of the firm. In case, a firm is H-1, then all such Key Personnel (whose CV scores less than 75% or who does not fulfill the minimum qualification) will have to be replaced by the firm before signing

the contract. The reduction in remuneration of such replacements shall be 10% for each replacement. In case more than 3 CV scores less than 75% marks or Team leader cum Senior Highway Engineer scores less than 75%marks,the proposal shall be considered non-responsive.

- g. In case CV of a person is turned out to be fake/incorrect/inflated during the assignment, the consultancy firms shall have to refund the salary and perks drawn including interest @ 12% per annum in respect of the person apart from other consequences. In addition to above, 10% of the salary and perks to be refunded shall be recovered from the Firm as penalty. In the event the penalty is not paid by the Consultancy Firm, the same shall be recovered from encashment of performance security of the firm.
- h. It is also clarified that any key personnel, if debarred during the period between receipt of bid and award of the contract and is required to be replaced as per the provisions of the RFP, then the replacement shall not be considered as part of replacement by the Authority's Engineer and hence no deduction in remuneration shall be affected. However, in this case the original CV will be considered for evaluation purpose
- xi. Deployment Schedule for each key personnel should be formulated and incorporated in the Technical Proposal which will be reviewed on quarterly basis.
- xii. Estimates of the total time effort (person x months) to be provided for the services, supported by bar chart diagram showing the time proposed (person x months) for each professional staff and sub professional staff.
- xiii. Any additional information.

The technical proposal must NOT include any financial information.

Part2: Financial Proposal

Your Financial Proposal must be strictly using the formats attached in Section 5. No additional items/quantities other than that specified in the formats should be proposed by the Consultants since the same shall not be considered for the evaluation/award. Consultants shall be paid billing rates for services as per financial proposal submitted by them basis. Beginning 13th months from the last date of submission of bid, billing rates shall be increased to cover all items of the contract i.e. remuneration, vehicle hire, officer rent, consumables, furniture etc. @ 5% every 12 months. However, for evaluation and award of the Bid proposals, the quoted initial rate (as applicable for first 12 months from last date of submission of bid) shall be multiplied by the total time input for each position on this contract, i.e. without considering the increase in the billing rates. All payments shall be made in Indian Rupees and shall be subjected to applicable Indian laws withholding taxes if any.

The Financial Proposal should clearly identify as a separate amount, the local taxes (including social security), duties, fees, levies and other charges imposed under the applicable law, on the consultants, the sub-consultants, and their personnel (other than nationals or permanent residents of the government's country); unless the Data Sheet specifies otherwise. This cost, however, will not be considered in evaluation.

Consultants may express the price of their services in the Indian Rupees only.

Goods&Service tax as applicable shall be paid to the Consultant while making payment for services rendered. The consultants shall then deposit the same with the tax authorities and provide a proof of having done so within next 90 days in line with policy circulars issued by Employer. Employer shall pay only the Goods & service tax.

4. SUBMISSION, RECEIPT AND OPENING OF PROPOSALS

PREPARATION & SUBMISSION OF APPLICATIONS:

A. Detailed RFP may be downloaded from the website of Employer and the Application may be submitted either in direct, courier or speed post following the instructions below.

B. The following shall be the form of various documents in the Application:

(I) Technical Proposal {Only Electronic Form (to be uploaded on the E-tendering portal of Employer)}

- (a) Power of Attorney for signing the Application
- (b) If applicable, the Power of Attorney for Lead Member of JV;
- (c) Copy of Memorandum of Understanding between JV partners, if applicable;
- (d) Copy of Memorandum of Understanding with Associate, if applicable.
- (e) Firms credentials as per format prescribed in SECTION-3 OF RFP.
- (f) Technical proposal as per format prescribed in SECTION-4 OF RFP.

II) Financial proposal as per format prescribed in section – 5 of RFP

(III) Demand Draft towards cost of RFP of Rs.5,000/- (Rupees Five thousand only) in favour of Project Director, Kerala State Transport Project.

Modification / Substitution/ Withdrawal of bids:

- (i) The Bidder may modify, substitute or withdraw its bid, prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.
- (ii) Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by the Employer, shall be disregarded.

OPENING AND EVALUATION OF APPLICATIONS:

- (i) Opening of Proposals will be done at the Employers office on the date and time as published.
- (ii) For participating in the tender, the authorized signatory holding Power of Attorney shall be signed. In case the authorized signatory holding Power of Attorney and person who is signing the bid are not the same, the bid shall be considered non-responsive.

The Employer will open the Technical Proposal at 11.30 hours Indian Standard Time on the Application due date i.e. in the presence of the Applicants who choose to attend

and evaluate the Applications in accordance with the provisions set out in the RFP.

- (iii) The Financial Proposal will be opened of the short listed applicants who qualify for financial opening as per RFP. The date of opening of Financial Proposal will be notified later on.

5 PROPOSAL EVALUATION

A two -stage procedure shall be adopted for evaluating the proposals.

Deleted

Technical Proposal

The Evaluation Committee appointed by the Employer shall carry out its evaluation applying the evaluation criteria and point system specified in the data sheet. Each responsive proposal shall be attributed a technical score (ST.) Only those Applicants whose Technical proposal score 75 marks or more out of 100 shall qualify for further consideration. However, if the number of such pre-qualified applications is less than two, the Employer may, in its sole discretion, pre-qualify the applicant(s) whose technical score is less than 75marks.

Financial Proposal

After the evaluation of Technical Proposals is completed and the shortlist of firms is finalised, the Employer may notify those consultants whose proposals were not considered as per conditions of RFP. The Employer shall simultaneously notify the shortlisted firms indicating the date and time set for opening of the Financial Proposals.

The Financial Proposals shall be opened publicly in the presence of the consultants' representatives who choose to attend. The name of the consultant, the technical scores, and the proposed prices shall be read aloud and recorded when the Financial Proposals are opened. The Client shall prepare minutes of the public opening.

The Evaluation Committee will determine whether the submitted Financial Proposals are complete (i.e. whether they have included cost of all items of the corresponding proposals; if not, then the cost towards such missing items will be considered as NIL, but the Consultant shall, however, be required to carry out such obligations without any additional compensation.) and without computational error. In case under such circumstances, if Client feels that the work cannot be carried out within the overall cost as per the submitted financial proposal, such proposals shall be considered non responsive.

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:

$$S_F = 100 \times F_M / F \text{ (F= amount of financial proposal)}$$

Proposals will finally be ranked according to their combined technical (ST) and financial (SF) scores as follows:

$$S = S_T \times T_w + S_F \times F_w$$

Where S is the combined score, and Tw and Fw are weights assigned to Technical Proposal and Financial Proposal that shall be 0.70 and 0.30 respectively.

The selected Authority's Engineer shall be the first Ranked Applicant (H-1, having the highest combined score). In the event the proposals of two or more consultants have the same scores in the final ranking, the proposal with the highest technical score should be ranked first.

6 AWARD OF CONTRACT

The Client shall issue letter of award to selected Consultant and ask the Consultant to provide Performance Security as in Para 7 below. 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 the 2nd highest ranking bidder Consultant and follow the procedure outlined in Para 6 and 8 of this Letter of Invitation.

7 PERFORMANCE SECURITY

The successful consulting firm shall have to submit a Bank Guarantee (BG) for an amount of 10% of the Contract Value within 15 days of issue of LOA. The BG shall be valid for a period of [xx+2] i.e. upto 2 months beyond the expiry of the Contract period of [xx months]. The BG shall be in the format specified in Appendix H of draft contract form and furnished from a Nationalised 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 1000 crore as per latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a Branch in India) then the net worth in respect of Indian operations shall only be taken into account. In case of Foreign Bank, the BG issued by Foreign Bank should be counter guaranteed by any Nationalised Bank in India. In case of JV, the BG shall be furnished on behalf of the JV and not individually by the members.

Further, in case where the bid of the successful consulting firm is less than 85% of the average of all bids received, the successful consulting firm shall have to submit an

Additional Performance Security (APS) in the form of a Bank Guarantee for 30% of the differential value between the successful bid and average of all the bids received. The BG shall be valid for a period of [xx+2] months i.e. upto 2 months beyond the expiry of the Contract of [xx] months. The other requirements of APS are same as those of Performance Security.

In the event the Consultant fails to provide the security within 15 days of date of LOA, it may seek extension of time for a period of 15 (Fifteen) days on payment of damages for such extended period in a sum of calculated at the rate of 0.1% (Zero Point One Percent) of the contract price for each day until the performance security is provided. For the avoidance of doubt the agreement shall be deemed to be terminated on expiry of additional 15 days time period.

Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Consultant to provide the Performance Security in accordance with the provisions of Clause 7.1 within the time specified

therein or such extended period as may be provided by the Authority, in accordance with the provisions of Clause 7.2 and thereupon all rights, privileges, claims and entitlements of the Consultant under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Consultant, and LoA shall be deemed to have been withdrawn by mutual agreement of the Parties. Authority may take action to debar such firm for future projects for a period of 1-2 years.

8. 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.

DATASHEET

(As Mentioned in Letter of Invitation to Consultants)

Sub clause No. in Letter of Invitation to Consultants

- 1 **Pre-Proposal Conference shall be held at: Employer's Office on 26th August 2020 at 11.00 hrs.**
- 2 The proposal shall be valid for 120 days after the last date of submission.
- 3 Clarification may be requested 7 days prior to Pre Proposal Conference. The address for requesting clarification is:

**Project Director,
Kerala State Transport Project (KSTP),
Sree Bala Building, Keston Road, Kowdiar P.O,
Thiruvananthapuram – 695 003, Kerala State, India.**
Telephone: 0471 – 2318985, 2318946
Facsimile: 0471 – 2318985, 2318946
E-mail: cepmtkstp@gmail.com; pdkstp@gmail.com
- 4 **The Language** of documents and correspondence will be English
- 5 All the personnel shall have working knowledge of English and all the reports etc shall be written in English.
- 6 KSTP shall reimburse only Goods and service tax. Authority's Engineer has to assess all other taxes and should inbuilt them in their financial proposal. These taxes (other than Goods and service tax) should not be provided separately. Consultants are requested to consult Tax Consultants for details.
7. The Consultants to state cost in INR.
- 8 The time and date of submission: 23rd September 2020, **1600hrs.**
- 9 **The points assigned to Technical Evaluation criteria are:**

Sl. No.	Description	Marks
1	Relevant experience for the assignment	40
2	Experience in use of technology for road inspection	20
3	Qualifications and competence of the key staff for the assignment	40
	Total	100

i. Sub criteria for Relevant Experience of the firm for the assignment

Average Annual Turnover (last 3 years) from consultancy business (Min 15 crores)	2
Nos of Highway Professionals with the firm *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 Certificates shall be submitted by Key Personnel.	10
Experience as Independent Engineer/Authority Engineer/Construction Supervision in Number of Highway Projects of length equal to 40% of project length of similar category for which RFP invited of 2/4/6** -laning or more in last 7 years*	10
Experience in DPR preparation for Number of Highway Projects (of length 40% of project length of similar category for which RFP invited of 2/4/6** -laning or more) in last 7 years*	5
In hand DPRs for Authority (Ministry/NHAI/NHIDCL -As applicable) Projects and externally projects by State Govts. (presently under progress)	10
Experience in Construction Supervision/DPR/Design Review of Major structures having length of more than 500 meter in last 7 years.	3
Additional requirement in case of specialized projects***	Nil

- * Consultants should give details of the experience of the firm considering the completed and the on-going highway assignments, separately for PPP and non-PPP Projects along with experience certificates from clients. This list of the completed works should also include those assignments which are substantially (90% of Contract value) completed. No Qualification/Experience etc. shall be considered without proof of experience.

Experience of Authority's Engineer for having offered consultancy services to a private organization shall not be considered as relevant experience for current assignment.

- ** Similar projects means 2/4/6 lane as applicable for the project for which RFP is invited. For 2-lane projects experience of 4/6 lane also to be considered with a multiplication factor of 1.5. Experience of 4/6 lanes shall be considered interchangeably for 4/6 laning projects. For 4/6 laning projects, experience of 2 lane will be considered with a multiplication factor of 0.4, but only for those 2 lane projects whose cost of consultancy services was more than Rs.3.0 crores.

- *** In case the project includes any specialized nature of work such as tunnels, specialized structures etc. in substantial quantum, this requirement/Marks may be included by suitably adjusting marks of other attributes.

In case of JV the turnover and experience details of Lead and JV Employer's certificate should be submitted substantiating the experience claimed by the firm.

ii. **Sub criteria for Experience in use of technology for road inspection**

Sr. No.	Description	Maximum Points	Sub-Points
1	Experience in Network Survey Vehicle (NSV) or better technology for pavement inspection	7	
1.1	Equipment	4	
	(a) Equipment on MOU with Associate or on hiring basis		2
	(b) Own Equipment		4
1.2	Experience	3	
	(a) 1-2projects		1
	(b) 3-5projects		2
	(c) >5projects		3
2	Experience in Falling Weight Deflectometer (FWD) or better technology for pavement strength measurement	4	
2.1	Equipment	2	
	(a) Equipment on MOU with Associate or on hiring basis		1
	(b)) Own Equipment		2
2.2	Experience	2	
	(a) 1-3projects		1
	(b) > 3projects		2
3	Experience in Mobile Bridge Inspection Unit or better technology for bridge inspection	5	
3.1	Equipment	2	
	(a) Equipment on MOU with Associate or on hiring basis		1
	(b) Own Equipment		2
3.2	Experience	3	
	(a) 1-2projects		1
	(b) 3-5projects		2
	(c) 5projects		3
4	Experience in Retro reflectometer technology	4	
4.1	Equipment	2	
	a) Equipment on MOU with Associate or on hiring basis		1
	(b)Own Equipment		2
4.2	Experience	2	
	(a)1-3 projects		1
	(b)> 3 projects		2
	Total	20	

Note: A. The Authority's Engineer owning the equipments shall be required to submit proof of ownership.

B. The experience of the associate firms in use of technology shall also be counted in the evaluation. The experience of firm or associate firm in NSV or equivalent technology, FWD or equivalent technology, MBIU or equivalent technology and Retro reflectometer or equivalent technology shall be supported by experience certificate. The experience of a firm/associate firm for a private concessionaire/contractor shall not be considered.

Qualification and competence of following professional/sub-professional staff for the assignments shall be evaluated. The weightage for various key staff areas under:-

Road Project:

S.No	Staff Position	Marks.
1	Team Leader cum Senior Highway Engineer	7
2	Resident Engineer cum pavement specialist	4
3	Assistant Resident Engineer (6 Nos.)	2.50x6 = 15
4	Bridge/Structural Engineer	2
5	Senior Quality cum Material Expert	2
6	Road Safety Expert	2
7	Senior Contract Specialist	2
8	Senior Quantity Surveyor	1.50
9	Environmental Specialist	1.50
10	Health & Safety Engineer	1.50
11	Labour/Social Specialist	1.50
	Total	40

Sub criteria for qualification of Key Personnel (i.e. Professional staff)

General qualifications	25
Adequacy for the project	70
Employment with firm	5
Total	100

The technical proposal should score **at least 75 points** to be considered responsive for financial evaluation.

- v) Detailed evaluation criteria which is to be used for evaluation of technical bids is as indicated below as Appendix-EC.
 - vi) The Authority's Engineer should carry out self-evaluation based on the evaluation criteria at Appendix-EC. While submitting the self-evaluation along with bid, Authority's Engineer shall make references to the documents which has been relied upon in his self-evaluation.
 - vii) Results of technical evaluations shall be made available on the website giving opportunity to the bidders to respond within 7 days in case they have any objection.
 - viii) The single currency for price conversion is INR. For evaluation of bid proposals, the foreign currency conversion rate of 1 US Dollar = Rs. And 1 Euro = Rs. - shall be used.
 - ix) The weightage given to technical proposal is 70%.
The weightage given to financial proposal is 30%.
11. Commencement of Assignment: The firm shall begin carrying out the services within one month of signing of the Consultancy Agreement.

Appendix-EC

1. Evaluation Criteria for Assessment of Experience of the Firm.

S.No.	Description	Max. Marks	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	Average Annual Turnover (last 3 years) from consultancy business <2% of TPC-0marks 2% of TPC-1.5marks Add for additional turnover 0.25 (Zero point two five) marks for every above 2% of TPC subject to maximum 0.5marks. (TPC= Rs 750 Cr)	2		
2	Nos. of Highway Professionals with the firm *	10		
2.1	<10	0		
2.2	10-20	8		
2.3	>20 but ≤30	9		
2.4	>30	10		
<p>*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 submitted by Key Personnel.</p>				
3	Experience as Independent Engineer/Authority Engineer/ Construction Supervision in Number of Highway Projects of 2/4/6-laning** of length (40% of project length) or more in last 7 years. 1 project - 8 marks Add 1(one) mark extra for completed assignment of Authority Engineer/Independent Engineer and add 0.5 (Zero point five) marks extra for completed assignment of supervision consultancy subject to maximum 2(Two) marks.	10		
4	Experience in DPR/Feasibility Study cum Preliminary Design Report preparation for Number of Highway Projects of 2/4/6-laning** of length (40% of project length) or more in last 7 years. 1 project-4marks Add 0.5 (Zero point five) marks extra for each additional project subject to maximum 1 mark.	5		
5	In hand DPRs of Highway/Bridge (presently under progress)	10		
5.1	<2	0		
5.2	2-5	5		

S.No.	Description	Max. Marks	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
5.3	>5	10		
6	Experience in Construction Supervision/DPR/Design Review of Major structures having length of more than 500 meter in last 7 years. 1 project – 2.0 marks Add 0.5 (Zero point five) marks extra for each additional project subject to maximum 1.0 marks	3		
7	Additional requirement in case of specialized projects***	***		

Note 1: In case of JV the turnover and experience details of Lead and JV partners to be added.

Note 2: Employer's certificate/ certificate from Statutory Auditor should be submitted substantiating the experience/turnover claimed by the firm.

Note 3: ** For 4/6 laning projects, experience of 2 lane will be considered with a multiplication factor of 0.4, but only for those 2 lane projects whose cost of consultancy services was more than Rs.3.0 crores.

*** In case the project includes any specialized nature of work such as tunnels, specialized structures etc. in substantial quantum, this requirement/Marks may be included by suitably adjusting marks of other attributes.

2. Evaluation Criteria for assessment of experience in use of technology for road inspection

Evaluation sheet for assessment of experience in use of technology for road inspection				
S. No	Description	Maximum Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	Experience in Network Survey Vehicle (NSV) or better technology for pavement inspection	7		
1.1	Equipment	4		
	(a) Equipment on MOU with Associate or on hiring basis- 2 marks			
	(b) Own Equipment – 4 marks			
1.2	Experience	3		
(i)	1-2 projects	1		
(ii)	3-5 projects	2		
(iii)	> 5 projects	3		
2	Experience in Falling Weight Deflectometer (FWD) or better technology for pavement strength measurement	4		
2.1	Equipment	2		

Evaluation sheet for assessment of experience in use of technology for road inspection				
S. No	Description	Maximum Points	Reference/Details of projects Claimed for self-assessment	Markself-assessed bythe bidder
	(a) Equipment on MOU with Associate or on hiring basis- 1 mark			
	(b) Own Equipment - 2 marks			
2.2	Experience	2		
(i)	1-3 Projects	1		
(ii)	>3 Projects	2		
3	Experience in Mobile Bridge Inspection Unit or better technology for bridge inspection	5		
3.1	Equipment	2		
	(a) Equipment on MOU with Associate or on hiring basis- 1 mark			
	(b) Own Equipment - 2 marks			
3.2	Experience	3		
(i)	1-2 Projects	1		
(ii)	3-5 Projects	2		
(iii)	> 5 Projects	3		
4	Experience in Retro reflectometer technology	4		
4.1	Equipment	2		
	(a) Equipment on MOU with Associate or on hiring basis- 1 mark			
	(b) Own Equipment - 2 marks			
4.2	Execution with owned/hired Equipment/through Associate	2		
(i)	1-3 Projects	1		
(ii)	>3 Projects	2		
	Total	20		

Notes:

- (i) The Consultants owning the equipment shall be required to submit proof of ownership.
- (ii) The experience of the associate firms in use of technology shall also be counted in the evaluation. The experience of firm or associate firm in NSV or equivalent technology, FWD or equivalent technology, MBIU or equivalent technology and Retro reflectometer or equivalent technology shall be supported by experience certificate. The experience of a firm/ associate firm for a private concessionaire/ contractor (client) shall be considered on self-certification along with the client certificate. Any false certification shall attract provisions of Clause 1.8, Section -2 (letter of Invitation) read with Clause 2.9.1(g) of GCC

3 Evaluation Criteria for assessment of score of Key Staff for adequacy of the Assignment.

Team Leader cum Senior Highway Engineer

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Graduate in Civil Engineering	21		
ii)	Post-Graduation in Management/ Construction/ Transportation/Highway Engineering/Structural Engineering or equivalent specialised stream of civil engineering	04		
2	Adequacy for the Project	70		
a)	Professional Experience in Highway Projects:			
i)	Total Professional Experience in handling Highway projects < 12 years -0 12 years -8 marks Add 1 mark extra for each additional year of experience subject to maximum 2 (two) marks.	10		
ii)	Experience as Team Leader or similar capacity in Highway Development Projects (similar configuration (2/4/6laning**) and above) < 5 years -0 5 years -11 marks Add 1 mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
iii)	Experience as Team Leader or similar capacity in Highway Development projects (of length 40% of project length or more of similar configuration (2/4/6laning**) and above) on EPC 1 project -4 marks add 1 mark extra for additional projects subject to maximum 1 (one) mark	5		
b)	Experience as Team Leader or similar capacity of project Preparation including design of major highway Project (of length 40% of project length or more of similar configuration (2/4/6laning**) and above). < 2 projects -0	15		

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
	2 Projects -11 marks Add 2 marks for each additional project subject to maximum 4 marks.			
c)	Experience in position of Team Leader/Project Manager or similar capacity in Construction Supervision/IC involving length 40% of project length or more of similar configuration (2/4/6** laning) and above < 2 projects - 0 2 Projects - 16 marks Add 2 marks extra for each additional project subject to maximum 4 (four) marks	20		
d)	Experience as Team Leader or similar capacity in Operation and Maintenance of Major Highway (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above). 1 project - 4 marks Add 1 mark extra for each additional project subject to maximum 1 (one) mark	5		
3	Employment with the Firm < 1 year - 0 1 year - 3 marks Add 0.5 marks for each subsequent year subject to maximum 2 marks	5		
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant: Team Leader/Resident Engineer (Construction Supervision/IE/AE/DPR).
 - ii) On behalf of Contractor: Project Manager (Construction/Construction Supervision)
 - iii) In Government Organizations: Superintending Engineer (or equivalent) and above
- (2) Only those projects will be considered for evaluation at S. No. 2(b) where the input of the personnel is not < 9 months.
- (3) Only those projects will be considered for evaluation at S. No. 2I, (d) where the input of the personnel is not < 12 months.

- (4) In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

Resident Engineer cum Pavement Specialist

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Graduate in Civil Engineering	21		
ii)	Post Graduation in Transportation/Highway Engineering/Structural Engineering/Geotechnical Engineering	04		
2	Adequacy for the Project	70		
	Professional Experience			
i)	Total Professional Experience in handling Highway projects < 12 years -0 12 years -8 marks Add 1 mark extra for each additional year of experience subject to maximum 2 (two) marks.	20		
ii)	Experience as Resident Engineer/Project Director/Project Manager/Superintending Engineer or equivalent/Executive Engineer or equivalent on construction works/Authority Engineer/Independent Engineer Projects (similar configuration (2/4/6 laning*) and above). <7 years -0; 5 years -15 marks Add 1 mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
iii)	Experience in similar capacity in handling major 2/4/6-laning** projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) <4 nos. -0 4 nos. -19 marks Add three marks extra for each additional project subject to maximum 6 (Six) marks.	25		
iv)	Experience in similar capacity of Highway Project of Construction/Construction Supervision/IC on EPC Mode	5		

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
	(of length 40% of project length or more of similar configuration (2/4/6 laneing**) and above) 2 Project- 4 marks Add 1 (one) mark extra for each additional project subject to maximum 1 (one) mark			
3	Employment with the Firm < 1 year -0 1 year - 3 marks Add 0.5 marks for each subsequent years subject to maximum 2 marks	5		
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant: Resident / Highway Engineer
 - ii) On behalf of Contractor: Resident Engineer / Highway Engineer / Project Manager (Construction/Construction Supervision)
 - iii) In Government Organizations: Executive Engineer (or equivalent) and above
- (2) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 12 months
- (3) In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

Assistant Resident Engineer (6 Nos.)

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Graduate in Civil Engineering	21		
ii)	Post Graduation in Transportation/Highway Engineering/Structural Engineering/Geotechnical Engineering	04		
2	Adequacy for the Project	70		
	Professional Experience			

i)	Total Professional Experience in handling Highway projects < 12 years -0 8 years -8 marks Add 1 mark extra for each additional year of experience subject to maximum 2 (two) marks.	20		
ii)	Experience as Resident Engineer/Project Director/Project Manager/Superintending Engineer or equivalent/Executive Engineer or equivalent on construction works/Authority Engineer/Independent Engineer Projects (similar configuration (2/4/6 laning*) and above). <4 years -0; 5 years -15 marks Add 1 mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
iii)	Experience in similar capacity in handling major 2/4/6-laning** projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) < 2 nos. -0 2 nos. -19 marks Add three marks extra for each additional project subject to maximum 6 (Six) marks.	25		
iv)	Experience in similar capacity of Highway Project of Construction/Construction Supervision/IC on EPC Mode	5		

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
	(of length 40% of project length or more of similar configuration (2/4/6 laneing**) and above) 1 Project- 4 marks Add 1(one) mark extra for each additional project subject to maximum 1(one) mark			
3	Employment with the Firm < 1 year -0 1 year - 3 marks Add 0.5 marks for each subsequent years subject to maximum 2 marks	5		
	Total :	100		

Note:

- (4) Similar Capacity includes the following positions
- i) On behalf of Consultant: Resident / Highway Engineer
 - ii) On behalf of Contractor: Resident Engineer / Highway Engineer / Project Manager (Construction/Construction Supervision)
 - iii) In Government Organizations: Executive Engineer (or equivalent) and above
- (5) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 12 months

In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

Bridge/Structural Engineer

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Graduate in Civil Engineering	21		
ii)	Post-Graduation in Structural Engineering	04		
2	Adequacy for the Project	70		
i)	Total Professional Experience in handling Highway/Bridge projects < 10 years -0	15		

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
	10 years -11 marks Add one mark extra for each additional 2 year subject to maximum 4 (four) marks			
ii)	Experience in similar capacity in Design/Construction/Construction Supervision of Bridges/ROB/Flyover/Interchanges/any other such structures(similar configuration(2/4/6laning**)and above) < 5 years -0; 5 years -15 marks Add 1 (one) mark extra for each additional completed year of experience subject to maximum 5 (five) marks	20		
iii)	Experience in similar capacity in supervision of Major Highway Bridges/ROB/Flyover/ Interchanges/ any other structures < 2 Bridges -0 02 Bridge -15 marks Add 2.5 mark extra for each additional bridge subject to maximum 5 marks	20		
iv)	Experience in similar capacity in supervision of Rehabilitation and repair of Major Bridges/ROB/Flyover/ Interchanges/ any other structures < 2 nos. - 0 2 nos. -8 marks > 3 nos.- 10	10		
v)	Experience in similar capacity of modern bridge construction technology viz., Precast Segmental, Balanced Cantilever Construction, Extra dosed Bridge, Full Span Launching, Incremental Launching. Experience in 1 project - 4 marks More than one project - 5 marks	5		
3	Employment with the Firm < 1 year -0 1 year -3 marks	5		

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
	Add 0.5 marks for each subsequent year subject to maximum 2 marks			
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant/Contractor: Bridge Engineer/Project Manager(Bridges)
 - ii) On behalf of Government: Executive Engineer
- (2) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 12 months
- (3) In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

Senior Quality/Material Expert

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
	I) Graduate in Civil Engineering	21		
	II) Post Graduation in Geotechnical Engineering/Foundation Engineering/Soil Mechanics/ Rock Mechanics	04		
2	Adequacy for the Project	70		
	Professional Experience			
i)	Total Professional Experience in handling Highway/Bridge projects < 10 years - 0 10 years - 11 Add one mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
ii)	Experience in similar capacity in Construction/Construction Supervision of major Highway Projects ((similar configuration (2/4/6 laning**) and above)) < 5 years - 0; 5 years - 19 Add 2.0 (two) marks extra for each additional year of experience subject to maximum 6 (Six) marks.	25		

iii)	Experience in similar capacity in handling Similar Highway projects (of length 40% of project length or more of similar configuration (2/4/6laning**) and above) < 2 nos. - 0 2 nos. - 25 Add 2.5 marks extra for each additional project subject to maximum 5 (five) marks.	30		
3	Employment with the Firm < 1 year - 0 1 year - 3 Add 0.5 marks for each subsequent year subject to maximum 2 marks	5		
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant/Contractor: Quality Expert/ Material Engineer/ Material Expert/ Quality Engineer/ Geo-Technical Expert.
 - ii) On behalf of Government: Executive Engineer
- (2) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 12 months
- (3) In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

Road Safety Expert

S. No.	Description	Max. Points	Reference/ Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification		25	
I)	Graduate in Civil Engineering	21		
II)	Post-Graduation in Traffic/ Transportation/ Safety Engineering or equivalent	04		
2	Adequacy for the Project		70	
	Professional Experience			
i)	Total Professional Experience in handling Highway/ Bridge projects < 10 years -0 10 years -11 marks Add one mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
ii)	Experience in similar capacity in Road Safety work on Major Highway Project (similar configuration (2/4/6 laning**) and above). <5 years -0 5 years -11 marks Add one mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
iii)	Experience in similar capacity in Road Safety Audit of 2/4/6-laning** Highway projects at different stages including at least one at design stage < 2 nos. -0 2 nos. -15 marks Add 2.5 mark extra for each additional project subject to maximum 5 marks.	20		
iv)	Experience in similar capacity in identification and improvement of black spots on Major Highway Project (similar configuration (2/4/6 laning**) and above) < 2 nos. -0 2 nos. -8 marks Add 2 mark extra for each additional improvement of black spots subject to maximum 2 marks.	10		
v)	Experience in similar capacity of preparing Road Safety Management Plans for Inter Urban Highway 1 project -4 marks 2 or more -5 marks	5		

vi)	Experience in similar capacity in field of Road Safety Management Plan 1 project -4marks 2 or more -5marks	5		
3	Employment with the Firm <1 year- 0 1 year - 3 marks Add 0.5 marks for each subsequent years subject to maximum 2 marks	5		
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant/Contractor: Road Safety Expert
 - ii) In Government Organizations: Executive Engineer (or equivalent) and above
- (2) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 6 months

Senior Contract Specialist

S. No.	Description	Max. Points	Reference/ Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
I)	Graduate in Civil Engineering	21		
II)	Post Graduate Degree in Law/PG in management/certificate course in management/certificate course in construction management/certificate course in contract management	04		
2	Adequacy for the Project	70		
	Professional Experience			
i)	Total Professional Experience of Contract Management. < 15 years -0 15 years -15 marks Add on mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
ii)	Experience as Contract Specialist on any National/State Highway project. < 4 years -0 4 years -15 marks Add on mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
iii)	Contract Management of a large Highway contracts say over Rs.150 crore including experience of handling variation orders, claims of the contractor and their appropriate disposal < 2 nos. -0 2 nos. -20 Add 2.5 marks extra for each additional project subject to maximum 5 (five) marks.	25		
v)	Experience of Handling Arbitration cases in respect of any Highway project.	5		

	1 project -4marks 2 or more projects-5marks			
3	Employment with the Firm <1 year- 0 1 year - 3 marks Add0.5marksforeachsubsequentyearsupto maximum 2marks	5		
	Total :	100		

HEALTH & SAFETY ENGINEER

S. No.	Description	Max. Points	Reference/ Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
I)	Graduate in Civil/Mechanical/Mining Engineering or equivalent	21		
II)	Post graduate qualification in Industrial and Construction safety	04		
2	Adequacy for the Project	70		
	Total Professional Experience			
a i)	<10 years - 0 10 years - 11 marks Add 1 mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
A ii)	Experience Road Safety Works <5 years - 0 5 years - 11 marks Add 1 mark extra for each additional year of experience subject to maximum 4 (four) marks.	15		
a iii)	International exposure in safety works in developed countries <7 years - 0 7 years - 7 marks Add 1 mark extra for each additional project subject to maximum 3 (three) marks.	10		
b	Experience in Similar Capacity			
b i)	Experience in similar capacity of Safety Audits during construction stage of Road projects. < 2 projects - 0 2 projects - 15 marks Add 1.25 mark extra for each additional project subject to maximum 5 (five) marks.	20		
b ii)	Experience in working on height / deep foundations and live traffic situation and imparting safety training to construction managers and workers	10		

C)	OSHAS /NIBOSH certification is mandatory	5		
3	Employment with the Firm <1 year- 0 1 year - 3 marks Add 0.5 marks for each subsequent year subject to maximum 2 marks	5		
	Total :	100		

Note: Max Age = 65 Years

ENVIRONMENTAL SPECIALIST

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Graduate in Civil Engineering	21		
ii)	Post Graduation in Environmental Engineering	04		
2	Adequacy for the Project	70		
	Professional Experience			
i)	Total Professional Experience < 12 years -0 12 years -8 marks Add 1 mark extra for each additional year of experience subject to maximum 2 (two) marks.	20		
ii)	Experience in similar capacity (similar configuration (2/4/6 laning*) and above). < 5 years -0; 5 years -15 marks Add 1 mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
iii)	Experience in similar capacity in handling major 2/4/6-laning** projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) < 2 nos. -0 2 nos. -19 marks Add three marks extra for each additional project subject to maximum 6 (Six) marks.	25		
iv)	Experience in similar capacity of Highway Project of Construction/Construction Supervision/IC on EPC Mode	5		

	(of length 40% of project length or more of similar configuration (2/4/6laning**) and above) 1 Project- 4 marks Add 1 (one) mark extra for each additional project subject to maximum 1 (one) mark			
3	Employment with the Firm < 1 year -0 1 year - 3 marks Add 0.5 marks for each subsequent year subject to maximum 2 marks	5		
	Total :	100		

Note:

- (1) Similar Capacity includes the following positions
 - i) On behalf of Consultant: Resident / Highway Engineer
 - ii) On behalf of Contractor: Resident Engineer / Highway Engineer / Project Manager (Construction/Construction Supervision)
 - iii) In Government Organizations: Executive Engineer (or equivalent) and above
- (2) Only those projects (in numbers) will be considered for evaluation above, where the input of the personnel is not < 12 months

In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

LABOUR/SOCIAL SPECIALIST

S. No.	Description	Max. Points	Reference/Details of projects Claimed for self-assessment	Marks self-assessed by the bidder
1	General Qualification	25		
i)	Any Graduation	21		
ii)	Post Graduation in Sociology/Social Work	04		
2	Adequacy for the Project	70		
	Professional Experience			
i)	Total Professional Experience < 12 years -0 12 years -8 marks Add 1 mark extra for each additional year of experience subject to maximum 2 (two) marks.	20		
ii)	Experience in similar capacity (similar configuration (2/4/6 laning*) and above). < 5 years -0; 5 years -15 marks Add 1 mark extra for each additional year of experience subject to maximum 5 (five) marks.	20		
iii)	Experience in similar capacity in handling major 2/4/6-laning** projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) < 2 nos. -0 2 nos. -19 marks Add three marks extra for each additional project subject to maximum 6 (Six) marks.	25		
iv)	Experience in similar capacity of Highway Project of Construction/Construction Supervision/IC on EPC Mode	5		

	(of length 40% of project length or more of similar configuration (2/4/6laning**) and above) 1 Project- 4 marks Add 1(one) mark extra for each additional project subject to maximum 1(one) mark			
3	Employment with the Firm < 1 year -0 1 year – 3 marks Add 0.5 marks for each subsequent year subject to maximum 2 marks	5		
	Total :	100		

Note:

In case of experience on behalf of Authority's Engineer or Contractor, the experience shall be duly endorsed by the respective Government agency. However, the key personnel/ bidder will be solely responsible for any fake information/ CV, which may result in debarment.

SECTION3: FORMATS FOR SUBMISSION OF FIRMS CREDENTIALS

The proposal should contain the following information in enclosed format attached at Appendix A.

- Year of Establishment of Firm
- Average annual turnover (last three years)

Note: The Firm shall submit Certificate of Incorporation and audited balance sheet for the last three years [FY 2017-2018, FY 2018-2019 and FY 2019-2020]. For claiming experience of Highway projects, completion certificate from employer should be enclosed. The proposal should also contain the details of the key personnel viz. their name, qualification, expertise area, experience and years of association with the firm.

Due to present issues relating to pandemic this year, if the audited statements are not available for the FY 2019-2020, statements pertaining to immediate past three years shall be submitted.

Appendix A

The following information related to the firm should be provided in the proposal.

- i. Name of the package applied for:-
- ii. Year of establishment of firm*

Consultant	Year of Establishment	Country	Type of Organization			
			Individual	Partnership	Corporation	Other
Individual/Lead Partner(ofJV)/ MinorPartnerof JV/Associate						

NOTE:- Year of Establishment of Lead Partner of JV shall be considered.

*Copy of Certificate of incorporation shall be submitted.

- iii. Office/ Business Address/Telephone nos. /CableAddress.
- iv. Narrative description of firm (Not more than 2sheets)
- v. Name of two (2) principals who may be contacted with title and telephone number/faxnumber/e-mail.
- vi. Financial Statement of the last three years.**

Sl. No.	Particular	<2017-18>	< 2018-19>	<2019-20>
i.	Annual turnover from Consulting business			
ii.	Total Assets			
iii.	Current Assets			

Balance Sheet/ Auditor Certificate of last 3years <2017-18, 2018-19 and 2019-20> shall be submitted as evidence of Annual Turnover.

- **
- a) the amount shall be stated in INR. (Consider 1US Dollar = Rs. And 1 Euro = Rs.) (This will be the exchange rates as per Reserve Bank of India rounded off to nearest Rupee applicable at the time of RFPinvitation).
 - b) The currency conversion rate for the respective years shall be mentioned for other International currencies.
- vii. Experience as Authority Engineer/Independent Consultant/Construction supervision of Highway projects, separately for PPP and non-PPP Projects during the last 7 years.***

S No	Projects Name / Year	Type of Services rendered	Description of Highway Project/ Length (kms)	Client (with complete address, contact person, Telephone Nos. and Fax Nos.)	Total Fee for the Consultancy Assignment (INR)	Fee received by Applicant(in case of JV/Association)	%ageof total fee received by the firm	Approx. Cost of Highway Project	Period
1	2	3	4	5	6	7	8	9	10
	A. Completed / Substantially completed projects:								

S No	Projects Name / Year	Type of Services rendered	Description of Highway Project/ Length (kms)	Client (with complete address, contact person, Telephone Nos. and Fax Nos.)	Total Fee for the Consultancy Assignment (INR)	Fee received by Applicant (in case of JV/Association)	%age of total fee received by the firm	Approx. Cost of Highway Project	Period
		1. 2. 3. B. Projects in progress: 1. 2. 3.							

viii. Experience in DPR/ Feasibility Study cum Preliminary Design Report preparation of 2/4/6 laning / Bridge Highway Projects separately for the PPP and non-PPP projects during the last 7 years.***

S No	Projects Name / Year	Type of Services Rendered	Length of Project (kms)	Client (with Complete address, contact person, telephone Nos. and Fax Nos.)	Total Fee for the Consultancy Assignment (INR)	Fee received by Applicant (in case of JV/Association)	%age of total fee received by the firm	Period
1	2	3	4	5	6	7	8	9

***a) 2/4/6 lane/Bridge work as applicable for the project for which RFP is invited. For 2-lane projects experience of 4/6 lane also to be considered with a multiplication factor of 1.5. Experience of 4/6 lane shall be considered interchangeably for 4/6 laning projects. For 4/6 lane projects, experience of 2 lane will be considered with a multiplication factor of 0.4, but only for those 2-lane projects whose cost of consultancy services was more than Rs.3.0 crores. For standalone bridge projects, experience in bridgework (either standalone project or as a part of road project) only be considered.

- b) Only those projects, to be included in the table which are Highways Projects and for which clients certificates from the concerned Government agencies are enclosed with the proposal.
- c) The details of bridges having length more than 200m (500m in case the project consist of bridges of length more than 500m) in the listed projects is to be specifically mentioned.
- d) The weightage given for experience of a firm would depend on the role of the firm in the respective assignments. The firm's experience would get full credit if it was the

sole firm in the respective assignment. If the applicant firm has completed projects as JV with some other firms, weightage shall be given as per the JV share***. However if the applicant firm has executed the project as associate with some other firms, 25% weightage shall be given to the applicant firm for the projects completed under such association

- e) For weightage of experience in any past Consultancy assignment, experience certificate from the client shall be submitted. In absence of clear demarcation of JV share in client certificate, the weightage will be treated as 60 % for lead partner and 40% for minor partner. Annual turnover duly certified by Chartered Accountant shall be accepted. In case of non-availability of such documents no weightage of turnover/experience will be considered.

- (ix) Assignments on hand including those for which the Letter of Acceptance from the clients received as on 7 days prior to due date for submission of proposals: The details shall be given in the following format.

S. No	Name of Assignment	Client	Role of the firm	Date of letter of Acceptance	Date of Agreement if signed	Present status of Assignment	Team Members provided by the firm		
			Sole, Lead/ Other in JV or sub-consultant				Name	DOB	Position
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Key Personnel	Number of key personnel employed		
	Sole Applicant (Lead Member in case of JV)	JV (1)	
Team Leader cum Senior Highway Engineer			
Resident cum Highway Engineer			
Bridge/Structural Engineer			
Senior Pavement Specialist			
Senior Quality cum Material Expert			
Road Safety Expert			

SECTION 4: FORMAT FOR SUBMISSION OF TECHNICAL PROPOSAL

Appendix B-1	Technical proposal submission form.
Appendix B-2	Site Appreciation
Appendix B-3	Approach paper on methodology for performing the assignment
Appendix B-4	Facility for field investigation and testing
Appendix B-5	Composition of the Team and Task(s) of each Team member
Appendix B-6	Curriculum vitae of proposed Professional staff.
Appendix B-7	Time schedule for deployment of Professional staff
Appendix B-8	Activity (works) schedule.
Appendix B-9	Affidavit - Correctness of Experience claimed by the Firms
Appendix B-10	Integrity Pact

APPENDIX B-1-Technical proposal submission form.

FROM (Name of Firm)

To: (Name and Address of Client)

Ladies/Gentlemen:

Subject: Submission of Technical and Financial Proposal for engagement as Authority Engineer for the EPC work.

We, the undersigned, offer to provide the consulting services for the above in accordance with your Request for Proposal dated (Date), and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal and a Financial Proposal sealed under a separate envelope for the above mentioned work.

Our Proposal is binding upon us. We understand you are not bound to accept any Proposal you receive

We remain,

Yours sincerely,

Managing Director/Head of the firm/
Authorised Representative of the firm +*

Name of the firm

Address

*Lead Member in case of JV

APPENDIX B-2: SITE APPRECIATION

Shall give details of site as per actual site visit and data provided in RFP and collected from site supported by photographs to demonstrate that responsible personnel of the Authority's Engineer have actually visited the site and familiarized with the salient details/ complexities and scope of services.

APPENDIX B-3: APPROACH PAPER ON METHODOLOGY FOR PERFORMING THE ASSIGNMENT

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

- 1) Methodology for services, surveying, road condition data collection and analysis [not more than 2 pages]
- 2) Key challenges foreseen and proposed solutions in carrying out the assignment [not more than 1 page]
- 3) Quality Audit methodology including Quality Assurance Plan [not more than 6 pages]

APPENDIX B-4: FACILITY FOR FIELD INVESTIGATION AND TESTING

1. State whether applicant has in-house (created in house at site)/ outsourced/ not available facility for
 - ▢ Surface defects detection and roughness measurement using Network Survey Vehicle
 - ▢ Pavement strength measurement using FWD
 - ▢ Bridge inspection using Mobile Bridge Inspection Unit
 - ▢ Road signs inspection using Retro Reflectometer
2. In case answer to 1 is available (created in house at site) a list of field investigation and testing equipment is to be attached
3. In case answer to 1 is outsourced/not available – arrangements made or proposed to be made for each of the above field investigations is to be attached
4. For experience in NSV, FWD, MBIU and reflectometer, references need to be provided in the following format:

REFERENCES

Relevant Services Carried Which Best Illustrate Qualifications

The following information should be provided in the format below for each reference assignment for which your firm, either individually as a corporate entity or as one of the major companies within a consortium, was legally contracted by the client:

Assignment Name:		Country:
Location within Country:		Professional Staff Provided by your firm:
Name of Client :		No. of Staff :
Address :		No. of Staff Months :
Technology Used:		
Start Date (Month / Year)	Completion Date (Month / Year)	Approx. Value of Services in INR/current USD):
Name of JV/ Association Firm(s) if any:		No. of Months of Professional Staff provided by Associated Firm(s)
Status of your Company in the Assignment i.e., Sole/Lead Member/Other Member/Associate		
Narrative Description of Project :		
Description of Actual Services Provided by your Company:		

Signature of Authorised Representative
(Certificate from Employer regarding experience should be furnished)

APPENDIX B-5: COMPOSITION OF THE TEAM PERSONNEL, AND TASK(S) OF EACH TEAM MEMBER

2. Technical/ManagerialStaff

Sl. No.	Name	Position	Task
1			
2			
3			
4			
...			
...			

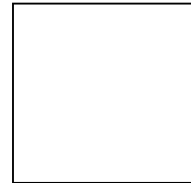
i. SupportStaff

Sl. No.	Name	Position	Task
1			
2			
3			
4			
...			
...			

APPENDIX B-6 : FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

Proposed Position:.....

Photograph



Name of Firm:.....

Name of Staff:.....

Profession:.....

Date of Birth :

Years with Firm/Entity: Nationality:..... Membership of

Professional Societies :.....

Detailed Task Assigned :

Certification by the Candidate

I, the undersigned, (Name and Address) undertake that this CV correctly describes myself, my qualifications and my experience and Employer would be at liberty to debar me if any information given in the CV, in particular the Summary of Qualification & Experience vis-à-vis the requirements as per TOR is found incorrect. I further undertake that I have neither been debarred by **any of the Government agencies in Kerala** or any other central/stage government organization nor left any assignment with the consultants engaged by Employer / contracting firm (firm to be supervised now) for any continuing work of Employer without completing my assignment. I will be available for the entire duration of the current project (named...). If I leave this assignment in the middle of the work, Employer would be at liberty to debar me from taking any assignment in any of the Employer works for an appropriate period of time to be decided by the Employer. I have no objection if my services are extended by the Employer for this work in future.

I further undertake that my CV is being proposed for this project by ----- (the applicant firm) and I have not given consent to any other consultant(s) to propose my CV for any position for this project.

I further undertake that if due to my inability to work on this project due to unavoidable circumstances, due to which consultant's firm is forced to seek replacement. In such unavoidable circumstances, I shall not undertake any employment in Employer projects during the period of assignment of this project and Employer shall consider my CV invalid till such time.

I undertake that I have no objection in uploading/hosting of my credentials by Employer in public domain.

For Key Personnel having intermittent inputs, add the following:

I further certify that I am associated with the following assignments as on date (as on 7 days prior to due date for submission of proposal) including those for which LOA has been received by the firm and the inputs in these assignments shall not effect the work of the current assignment.

Name of Assignment	Client	Date of LOA	Likely start (Month / Year)	Likely end (Month / Year)	Total input of the person (man-months)

.....
(Signature of Key Personnel)

Date

(Day/Month/Year)

The Authority's Engineer should carry out self-evaluation based on the evaluation criteria at Appendix-EC and furnish the same here. While submitting the self-evaluation along with bid, Authority's Engineer shall make references to the documents which have been relied upon in his self-evaluation.

Certification by the firm

The undersigned on behalf of -----(name of consulting firm) certify that Shri ----- (name of proposed personnel) to the best of our knowledge has neither been debarred by **any of the Government agencies in Kerala** or any other Central/State Government organization nor left his assignment with any other consulting firm engaged by the Employer/Contracting firm (firm to be supervised now) for the ongoing projects. We understand that if the information about leaving the past assignment is known to the Employer, Employer would be at liberty to remove the personnel from the present assignment and debar him for an appropriate period to be decided by the Employer.

.....Date..... (Day/Month/Year)

[Signature of authorized representative of the Firm]

- a) Deleted.
- b) Deleted.
- c) Deleted.
- d) Deleted.
- e) Deleted.
- f) Deleted

APPENDIXB-7: TIME SCHEDULE FOR PROFESSIONAL PERSONNEL

A. ActivitySchedule

Sl. No.	Name	Position	Month wise Program(in form of Bar Chart)												Number of Months
			[1 st , 2 nd , etc. are months from the start of assignment]												
			1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th and subsequent year	
1															Subtotal(1)
2															Subtotal(2)
3															Subtotal(3)
4															Subtotal(4)
-															-
-															-

APPENDIXB-8 : ACTIVITY(WORKS)SCHEDULE

B. ActivitySchedule

Sr.No.	Item of Activity (Works)	Month wise Program(information of Bar Chart)											
		[1 st ,2 nd , etc. are months from the start of assignment]											
		1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
1												
2												
3												
4												
-												
-												

C. Completion and Submission ofReports

Sr.No	Reports :	Programme Date)
1	Monthly reports (Design and Construction)	
2	Quarterly Reports	
3	Various others reports as provided in the Concession Agreement such as Completion Report	

**APPENDIX B-9: AFFIDAVIT FOR CORRECTNESS OF CV OF KEY PERSONNEL AND
EXPERIENCE CLAIMED BY THE FIRMS**

(To be submitted on non-judicial Stamp Paper)

I, the undersigned, on behalf of _____ (name of the Authority's Engineer submitting the proposal), do hereby certify that the details furnished in this proposal including CV of key personnel and experience claimed by the firm/firms are true and correct to the best of my knowledge and belief.

**Managing Director/Head
of the Firm/Authorised Representative
of the firm*
Address
*Lead Member in case of JV**

APPENDIX B-10: INTEGRITY PACT

(To be executed on plain paper and submitted along with Technical Bid/Tender documents for tenders having a value between Rs.5 Cr and 100 Cr. To be signed by the bidder and same signatory competent/ authorized to sign the relevant contract on behalf of the **KSTP**)

Tender No. _____

This integrity Pact is made at _____ on this _____ day of _____ 2018.

Between

KSTP, hereinafter referred to as "**The Principal**", which expressions shall unless repugnant to the meaning or contract thereof include its successors and permitted assigns.

And

_____ hereinafter referred to as "**The Bidder/Contractor /Concessionaire/Consultant**" and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.

Preamble

Whereas, the Principal intends to award, under laid down organizational procedures, contract/s for "**Authority Engineer Services for the project of *****in the State of ***** under NHDP Phase-**** on ***** mode**". The Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and off fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s)/Concessionaire(s)/ Consultant(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as Integrity Pact) the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties. Now, therefore, in consideration of mutual covenants stipulated in this pact, the parties hereby agree as follows and this pact witnesses as under:-

Article-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, 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 Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s)

confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

- c. The Principal will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.
2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a substantivesuspicioninthisregard,thePrincipalwillinformtheChiefVigilanceOfficer and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

Article – 2 Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s).

The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) commit himself 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)/ Concessionaire(s)/ Consultant(s) will not, directlyorthroughanyotherpersonorfirmand,offer,promiseorgivetoanyofthe Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is notlegallyentitledto,inordertoobtaininexchangeanyadvantageofanykind whatsoever during the tender process or during the execution of thecontract.
- (b) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not enter withotherBiddersintoanyundisclosedagreementorunderstanding,whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission or bids or anyotheractionstorestrictcompetitivenessortointroducecartelizationinthe biddingprocess.
- (c) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not commit any offence under the relevant IPC/PC Act and other Statutory Acts; further the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not use improperly, for purposes of completion 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 transmittedelectronically.
- (d) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of foreign-origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian Nationality shall furnish the name and address of the foreign principle, ifany.
- (e) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will, when presenting his bid, disclose any and all payments he has made, is committed to orintendstomaketoagents,brokersoranyotherintermediariesinconnection

with the award of the contract. He shall also disclose the details of services agreed upon for such payments.

- (f) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- (g) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

Article-3 Disqualification from tender process and exclusion from future contracts.

1. If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) from the tender process.
2. If the Bidder/ Contractor/ Concessionaire/ Authority's Engineer has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist and put on holiday the Bidder/ Contractor/ Concessionaire/ Authority's Engineer for any future tenders/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder/ Contractor/ Concessionaire/ Authority's Engineer and the amount of the damage. The exclusion will be imposed for a minimum of 1 year.
3. A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that "On the basis of facts available there are no material doubts".
4. The Bidder/ Contractor/ Concessionaire/ Authority's Engineer with its free consent and without any influence agrees and undertakes to respect and uphold the Principal's absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
5. The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder/ Contractor/ Concessionaire/ Authority's Engineer shall be final and binding on the Bidder/ Contractor/ Concessionaire/ Consultant.

6. On occurrence of any sanctions/ disqualification etc arising out from violation of integrity pact, the Bidder/ Contractor/ Concessionaire/ Authority's Engineer shall not be entitled for any compensation on this account.
7. Subject to full satisfaction of the Principal, the exclusion of the Bidder/ Contractor/ Concessionaire/ Authority's Engineer could be revoked by the Principal if the Bidder/ Contractor/ Concessionaire/ Authority's Engineer can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

Article - 4 Compensation for Damages.

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security (equivalent to 1% of Contract Price) apart from any other legal right that may have accrued to the Principal.
2. In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/ Concessionaire/ Consultant's Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Authority's Engineer and/ or demand and recover liquidated and all damages as per the provisions of the contract/concession agreement against Termination.

Article-5 Previous Transgression

1. The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anticorruption/ Transparency International (TI) approach or with any other Public Sector Enterprise/ Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

Article-6 Equal treatments of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors.

1. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
2. The Principal will enter into agreements with identical conditions as this one with all Bidders/ Contractors/ Concessionaires/ Consultants and Subcontractors.

3. The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

Article - 7 Criminal charges against violating Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s).

If the Principal obtains knowledge of conduct of a Bidder/ Contractor/ Concessionaire/ Authority's Engineer or Subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/ Concessionaire/ Authority's Engineer or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Article-8 Pact Duration

This Pact begins when both parties have legally signed it. (In case of EPC i.e. for projects funded by Principal and consultancy services). It expires for the Contractor/ Authority's Engineer 12 months after his Defect Liability period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders 6 months after this Contract has been awarded. (In case of BOT Projects) It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded.

If any claim 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 **KSTP**.

Article - 10 Other Provisions.

1. This pact is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e.....
2. Changes and supplements as well as termination notices need to be made in writing.
3. If the Bidder/Contractor/Concessionaire/Authority's Engineer is a partnership or a consortium, this pact 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 remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
5. Any disputes/differences arising between the parties with regard to term of this pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
6. The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

In witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of following witness:-

(For & On behalf of the Principal)

(For & On behalf of the Bidder/
Contractor/ Concessionaire/ Authority's
Engineer)

(Office Seal

)Place _____

Date _____

Witness 1 :

(Name & Address): _____

Witness 2 :

(Name & Address): _____

SECTION 5: FORMAT FOR SUBMISSION OF FINANCIAL PROPOSAL.

Appendix C-1 Financial proposal submission form

Appendix C-2 Summary of costs

Appendix C-3 Breakdown of costs

APPENDIX C-1: FINANCIAL PROPOSAL SUBMISSION FORM

FROM : (Name of Firm)

TO :

Address of Employer

Subject :

We, the undersigned, offer to provide the consulting services for the above in accordance with your Request for Proposal dated [Date], and our proposal. Our attached financial proposal is for the sum of [Amount in words and figures]. This amount is exclusive of the local taxes which we have estimated at (Amount in Words and Figures).

Our financial proposal shall be binding upon us upto the expiration of the validity period of the proposal, i.e., [Date].

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Commission and gratuities, if any, paid or to be paid by us to agents relating to this proposal and contract execution, if we are awarded the contract, are listed below:

Name and Address of Agents	Amount and Currency	Purpose of Commission or Gratuity
.....
.....

We understand you are not bound to accept any proposal you receive.

We remain,
Yours
sincerely,

**Managing Director/Head of the firm/
Authorised Representative of the firm***

Name of the firm

Address

*Lead Member in case of JV

APPENDIX C-2: SUMMARY OF COSTS

No.	Description	Amount (Rs.)
I	Remuneration for Local Professional Staff	
II	Supporting Staff	
III	Transportation	
IV	Duty Travel to Site	
V	Office Rent	
VI	Office Supplies, Utilities and Communication	
VII	Office Furniture and Equipment	
VIII	Reports and Document Printing	
IX	Road Survey Equipment	
X	Contingencies	
	Sub Total	
	Goods and Services Tax Payable in India	
	Total Costs (Including Tax)	

Note: Payments will be made as per stipulations of the Conditions of Contract.

APPENDIX C-3: BREAKDOWN OF LOCAL CURRENCY COSTS

II. REMUNERATION FOR LOCAL PROFESSIONALSTAFF

Road Project

For Project with Construction Period

No.	Position	Name	ConstructionPeriod+DLP		
			Rate	No. of man-months*	Amount
	Professional Staff				
1.	Team Leader cum Senior Highway Engineer				
2.	Resident Engineer cum pavement specialist				
3.	Assistant Resident Engineer (6 Nos.)				
4.	Bridge/Structural Engineer				
5.	Senior Quality cum Material Expert				
6.	Road Safety Expert				
7.	Senior Contract Specialist				
8.	Environmental Specialist				
9.	Health & Safety Engineer				
10.	Labour/Social Specialist				
	Sub - Total				
	Sub-professional				
1.	Quantity Surveyor				
2.	Survey Engineer				
3.	Lab Technicians				
	Sub Total				
	Total				

***The man-month against each key personnel/sub - professional shall be same as specified in Enclosure A of TOR.**

II. Support Staff

No.	Position	Name	Staff Months	Billing Rate()	Amount()
1.	Office Manager	TBN			
2.	Accountant cum Cashier	TBN			
3.	Steno cum Computer Operator	TBN			
4.	Office Boy (1 no)	TBN			
				Total :	

Note: Billing rates as indicated above shall be increased in accordance of clause 6.2(a) Special Conditions of Contract for the personnel of all categories namely (i) key Personnel; (ii) sub-Professional personnel and (iii) Support staff. The increase as above shall be payable only on the remuneration part of Key Personnel, Sub-Professional Personnel and support staff. However, for evaluation of Bid proposals, the quoted initial rates shall be multiplied by the total time input for each position on this contract, i.e. without considering the increase in the billing rates.

III. Transportation (Fixed rate on rental basis)

The vehicles provided by the Consultants shall include the cost for rental, drivers, operation, maintenance, repairs, insurance, etc. for all complete approx. 3000km/month run

Sr.No	Description of Vehicles	Qty. (No. of vehicle-month)		Total	Rate/ Vehicle- Month	Amount
		During Construction Period	During Development and O&M Period			
1						
2						
	Total					

IV. Duty Travel to Site (Fixed Costs) (For all Lengths of projects): Professional and Sub-Professional Staff

Trips	Number of Trips	Rate*	Amount

* Rate quoted includes Hotel charges, travel cost etc. complete.

V. Office Rent (Fixed Costs) - Minimum 200 sqm area of offices shall be rented. The rent cost includes electricity and water charges, maintenance, Cleaning, repairs, etc. complete.

Nos. of Months	Rate/month	Amount
48		

The rent cost includes electricity and water charges, maintenance, cleaning, repairs, etc. complete.

VI. Office Supplies, Utilities and Communication (Fixed Costs)

No	Item	Months	Monthly Rate	Amount in Rs.
1.	Office Supplies			
2.	Drafting Supplies			
3.	Computer Running Costs			
4.	Domestic and International Communication			

VII. Office Furniture and Equipment (Rental)

The cost shall include rental charges towards all such furniture and equipment as required for proper functioning of office. Office furniture shall include executive tables, chairs, visitor chairs, steel almirahs, computer furniture, conference table etc. Office equipment shall include as a minimum of telephone (2 external & 10 internal lines), photocopier (15 ppm, 12000 copies per month with A3 & A4 input) fax machine, PCs (5 No., Intel Core 2 Duo E8300, 19" colour TFT, Cache-6MB, RAM-2 GB, HDD-250 GB, DVD Writer, Key board, optical scroll mouse, MS-Windows Vista Business, pre-loaded anti-virus etc.), laser printers (2 no., 14 ppm, 266 MHZ, 5000 pages per month, 600x600 dpi or better etc., Engineering Plan printer (1 no.), binding machine (1 no.), plotter A0 size, overhead projector, AC (4 no., 1.5 Ton), Water Coolers (as required) etc.

Nos. of Months	Rate/month	Amount
48		

VIII. Reports and Document Printing

No.	Description	No. of Reports	No. of Copies per Report	Total Nos. of copies	Rate per Copy ()	Amount
1	Monthly reports (Design and Construction)					
2	Half yearly Reports					
3	Various others reports as provided in the Concession Agreements such as Completion Report					
				Total		

IX. Road Survey Equipment

The cost shall include carrying out survey using equipment, manpower, software and report processing.

Item	Kms	Rate per km (INR)	No of times survey to be conducted	Amount (INR)
Surface defects detection and roughness measurement using Network Survey Vehicle				
Pavement strength measurement using FWD				
Bridge inspection using Mobile Bridge Inspection Unit				
Road signs inspection using Retro Reflectometer				
			Total	

X. Contingencies

A fixed amount of Indian Rupees ONE MILLION shall be included in the Financial Proposal. The provisions of Contingency shall be operated with the specific approval from the Competent Authority in **KSTP**.

SECTION 6: TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

[Note: The term "Agreement" and clauses thereof refer to the EPC Agreement dated----- entered between Authority and -----(the Contractor) for the work of from km---- to ---- of Road No.----- in the State of-----on Engineering, Procurement and Construction (EPC) basis].

1. Scope

These Terms of Reference (the "TOR") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated..... (the "Agreement"), which has been entered into between the Authority and (the "Contractor") for [Two-Laning] of the **** section (km ** to km**) of National Highway No. ** in the State of *** on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

The TOR shall apply to construction and maintenance of the Project Highway.

2 Definitions and interpretation

The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be reference to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, *mutatis mutandis*, to this TOR.

3 General

The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining.

- (a) any Time Extension.
- (b) Any additional cost to be paid by the Authority to the Contractor;
- (c) The Termination Payment; or
- (d) Any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs.5,000,000 (Rs. Fifty lakh.)

The Authority's Engineer shall submit regular periodic reports, once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

The Authority's Engineers shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2 EPC Agreement.

The Authority's Engineers shall advise the Authority on any proposal for Change of Scope under Article 13.

In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Role and responsibility of Officers of the Authority

The officer in-charge of the Authority (e.g. PD/RO/CGM/Member in the case of NHAI; RO/CE/ADG in the case of MoRTH projects executed through the State PWDs; and PD/ED/Director in the case of NHIDCL) is responsible for the overall supervision and monitoring of the execution of project as the representative of the owner of the project. The Authority's Engineer is appointed to assist the Authority for carrying out the functions as detailed under clause 18.2 of the EPC Agreement. As such, an officer of the Authority is vested with all such powers and responsibilities as are enjoined upon the Authority's Engineer and is fully competent to issue any instructions for proper monitoring and supervision of the project, either by himself or through the Authority's Engineer. Instructions issued by the concerned officer of the Authority shall have the same effect as that of the Authority's Engineer in terms of this Agreement. Wherever such concerned officer issues any instructions or notice to the Contractor, he shall endorse a copy thereof to the Authority's Engineer.

5 Construction Period

During the Construction Period, the Authority's Engineers shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geotechnical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.6 of EPC Agreement. The Authority's Engineers shall complete such review and approve and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings. The review/approval of drawing should be authenticated by Authority's Engineer.

Quality Assurance Manual and Plan form the basis of quality of the work. It is therefore essential that the Quality Assurance Manual and Plan prepared by the Contractor be checked and approved. Thus, the Authority's Engineer shall check contents of Quality Assurance Plan and Manual of Concessionaire as per requirements of Quality Management System (as per ISO 9001), IRC:SP:47-1998 and IRC:SP:57-2000 for road bridges and roads respectively. The Authority's Engineer shall also offer their comments for modifying/ improving the document. After receiving the corrected document, the Authority's Engineer shall review and formally approve the QAM and Quality Plan and send one copy to the Authority. The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4 EPC Agreement.

The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the contractor within 7 (seven) days of receipt of such report.

On a daily basis, the concerned key personnel of Authority Engineer shall inspect the Construction Works. Following activities need to be undertaken during the visits.

- ▮ Review of construction including progress, quality and safety of construction
- ▮ Inspection of defects and deficiencies in construction works
- ▮ Witnessing quality inspection tests at labs established by Concessionaire on a sample basis

Review of quality of work shall be done in reference to Quality Assurance Plan (QAP)/Manual and ISO 9001:2008, IRC: SP: 47-1998 and IRC: SP: 57-2000 for road bridges and roads respectively. The Authority's Engineer also needs to capture following documents and send to **KSTP** field office via email on a daily basis

- ▮ *Scanned copy of filled RFI (Request for Inspection) form including commentary on 'Satisfactory/Unsatisfactory' nature of work completed by Concessionaire*
- ▮ *Daily inspection report Proforma as provided in Annexure I*
- ▮ *Readings of quality inspection tests witnessed by the Consultant*
- ▮ *Minimum 6 high resolution photographs supporting the remarks made by the Authority's Engineer in RFI form*

Team Leader will be responsible for sending daily emails to **KSTP** office

On a monthly basis, the Authority Engineer shall prepare a **Monthly Inspection Report** in accordance with the format prescribed in **Annexure V** setting forth an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Authority Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project Highway. The Authority Engineer shall send a copy of its Inspection Report to the Authority and the Concessionaire latest by 7th of every month. Key sections of the Monthly Progress Report are as follows.

S No.	Section	Sub-Sections
1	Executive Summary	1.1 Construction progress in current month
		1.2 Summary of strip plan
		1.3 Detailed strip plan
		1.4 Current issues and recommended actions by AE
2	Project Overview	2.1 Salient Features of the Project
		2.2 Project Milestones
		2.3 Location Map
		2.4 Key Plan
3	Critical issues and Action log	3.1 Pending issues and action log
		3.2 Obligations as per contract
4	Physical Progress	4.1 Detailed physical progress by component
5	Land Acquisition and Clearances	5.1 LA summary
		5.2 LA detail by CALA
		5.3 LA detail by village
		5.4 Manpower with each CALA
		5.5 Clearances summary
		5.6 Status of utility shifting
6	Change of Scope	6.1 Status of pending COS proposals
7	Mobilization of Resources	7.1 Resource mobilization by contractor/ concessionaire
8	Financial Progress Details	8.1 Pen picture- Escrow
		8.2 Escrow details
9	Summary of quality control tests	9.1 Tests witnessed by IE/AE
		9.2 Tests conducted by IE/AE
10	Monitoring of maintenance obligations during construction phase	10.1 Critical issues and action log
		10.2 Cumulative defects and deficiencies
		10.3 Status of damages
11	Safety features	11.1 Pen picture on safety features at construction site
		11.2 Accident report
12	Annexures	Annex 1: Detailed list of physical components as per Schedule G
		Annex 2 onwards: Additional details provided by AE

If at any time during the Construction Period, the Authority Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and Users in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the Users, it shall make a recommendation to the Authority forthwith, identifying the whole or part of the Construction Works that should be suspended for ensuring safety in respect thereof.

The Authority's Engineer shall conduct the pre-construction review of manufacturer's reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.

For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORT&H (the "Quality Control Manuals") or any modifications/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

The Authority's Engineer shall test check at least 60 (sixty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

The timing of tests referred to in Paragraph 5.10, and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.

The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 of EPC Agreements shall apply.

In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the

Authority's Engineers shall review the same and send its comments to the Authority and the Contractor forthwith.

The Authority's Engineers shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2 of EPC Agreement.

Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K. The Authority's Engineer shall use following equipment in carrying out the tests.

S No	Key metrics of Asset	Equipment to be used
1	Surface defects of pavement	Network Survey Vehicle (NSV)
2	Roughness of pavement	Laser Profilometer
3	Strength of pavement	Falling Weight Reflectometer (FWD)
4	Bridges	Mobile Bridge Inspection Unit (MBIU)
5	Road signs and road markings	Retro-reflectometer

6 Maintenance Period

The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with Contractor.

The Authority's Engineer shall undertake regular inspections, at least once every month to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

Visual Inspection of project highway

The Authority Engineer shall carry out visual inspection of entire highway stretch as per the frequency defined in the following table

Nature of defect or deficiency		Frequency of inspection
ROADS		
(a)	Carriageway and paved shoulders	
(i)	Breach or blockade	Daily
(ii)	Pot holes	Daily
(iii)	Cracking	Weekly
(iv)	Rutting	Weekly
(v)	Bleeding/skidding	Weekly
(vi)	Ravelling/Stripping of bitumen surface	Weekly
(vii)	Damage to pavement edges	Weekly
(viii)	Removal of debris	Daily
(b)	Hard/earth shoulders, side slopes, drains and culverts	
(i)	Variation by more than 2% in the prescribed slope of camber/crossfall	Weekly
(ii)	Edge drop at shoulders	Weekly
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	Weekly
(iv)	Rain cuts/gullies in slope	Weekly
(v)	Damage to or silting of culverts and side drains during and immediately preceding the rainy season	Weekly
(vi)	Desilting of drains in urban/semi-urban areas	Daily
(c)	Road side furniture including road signs and pavement marking	
(i)	Damage to shape or position; poor visibility or loss of retro-reflectivity	Daily
(d)	Street lighting and telecom (ATMS)	
(i)	Any major failure of the system	Daily
(ii)	Faults and minor failures	Daily
(iii)	Streetlight with Lux Meter	Weekly
(e)	Trees and plantation	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	Daily
(ii)	Deterioration in health of trees and bushes	Weekly
(iii)	Replacement of trees and bushes	Weekly
(iv)	Removal of vegetation affecting sight line and road structures	Weekly
(f)	Rest areas/Wayside amenities	
(i)	Cleaning of toilets	Daily
(ii)	Defects in electrical, water and sanitary installations	Daily
(g)	Toll plaza[s]	
(i)	Failure of toll collection equipment including ETC or lighting	Daily
(ii)	Damage to toll plaza	Weekly
(h)	Other Project Facilities and Approach roads	
(i)	Damage or deterioration in Approach Roads, -[pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works]	Daily
(j)	Incident Management	

Nature of defect or deficiency		Frequency of inspection
(i)	Instances of Incident Management as reported including time of call, response time, services rendered and time of clearing of the Highway.	Daily
(ii)	List of the Incident Management Services rendered.	Weekly
BRIDGES		
(a) Superstructure of bridges		
(i)	Cracks	Weekly
(ii)	Spalling/scaling	Weekly
(b) Foundations of bridges		
(i)	Scouring and/or cavitation	Weekly
(c) Piers, abutments, return walls and wing walls of bridges		
(i)	Cracks and damages including settlement and tilting	Weekly
(d) Bearings (metallic) of bridges		
(i)	Deformation	Weekly
(e) Joints in bridges		
(i)	Loosening and malfunctioning of joints	Weekly
(f) Other items relating to bridges		
(i)	Deforming of pads in elastomeric bearings	Weekly
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weepholes and vent-holes	Weekly
(iii)	Damage or deterioration in parapets and handrails	Weekly
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	Weekly
(v)	Damage to wearing coat	Weekly
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	Weekly
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	Weekly

All elements which have daily inspection frequency shall be inspected weekly as well. Similarly, all elements which have weekly inspection frequency shall be inspected monthly as well.

Daily inspection report format and weekly inspection report format has been provided in Annexure II and III of this document respectively. Manpower which needs to conduct visual inspection and mode of reporting is defined in the following table

Frequency of inspection	Inspection to be carried out by	Mode of reporting
Daily	Sub-professional staff	Soft copy by Email
Weekly	Key personnel	Soft copy by Email
Monthly	Key personnel	Hard copy and Soft copy

High resolution photographs and video of the highway stretches having defects and/or deficiencies shall be submitted along with Weekly Inspection Report and Monthly Status Report. Summary of key observations around defects and deficiencies in highway stretch shall be reported in Monthly Progress Report and detailed inspection report shall be provided as Annexure to Monthly Progress Report.

The Authority's Engineer shall also be responsible for inspection and monitoring of Wayside

Amenities. ETC (Electronic Toll Collection) and ATMS (Advanced Traffic Management System) and incident management.

Road conditions surveys

The carrying out of condition surveys will be one of the most important and crucial field tasks under the project. The Authority Engineer shall carry out condition surveys using equipment and following a frequency as defined under.

S No	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Laser Profilometer	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Reflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBIU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first equipment based inspections shall be conducted at the time of completion testing. The other inspections shall be conducted before and after the rainy seasons as per the schedule defined in Annexure IV, except for FWD testing which shall be conducted once a year.

Calibration of equipment, wherever needed, is required to be done in presence of Competent Authority. Once approval of equipment, the settings and a sample data set is provided by Competent Authority, network level data for entire project stretch can be collected. Month of survey for each state has been defined in Annexure IV of this document.

Measurement of pavement surface defects and roughness

- i. The Authority Engineer shall use Network Survey Vehicles mounted with equipment such as Laser based automatic crack detection, high resolution digital cameras for RoW and pavement, high accuracy DGPS receiver and in vehicle data processing software or better technology to accurately measure following pavement surface properties

Surface defect	Dimensions to be reported
Cracking	<ul style="list-style-type: none"> • Length • Width • Depth
Potholes	<ul style="list-style-type: none"> • Area • Depth
Raveling	<ul style="list-style-type: none"> • Indicator

Surface defect	Dimensions to be reported
	<ul style="list-style-type: none"> •% •Area
Rutting	<ul style="list-style-type: none"> •Depth •Width
Concrete Joint/ Faulting	<ul style="list-style-type: none"> •Length
Roughness	<ul style="list-style-type: none"> •IRI in both wheel paths

- ii. The following criteria shall be met by the process of defects detection
- ▮ Measurement of 3D road profile using such technologies as laser scanning or other proven technologies.
 - ▮ Ability to operate (collect data) at different speeds with a minimum speed of 30km/hr and upto at least 75 km/hr.
 - ▮ Profile depth accuracy of 0.5mm
 - ▮ Capability for lane tracking to control driver wander' and ensure high repeatability of data between surveys.
 - ▮ Measure at least 3.5m width of highway lane.
 - ▮ Transverse Profile including rut depth measurement of pavement surface widths of both carriageway and shoulders. The rut depth data must be convertible to different straightedge lengths (1.8m to 3.5m) and meet industry standards (ASTM E1703 /E1703M).
 - ▮ Pavement images with capability to automatically identify and rate distresses
 - ▮ Roughness measurement with outputs of both raw longitudinal profiles and International Roughness Index (IRI) calculations shall be reported at least 100m referenced to the preceding Location Reference Post (LRP). The roughness must meet ASTM-E950 (equivalent to Class I road profiler). The IRI shall be determined in both wheel paths.
 - ▮ Ability to record images at user-defined intervals (e.g. every 5, 10m, etc.)
 - ▮ Minimum images resolution of 1600x1200
 - ▮ Outputs must include Standard JPEG image or similar industry standard
 - ▮ Distance resolution of <1mm,
 - ▮ Capable of achieving distance accuracy of 0.1% (i.e. within 1m over 1km distance)
 - ▮ All data outputs should be in a non-proprietary format (e.g. .CSV, .MDB, Excel) and not require specialist software in order to view or format data
 - ▮ Data should also be capable of being easily formatted into data compatible with HDM-4
- iii. The following are the set of deliverables which should be submitted after completion of survey as part of Monthly Progress Report
- ▮ Raw data generated from the equipment which are part of Network Survey covering the parameters mentioned in above table. It should also include
 - Survey ID, Description, Date, Lane
 - GPS referenced data for GIS mapping
 - ▮ Videologging
 - Pavement imagery (AVI/JPEG)
 - 360 degree imagery (JPEG)

- ▣ Interpretation report covering summary of entire survey and analysis of defects and deficiencies

Measurement of pavement strength

- (i) The Authority Engineer shall carry out structural strength surveys for existing pavements using Falling Weight Deflectometer technique in accordance with the procedure given in IRC:115-2014 (Guidelines for Structural Evaluation and Strengthening of Flexible Road Pavements Using Falling Weight Deflectometer (FWD) Technique) and IRC: 117-2015 (Guidelines for the Structural Evaluation of Rigid Pavement by Falling Weight Deflectometer)
- (ii) The interval at which deflection measurements are to be taken up are as per IRC:115-2014 / IRC:117-2015. For flexible pavements, the sample size and the interval of the data to be collected depends on the length of the uniform section calculated and condition of the pavement section i.e. 'good', 'fair' and 'poor' for each lane, established on the pavement condition data based on the criterion given in IRC:115-2014. For rigid pavements, the deflection data may be collected at interiors, corners, transverse joints and longitudinal joints in the outer lanes at intervals as specified in IRC:117-2015.
- (iii) The following are the set of deliverables which should be submitted after completion of inspection test as part of Monthly Progress Report
 - ▣ Data report covering following parameters
 - Deflection Bowl (Transient Deflections at seven different points)
 - Corrected Elastic Modulus Bituminous E1
 - Corrected Elastic Modulus Granular E2
 - Corrected Elastic Modulus Subgrade E3
 - Subgrade CBR
 - ▣ Interpretation report covering summary of entire survey results and analysis of key parameters

The Authority Engineer shall carry out the condition and structural assessment survey of the bridges in accordance with IRC-SP; 35 with the use of Mobile Bridge Inspection unit (MBIU) or better technology.

- (i) The following criteria shall be met by the process of bridge condition assessment
 - ▣ Automatic folding and unfolding of platform
 - ▣ 90 degree rotation of platform
 - ▣ Sufficient safety features to be incorporated such as dedicated power supply, emergency cut off system, etc
 - ▣ Complete access to hidden parts of the bridge by the raters
- (ii) Detailed bridge inspection report shall be submitted as per the Inspection Proforma provided in IRC-SP35

Measurement of retroreflection of road signs

- (i) The Authority Engineers shall measure Coefficient of retroreflected luminance R_A (night time retro reflection) of road traffic signs using a portable retroreflectometer.
- (ii) The following criteria shall be met by the process of road signs retro reflection measurement
- ▮ Measurement of retroreflective signs shall be conducted in accordance with ASTM E1709 and ASTM E2540
 - ▮ Measurement time after pressing trigger shall be less than or equal to 1sec
 - ▮ Observation angle adjustment from 0.2 degrees to 2.0 degrees
 - ▮ Entrance angle adjustment from -45 degrees to +45 degrees
 - ▮ Self-contained commercially available battery
 - ▮ Inbuilt data storage of at least 2,000 measurements so that data transfer requirement is minimized while the survey is being conducted
 - ▮ Interface for transferring data from device to Computer
 - ▮ Built in GPS to capture GPS coordinates of road sign
 - ▮ Range shall be at least 0-2000 cd/lx/m²
- (iii) The following are the set of deliverables which should be submitted after completion of survey as part of Monthly Progress Report
- ▮ System generated coefficient of retro reflected luminance R_A (nighttime retro reflection) of all road signs
 - ▮ Interpretation report covering analysis of road signs falling in different range of R_A and actions to be taken

The Authority Engineers shall carry out following inspections of ETC lanes at toll plazas on a month basis:

- (i) *Infrastructure:*
- ▮ *Availability of civil infrastructure at toll plazas required for installation of ETC systems*
 - ▮ *Adequacy of hardware, software and other related items as per IHMCL/KSTP technical specifications and requirements*
- (ii) *Operations:*
- ▮ *Adherence of various stakeholders (acquirer bank, system integrator, toll operator, issuer bank etc) of the ETC system to the service level agreements*
 - ▮ *Efficacy of the ETC system (RFID tagging, AVC, WIM etc) in terms of accuracy and uptime*
 - ▮ *Tracking and reporting toll plaza experience metrics such as average waiting time, transaction times for different modes of payment (RFID, cash, smart cards, QR codes)*

etc) and congestion levels (eg. length of queue in different lanes) across 4 different times in a day

- ☐ *Robustness of dispute resolution mechanisms in place for the tag holder and toll operators by the issuer and acquirer banks*

The Authority Engineers shall prepare a Monthly Status Report in O&M phase of project in respect of its duties and functions under this Agreement and in accordance with the format prescribed in Annexure VI. 1st deliverable of the report which is an executive summary to the main report (Section 1) shall be submitted to the Authority and updated on the PMIS and project specific website by 4th of every month. Main report (Section 2 onwards) shall be submitted to the Authority and updated on the PMIS and project specific website by 7th of every month. Key sections of the Monthly Status Report are as follows;

S.No	Sections	Sub sections
1	Executive Summary	1.1 Overall road condition
		1.2 Key reporting metrics
		1.3 Key maintenance activities undertaken
		1.4 Pending issues
		1.5 Recommended actions by AE
		1.6 Strip plan for maintenance
2	Project Overview	2.1 Key project details
		2.2 Location map
		2.3 Key plan
		2.4 Summary of project features
		2.5 RoW availability
3	Critical issues and action taken	3.1 Issue and action log
		3.2 Summary of deficiencies
		3.3 Obligations as per contract
		3.4 Inspection schedule
4	Monthly Inspection Report	4.1 Summary of NCR issued
		4.2 Equipment based inspection report
5	Monitoring of ETC Lanes	5.1 Monthly ETC Report
		5.2 On-ground infrastructure report
		5.3 On ground ETC operations & SLA adherence
6	Status of damages	6.1 Damages for non completion of project facilities
		6.2 Damages for breach of maintenance activities
		6.3 Damages for non completion of major maintenance works
7	Change of Scope proposals	7.1 Change of Scope proposals
8	Status of pending disputes	8.1 Status of pending disputes
9	Reports	9.1 Toll collection statement
		9.2 Accident Report

S.No	Sections	Sub sections
		9.3 Details of user complaints
		9.4 Encroachment list
		9.5 Lane closure report
10	Annexures	Annex I-Detailed visual inspection report of project highway
		Annex II onwards- Additional details provided by AE

The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and remedial measures, if any, taken by the Contractor in this behalf.

In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

The Authority's Engineers shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertakings maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineers shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5 of EPC Agreement

7 Determination of costs and time

The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

The Authority's Engineers shall determine the period of Time Extension that is required to be determined by it under the Agreement.

The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5 of EPC Agreement.

8 Payments

The Authority's Engineers shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provision of Clause 10.2.4 (d) of EPC Agreement.

Authority's Engineers shall

- (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
- (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10 of EPC Agreement.

The Authority's Engineer shall, within 15 (fifteen) days of receipt of the First stage Maintenance Payment Statement from the Contractor pursuant to Clause 19.6 of EPC Agreement, verify the Contractor's statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

The Authority's Engineers shall certify final payment with 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16 of EPC Agreement.

9 Other duties and functions

The Authority's Engineers shall perform all other duties and functions as specified in the Agreement.

10 Miscellaneous

The Authority's Engineer shall set up their central project office at a suitable location in any of the Districts where the project roads situate with all facilities as envisaged in the ToR. In addition to this a Liaison office shall be set up at Thiruvananthapuram for the Team Leader with minimum non-technical support staff and other communication facilities. As and when necessitated by the Employer the Team Leader need to be available at Thiruvananthapuram for review of activities.

All key personnel and sub professional staff of the Authority Engineer shall use the fingerprint based (biometric) attendance system for marking their daily attendance. Attendance shall be marked at least once a day and any time during the day. 1 Biometric Attendance System shall be installed by the Authority Engineer at its own cost at the site office in order to facilitate the attendance marking. More systems can be installed near the project highway upto a maximum of 1 system per 50 km in order to encourage frequent visits of project highway by key personnel and sub professional staff. A copy of monthly attendance records shall be attached with Monthly Status Report. Proper justification shall be provided for cases of absence of key personnel/ sub professional staff which do not have prior approval from Project Director of concerned stretch

A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the

Authority's Engineer to the Authority forthwith.

The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as - built' Drawings and keep them in its safe custody.

Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as built Drawings in 2 (two) hard copies and in microfilm form

or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of project Facilities; and shall hand them over to the Authority against receipt thereof.

The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

11. PERFORMANCE CLAUSE

Authority's Engineers shall be expected to fully comply with all the provisions of the 'Terms of Reference', and shall be fully responsible for supervising the Designs, Construction and maintenance and operation of the facility takes place in accordance with the provisions of the EPC Agreement and other schedules. Any failure of the Authority Engineer in notifying to Employer and the Contractor on non-compliance of the provisions of the EPC Contract Agreement and other schedules by the EPC Contractor, non-adherence to the provision of ToR and non-adherence to the time schedule prescribed under ToR shall amount to non-performance.

The Authority Engineer shall appoint its authorized representative, who shall issue on behalf of the AE, Completion Certificate along with the Team Leader and shall carry out any such task as may be decided by Employer. The AE shall take prior approval of Employer before issuing Completion Certificate. The proposal submitted shall also include the name of the authorized representative along with the authorization letter and power of attorney.

12. CONSULTANT'S PROPOSAL

List of key personnel to be fielded by the Consultants shall be as below:

Normal Highway Project:

- i. Team Leader Cum Senior Highway Engineer
- ii. Resident cum Highway Engineer
- iii. Senior Quantity cum Material Expert
- iv. Bridge/Structural Engineer
- v. Senior Pavement Specialist
- vi. Road Safety Expert

Broad job-description and minimum qualification for key personnel mentioned above is enclosed as **Enclosure-B**. However, higher marks shall be accorded to the Candidate with higher relevant qualification and experience. All the CV's of the personals mentioned in Para 5.3 (iii) of Data Sheet shall be evaluated at the time of evaluation of technical proposal. **The age of the Key Personnel should not be more than 65 years**

on the date of submission of 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. The bio-data of the key personnel should be signed on every sheet by the personnel concerned and the last sheet of each bio-data should also be signed by the authorised signatory for the Consultant. The key personnel shall also certify at the end of their bio-data pro forma that they have not left any of the Employer works without completing of their assignment and have not accepted any other offer at the time of signing of the bio-data and as such shall be available to work with the Authority Engineer, if the Project is awarded. In case the key personnel leaves the assignment without approval of Employer, Employer would be at liberty to take any appropriate action against that key personnel including debarment. The CV submitted by selected firm/JV shall be hoisted on official website of Employer.

In addition to above, consultants are required to propose other key personnel, sub-professional staff and other field engineers as detailed in **Enclosure-A** and the minimum qualification requirements for the same is enclosed in **Enclosure-B**.

13. PERIOD OF SERVICES

The services of an Authority’s Engineer will be in phases as per Contract Agreement.

13.1.1 The appointment of the Authority’s Engineer shall initially be as per details given below.

Period of service (in months)	Construction period (in months)	Maintenance/ DLP Period (in months)
Construction Period + DLP Period as per Civil Contract Agreement	24 / 18	DLP Period as per Civil Contract Agreement

The proposed manpower deployment for this period shall be matching the activities to be performed during the said period. The time frame for services during the deployment of key personnel during this period shall be as shown in **Enclosure A**. Extension of Time for providing services of the Authority’s Engineer may be extended concurrently with the Extension of Time granted, if any, to the EPC Contractor for the project, subject to satisfactory performance of the Authority’s Engineer.

14. Project Coordinator

The Firm shall appoint a personnel from its head office to act as Project Coordinator for the assignment. He will be authorised to communicate with the Authority in respect of all matters pertaining to the project. The cost of the Project Coordinator shall be incidental to the Consultancy Assignment.

MAN MONTHS INPUT FOR KEY PROFESSIONAL STAFF**AUTHORITY ENGINEER****MAN - MONTHS INPUT FOR KEY PROFESSIONAL STAFF****AUTHORITY ENGINEER**

S. No.	Key Personnel	Man-month in Construction period of 24 months	Man-month in DefectLiability Period of 60 months
A: Key Personnel			
1	Team Leader cum Senior Highway Engineer	24	2
2	Resident Engineer cum pavement specialist(To be designated as Team Leader in Maintenance period after Team Leader cum-Sr. Resident Engineer's work is completed)	24	60
3	Assistant Resident Engineer(Road 1)	18	0
4	Assistant Resident Engineer(Road 2)	18	0
5	Assistant Resident Engineer(Road 3)	18	0
6	Assistant Resident Engineer(Road 4)	24	0
7	Assistant Resident Engineer(Road 5)	18	0
8	Assistant Resident Engineer(Road 6)	18	0
9	Bridge/Structural Engineer	24	0
10	Senior Quality cum Material Expert	24	0
11	Road Safety Expert	24	12
12	Senior Contract Specialist	8	4
13	Environmental Specialist	24	12
14	Health & Safety Engineer	24	0
15	Labour/Social Specialist	24	4
	Sub Total	314	94
	Total for Construction and Maintenance	408	
B: Sub Professional Staff			
1	Quantity Surveyor	24	10
2	Survey Engineer	24	0
3	Lab Technician	24	0
	Sub Total	72	10
	Total for Construction and Maintenance	82	
Grand Total		490	

Note:

1. The other inputs like support staff shall be provided by the Consultant of an acceptable type commensurate with the roles and responsibilities of each position

2. In case of project having different construction period, Man Month Input shall be adjusted proportionately
3. The Financial Expert or Legal expert or Contract Specialist may be required for the project for specific needs. Their deployments shall be arranged by the Consultant on specific requisition from the Authority and the payments shall be made as per the actual deployment. The Financial Expert or Legal expert or Contract Specialist shall be paid at the rates quoted for Senior Pavement Specialist.

QUALIFICATION OF KEY PERSONNEL

TEAM LEADER CUM SENIOR HIGHWAY ENGINEER

The Team Leader will reside at project site on a full time basis throughout the period of the construction supervision services. He will be overall in-charge of the project supervision of the construction package. He shall act as Representative of the consulting firm appointed by the Authority. His duties will involve overall superintendence over the Resident Engineers and other experts of the construction package. He will guide, monitor, supervise and control all the activities related to supervision for the construction package. He will interact with the Project Director and the other officials of the Authority. He shall also review the periodic reports/checklists submitted by the Resident Engineer on ESHS safeguards and recommend to the Authority on penalisation/deduction of payment if the Contractor has not obliged with the ESHS requirements.

He should have the following qualification / experience.

1. EssentialQualifications.

- a) Graduate in Civil Engineering from recognized university.
- b) Total Professional Experience of at least 12 years in handling Highway Projects.
- c) At least 5 years experience as Team Leader/Project Manager or similar capacity in Highway Development Project.
- d) He should have handled as Team Leader/Project Manager or similar capacity of at least two projects in Construction Supervision / IC (of length 40% of project length or more of similar configuration (2/4/6laning**))
- e) He should have handled as Team Leader or similar capacity of at least two Projects of project Preparation of major highway Project (of length 40% of project length or more of similar configuration (2/4/6laning**)).
- f) Experience as Team Leader/Project Manager or similar capacity in Operation and Maintenance of Major Highway Projects (of length 40% of project length or more of similar configuration (2/4/6laning**)).

2. PreferentialQualifications.

- a) Post Graduate Degree in Construction Management/Transportation/Highway Engineering//Structural Engineering/ any specialised stream of Civil Engineering.
- b) Highway Development Projects (of length 40% of project length or more of similar configuration (2/4/6 laning**)) taken up under EPC.
- c) Degree/Diploma/Certificate in Project

Management Note: (1) Similar Capacity includes the following positions

- i. On behalf of Consultant: Team Leader / Resident Engineer (Construction Supervision/IE/AE).

- ii. On behalf of Contractor : Project Manager (Construction/ Construction Supervision)
- iii. In Government Organizations: Superintending Engineer (or equivalent) and above

(2) Only those projects will be considered for evaluation at Sl. No. 1(d), 1(e) & 1(f) above, where the input of the personnel is 12 months, 9 months and 12 months respectively.

RESIDENT ENGINEER CUM PAVEMENT SPECIALIST

He shall be the in-charge of the construction supervision of project stretch and shall coordinate with all other experts of the construction projects and shall report to the Team Leader and officers of PIU as per the delegation established. He shall be directly responsible for regulating the construction process i.e. various activities like earthwork, Sub-base/base courses, bituminous pavement, bridge/culvert works proposed for being carried out under stipulated specifications/manuals etc. For this purpose, he shall be assisted by Assistant Resident Engineer, Highway Engineer and other support engineers/personnel. He shall deal with the Assistant Resident Engineer, Highway Engineer and other support staff attached with the Highway Engineer to ensure that the construction process is well controlled as per established specification controls to avoid later quality control stage problems. In respect of other experts like Material Engineer, Quantity Surveyor, etc., he shall be coordinating and regulating their activities to ensure smooth functioning of the Construction Package concerned. He should have adequate experience in large quantity of earthwork. He will be required to be fielded throughout the Currency of the project. The candidate is expected to be thoroughly familiar with various standards/specifications, contract procedures, design and quality control etc. He shall also review the periodic reports/checklists submitted by the Environmental Specialist, Health and Safety Engineer and the Social Specialist on ESHS safeguards and give comments to the Team Leader whether the Contractor has /has not obliged with the ESHS requirements.

He should have the following qualification / experience.

1. Essential Qualifications.

- a) Graduate in Civil Engineering from a recognized University.
- b) Professional Experience of at least 12 years in Highway Projects.
- c) At least 5 years experience in similar capacity in Highway Development Project.
- d) Should have handled at least 2 major projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above).

2. Preferential Qualifications.

- a) Post Graduate Degree in Transportation/Highway Engineering/Structural Engineering/Geotechnical Engineering/any specialised stream of Civil Engineering.
- b) Experience of Highway Project (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) of Construction / Construction Supervision / IC of Highway projects

ASSISTANT RESIDENT ENGINEER (6 Nos.)

He shall be the in-charge of the construction supervision of project package and shall coordinate with all other experts of the construction projects and shall report to the Resident Engineer. He shall assist Resident Engineer in regulating the construction process i.e. various activities like earthwork, Sub-base/base courses, bituminous pavement, bridge/culvert works proposed for being carried out under stipulated specifications/manuals etc. For this purpose, he shall co-ordinate with Highway Engineer and other support engineers/personnel. He shall deal with the Highway Engineer and other support staff attached with the Highway Engineer to ensure that the construction process is well controlled as per established specification controls to avoid later quality control stage problems. In respect of other experts like Material Engineer, Quantity Surveyor, etc., he shall be coordinating and regulating their activities to ensure smooth functioning of the Construction Package concerned. He should have adequate experience in large quantity of earthwork. He will be required to be fielded throughout the Currency of the project. The candidate is expected to be thoroughly familiar with various standards/specifications, contract procedures, design and quality control etc. He shall also review the periodic reports/checklists submitted by the Environmental Specialist, Health and Safety Engineer and the Social Specialist on ESHS safeguards and give comments to the Resident Highway Engineer whether the Contractor has /has not obliged with the ESHS requirements.

He should have the following qualification / experience.

3. EssentialQualifications.

- a) Graduate in Civil Engineering from a recognizedUniversity.
- b) Professional Experience of at least 8 years in HighwayProjects.
- c) At least 4 years experience in similar capacity in Highway DevelopmentProject.
- d) Should have handled at least 2 major projects(of length 40% of project length or more of similar configuration (2/4/6 laning**) andabove).

4. PreferentialQualifications.

- a) Post Graduate Degree in Transportation/Highway Engineering/Structural Engineering/GeotechnicalEngineering/anyspecialisedstreamofCivilEngineering.
- b)** Experience of Highway Project (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above) of Construction / Construction Supervision / IC of Highwayprojects.

BRIDGE & STRUCTURAL ENGINEER

The Bridge & Structural Engineer shall be responsible for checking the designs of bridges, ROBs, interchanges and any other structure to be constructed in the Project highway and supervising the works of bridges, interchanges and any other structure to be constructed by the Concessionaire for this project. He shall also inspect the bridge rehabilitation and repair works to be undertaken by the Concessionaire. He should have thorough understanding and experience with international 'best practices' of modern bridge construction technology. His expertise shall include computer aided design methods for Civil/Structural Engineering with particular reference to Structural design.

He should have the following qualification / experience.

1. Essential Qualifications.

- a) Graduate in Civil Engineering from a recognized University.
- b) Professional Experience of at least 10 years in handling Highway/Bridge projects.
- c) At least 5 years experience in Construction/Construction Supervision of bridge/interchange / any other structures.
- d) Experience in similar capacity in supervision of at least 2 Major Highway Bridges.
- e) Experience in supervision of Rehabilitation and repair of 2 nos Major Bridges.

2. Preferential Qualifications.

- a) Post Graduate Degree in Structural Engineering.
- b) He should have thorough understanding and experience of modern bridge construction technology. viz., Precast Segmental, Balanced Cantilever Construction, Extradosed Bridge, Full Span Launching, Incremental Launching.

SENIOR PAVEMENT SPECIALIST

The expert shall be continuously interacting with the Concessionaire, for the review of highway designs and drawings using sophisticated computer software and also construction and O&M works and to ensure lifecycle cost effectiveness and viable design of pavement including appropriate rehabilitation / strengthening of the existing two lane pavement which is significantly distressed. He shall also be responsible for ensuring complete adherence to maintenance standards during Construction and Operation period. Thus, the position requires a pavement specialist with thorough knowledge and understanding of international 'best practices' in the field of Design, Construction and maintenance of flexible/rigid type of pavements including latest Codal stipulations and specifications.

He should have the following qualification / experience.

1. Essential Qualifications.

- a) Graduate in Civil Engineering from a recognized University.
- b) Professional Experience of at least 10 years in Pavement Design / Pavement Construction / Pavement Maintenance of Highways / Roads / Airfield Runways
- c) Experience of at least 5 years in similar capacity in Construction / Construction Supervision of 2/4/6 laning** of major highway projects.
- d) Experience as Pavement / Geotechnical Engineer in Construction/Construction Supervision of at least 2 major highway projects (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above).

2. Preferential Qualifications.

- a) Post Graduate Degree in Highway Engineering / Pavement Engineering / Transportation Engineering
- b) Experience as a Pavement Specialist/Pavement Engineer in Highway project (of length 40% of project length or more of similar configuration (2/4/6 laning**) and above).

SENIOR QUALITY/MATERIAL EXPERT

The Quality/Material Expert shall review the test results of bore holes, quarry and borrow area material to find out their strength characteristics and suitability for using them in construction. He shall inspect the Concessionaire's field laboratories to ensure that they are

adequately equipped and capable of performing all the specified testing requirements of the contract. He shall look into the quality assurance aspect of the construction works and supervise the setting-up of the various Concessionaire's rock crushers and bituminous mixing plants to ensure that the specified requirements for such equipment are fully met. Experience in latest Quality Management techniques in highway projects shall have added advantage.

He should have the following qualification / experience.

1. EssentialQualifications.

- a) Graduate in Civil Engineering from a recognizedUniversity.
- b) Professional Experience of at least 10 years in handling Highwayprojects.
- c) Experience of at least 5 years as Senior Quality/ Material Expert or in similar capacity in Construction / Construction Supervision /major highwayprojects
- d) Experience as Senior Quality/ Material Expert or in similar capacity in handling of at least 2 similar highway projects.(of length 40% of project length or more of similar configuration (2/4/6 laning**) andabove)

2. PreferentialQualifications.

- a) Post Graduate Degree in Geotechnical Engineering / Foundation Engineering / Soil Mechanics.

ROAD SAFETY EXPERT

Shall be responsible for the overall Road Safety Aspect of the Project. He shall ensure that safety provisions as per relevant codes are strictly followed at site during Construction of Road and also during the Maintenance Period

1. EssentialQualifications.

- a) Graduate in Civil Engineering from a recognizedUniversity.
- b) Professional Experience of at least 10 years in handling Highwayprojects.
- c) Minimum5yearsexperienceinRoadSafetyworksofMajorHighwayProjects(4/6 laningprojects)
- d) Experience in similar capacity in Road Safety Audit of at least 2 nos. 2/4/6 lane** highway / expressway project including 1 nos. at designstage
- e) Experience in similar capacity in the field of Road Safety ManagementPlan.

2. PreferentialQualifications

- a) Post Graduate Degree in Traffic Transportation/SafetyEngineering.
- b) Experience in similar capacity in identification and improvement of black spots on Major HighwayProject.
- c) Experience in similar capacity in Preparation of Road Safety Management Plan for inter urbanHighways.

above

(2) Only those projects will be considered for evaluation at Sl. No. 1(d), 1(e) & 1(f) above, where the input of the personnel is 12 months, 9 months and 12 months respectively.

SENIOR CONTRACT SPECIALIST

Duties: He will be deployed in working season in stages for cumulative duration of period mentioned in Enclosure-A for obtaining his expert opinion on emerging contractual issues. His key responsibilities will be to guide and assist Team Leader/Employer in all aspects of contract management in proper implementation of contract provisions including controlling the project cost of the construction package. He will also be required to offer his advice on contractual complications arising during the implementation as per the request of the employer. He will be required to prepare manuals/schedules for the consultants team/employer based on the provisions of the contract document. He will be responsible for giving appropriate suggestions in handling claims of the contractors and any dispute arising thereof.

(1) Essential Qualifications.

- a) Graduate in Civil Engineering from a recognized University.
- b) Professional Experience of 15 years in Contract Management.
- c) Experience of at least 4 years as Contract Specialist on any National/State Highway project/Bridge Project.
- d) Contract Management of a large Highway/Bridge contract say over Rs.150 crore including experience of handling Variation orders, claims of the contractor and there appropriate disposal for at least 2 projects.
- e) Handled at least one Arbitration cases in respect of any Highway/Bridge projects.
- f) Not more than 65 years of age.

(2) Preferential Qualifications.

- (a) Degree in Law/PG in management/certificate course in management/ certificate course in construction management/certificate course in contract management.

ENVIRONMENTAL SPECIALIST

Duties: The Environmental Specialist shall be responsible for supervising all the environmental safeguards of the project. He shall assist the AE to ensure environmentally sound engineering practices. He shall be mobilised during the early stages of construction. This is to help the Contractor in identifying environmentally sound locations for Construction camps, hot mix plant, WMM plant and all other issues according to the Environmental Management Action Plan (EMP). All matters related to environmental and social activities within the ROW such as latest EIA, SEA, RAP and other related documents should be made available to the ES immediately after mobilisation. The CRZ, Forest, environmental clearance, Kerala State Pollution Control Board's clearance conditions and other approval status should be specified.

- He shall report to the Team leader of the Authority's Engineer. He shall not instruct or direct Contractor's men but can discuss various issues and environmental mitigation measures with all concerned directly or indirectly.
- The important role of ES during construction is to ensure the smooth implementation of EMP and to address direct and indirect social issues arising out of implementation of the RAP.
- He shall visit incomplete construction work sites where there are no Contractor's current activities, active construction work sites and completed areas of the work sites and conduct regular meetings with the Contractor in identifying gaps pertaining to both environment and construction safety. The ES will also visit the hot mix plant; quarries and crushers, borrow areas and others as per the necessity. ES has to ensure appropriate corrective and preventive action to the identified gaps in construction site in environmental aspects. Conduct regular meeting on environmental aspects with Environmental and Social Management Unit in PWD.
- He shall prepare standard formats (if available they may be obtained from other projects that are being implemented or are completed recently) for the compliance of the environmental and social requirements.
- He shall ensure the procurement of materials that are included in the Bill of Quantities relating to environmental and social mitigation costs.
- He shall assist the KSTP and the Contractor in all training activities related to environmental safeguards during construction supervision period.
- He shall prepare and submit ESHS checklist/ monthly reports with respect to environment, to the team leader of AE.
- He shall guide in the various Environmental monitoring activities of the Contractor / KSTP.
- He shall be responsible to confirm whether the Contractor has received all certifications in different sectors from the concerned authority to proceed the work.
- He shall review all Management Strategy for Implementation of ESHS with respect to environmental issues of the Contractor periodically and comment on them for improvement.
- He shall in cooperation with the ES of PMT and the Executive Engineer, KSTP Division will make sure the issuing of timely Work order for the Nurseries to be raised according to the '*Landscaping, Tree planting and Environmental Enhancement Plan*'. This will allow one year for the plants to attain the required size.

He should have the following qualification / experience.

(1) Essential Qualifications.

- (a) Graduate in Civil /Environmental Engineering or Masters in Environmental Science from a recognized University
- (b) Professional experience of at least 5 years relevant to environmental management / implementation in infrastructure projects.
- (c) Adequate experience in implementing EMPs and organizing training to Contractor's and Employer's staff.
- (d) Familiar with requisite procedures involved in obtaining and implementing environmental clearance requirements for project roads

2) Preferential Qualifications.

Experience in implementation of EMP in externally aided/FIDIC based major highway projects

HEALTH & SAFETY ENGINEER

Duties: The HSE of the Authority's Engineer is responsible to guide the field supervision team and Contractors site officers and should confirm whether safety measurements implemented in the field are complying with safety standards. In addition, other specialists of the Authority's Engineer team may also act and report on road safety related issues. He shall be mobilised during the mobilisation period of the project.

- He shall report to the Team leader of the Construction Supervision Team.
- He shall be responsible for reviewing and approving the construction zone safety plans and traffic management including all temporary works/staging along with the structural or bridge engineer to confirm the safety point of view.
- He shall report any job accident or safety violation to the concerned officials through team leader. When an employee is injured on the job, the construction safety officer will investigate the accident and handle any workers' compensation claims.
- He shall teach proper safety and health procedures to the entire construction workers. Also, he should take initiatives to conduct training programmes and make safety drills which will help to update safety procedures as well as the importance of reporting a safety concern or injury.
- He shall prepare and submit ESHS checklist / monthly reports with respect to safety, to the team leader of AE.
- He shall review all Management Strategy for Implementation of ESHS with respect to safety issues of the Contractor periodically and comment on them for improvement.

He should have the following qualification / experience.

(1) Essential Qualifications.

- (a) Graduate in civil engineering
- (b) OSHAS /NIBOSH certification is mandatory.
- (c) Minimum of 10 years of relevant professional experience, out of which, s/he should have worked for at least 5 years at a road / bridge construction site in the capacity of a safety engineer.

2) Preferential Qualifications.

- (a) Post graduate qualification in Industrial and Construction safety.
- (b) Experience in working on height / deep foundations and live traffic situation and imparting safety training to construction managers and workers.

LABOUR/SOCIAL SPECIALIST

Duties: All matters related to social/community/labour etc. of the project shall be the responsibility of the Labour/Social Specialist. He shall liaise with the local people on issues caused due to the project. He should be mobilised during the early stages of construction to deal with the influx of migrant labour and guide the Contractor in obtaining relevant labour licenses and maintaining records related to skilled/unskilled/migrant labour.

- He shall report to the Team leader of the Authority's Engineer Team. The LSS shall not instruct or direct the Contractor's men but can discuss various issues with all concerned directly or indirectly.
- All matters related social/community/labour like SEA, GBV, inhumane treatment, sexual activity with children, child labour, bias in terms of gender, state of domicile, social status, vulnerable people (including those with disabilities) etc. shall be handled in a sensitive manner by the LSS.
- He shall assist in the compliance with various labour laws including the payment of minimum wages to the individual contract labourer's especially 'unskilled illiterate migrant labourers'. This has a direct bearing on the health and safety of the workers.
- He shall prepare and submits monthly reports to the team leader of AE based on the compliances to be met with by the Contractor.
- Strive to maintain / guide the contractor in maintaining cordial relationship with the local communities affected by the project.
- He shall guide the Social Specialist of the Contractor in all matters related to labour issues and community participation including formation of an Internal Complaints Committee (ICC) in Contractors Office to look into Complaints of sexual harassment at workplace
- He shall carry out consultation with the Contractors men, local Project Affected People (PAPs) and interest groups. The LSS will also consult with NGOs to consider any problems (e.g. access problem to school, buildings, houses and business establishments) arising from construction activities.
- The LSS will assist the Contractor, and the Authority in all matters related to public

contacts including consultation, training and public relations.

- He shall prepare and submit ESHS checklist / monthly reports with respect to labour/social issues, to the team leader of AE.
- He shall review all Management Strategy for Implementation of ESHS with respect to labour/social issues of the Contractor periodically and comment on them for improvement.

He should have the following qualification / experience.

(1) Essential Qualifications.

- (a) Masters in Sociology/Social Work
- (b) Minimum 10 years' experience in community participation and labour issues
- (c) Should be familiar with requisite procedures for labour management, documentations required for State Labour Offices etc.

(2) Preferential Qualifications.

- (a) Minimum 5 years' experience in community participation and labour issues in infrastructure projects
- (b) Knowledge of labour laws and issues of migrant labour influx

SUB PROFESSIONAL

A. Quantity Surveyor

Duties: He will be reporting to the Resident Engineer in day to day working. He will also work under the guidance of the Sr. Quantity Surveyor, and shall abide by the directions/procedures/formats of reporting and approvals settled by the Sr. Quantity Surveyor. He will act as a contract specialist also for the construction package, even though the thrust of his responsibilities will be in the areas of quantity surveying / processing of the invoices etc. He will be responsible for reporting all measures required to control the project cost and time over-runs. He will examine the claims of the contractor, variation orders, if any, and will prepare the progress reports as per the project requirements. For the purpose, he will be required to get the levels and quantity measurements checked in all items of works executed in different stages for calculations required for payment purpose. He will be required throughout the currency of the project.

Qualification and experience: The candidate should be a graduate in Civil Engineering with relevant experience in the field of estimating, preparation and processing of the invoices, analysing rates, checking survey details etc. of the projects. He should have about 8 years of relevant professional experience involving resource planning and scheduling, quantity survey, cost control, contract management etc. Diploma holders with longer relevant experience of about 12 years could also be considered. He must have worked as Quantity Surveyors for at least 4 years in any National/State Highway Projects. He should not be more than 60 years of age.

B. Survey Engineer

Duties: Checking layout of center line, layout of curves, levels and profiles, etc. will be his main responsibility. Apart from this, he shall also assist the Quantity Surveyor in preparation of invoices. He shall also be responsible for modifying survey data in case any modification is required in the design during execution.

Qualifications and Experience: He should be a graduate civil engineer with 3years for BE Civil & 6 years for Diploma holder. Survey Engineer should be conversant with modem survey equipment, total stations, auto level, digital level etc. He should have worked in at least one major highway project. He should not be more than 60 years of age.

C. Lab Technicians:

They should be at least Diploma-holders with about 5 to 6 years of experience in handling the quality control tests laboratories for road/bridge works or Graduates in Science with about 1 to 2 years of relevant experience in the field of testing of road/bridge projects.

Annexure I- Daily Inspection Report in construction period

Component	Item Description	Description of inspection work carried out	Results of lab tests conducted (Test conducted, Pass/Fail)	Name of key personnel inspecting the work
1. Road works including culverts, and minor bridges	Embankment/ Sub Grade/GSB/WMM/ DBM/BC			
2. Major Bridge works, Flyovers, ROB, RUB, VUP, PUP	Foundation/ Sub structure/ Super structure			
3. Approach to ROB/RUB/ Major Bridges/ Viaduct / RE wall	Foundation/ Sub structure/ Super structure			
4. Other Works				

Annexure II- Daily Inspection Report in O&M period

Nature of defect/ deficiency	Defect found (Yes/No)	If defect found, Chainage & side	Compliance of previous defect (Yes/No/NA)	AE Remarks
ROADS				
Carriageway and paved shoulders				
Breach or blockade				
Pot holes				
Removal of debris				
Hard/earth shoulders, side slopes, drains and culverts				
Desilting of drains in urban/semi-urban areas				
Road side furniture including road signs and pavement marking				
Damagetoshapeorposition;poor visibility or loss of retro-reflectivity				
Street lighting and telecom (ATMS)				
Any major failure of the system				
Faults and minor failures				
Trees and Plantation				
Obstruction in a minimum head-roomof5mabovecarriagewayor obstructioninvisibilityofroadsigns				
Rest areas				
Cleaning of toilets				
Defects in electrical, water and sanitary installations				
Toll plaza[s]				
Failure of toll collection equipment including ETC or lighting				
Other Project Facilities and Approach roads				
Damage or deterioration in ApproachRoads, -[pedestrian facilities, truck lay-bys, bus-bays, bus- shelters, cattle crossings, TrafficAidPosts,MedicalAidPosts and other works]				

Annexure III- Weekly Inspection Report in O&M period

Nature of defect or deficiency		Defect found (Yes/No)	If defect found, Chainage & side	Compliance of previous defect (Yes/No/NA)	AE Remarks
ROADS					
(a)	Carriageway and paved shoulders				
(i)	Breach or blockade				
(ii)	Roughness value exceeding 2,500 mm in a stretch of 1 km (as measured by a standardised roughometer/bump integrator)				
(iii)	Pot holes				
(iv)	Cracking in more than 5% of road surface in a stretch of 1 km				
(v)	Rutting exceeding 10 mm in more than 2% of road surface in a stretch of 1 km (measured with 3 m straight edge)				
(vi)	Bleeding/skidding				
(vii)	Ravelling/Stripping of bitumen surface exceeding 10 sq m				
(viii)	Damage to pavement edges exceeding 10 cm				
(ix)	Removal of debris				
(b)	Hard/earth shoulders, sideslopes, drains and culverts				
(i)	Variation by more than 2% in the prescribed slope of camber/cross fall				
(ii)	Edgedrop at shoulder exceeding 40 mm				
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes				
(iv)	Rain cuts/gullies in slope				

Nature of defect or deficiency		Defect found (Yes/No)	If defect found, Chainage & side	Compliance of previous defect (Yes/No/NA)	AE Remarks
(v)	Damage to or silting of culverts and side drains during and immediately preceding the rainy season				
(vi)	Desilting of drains in urban/semi-urban areas				
(c)	Roadside furniture including road signs and pavement marking				
(i)	Damage to shape or position; poor visibility or loss of retro-reflectivity				
(d)	Street lighting and telecom (ATMS)				
(i)	Any major failure of the system				
(ii)	Faults and minor failures				
(e)	Trees and plantation				
(i)	Obstruction in a minimum head-room of 5m above carriageway or obstruction in visibility of road signs				
(ii)	Deterioration in health of trees and bushes				
(iii)	Replacement of trees and bushes				
(iv)	Removal of vegetation affecting sightline and road structures				
(f)	Rest areas				
(i)	Cleaning of toilets				
(ii)	Defects in electrical, water and sanitary installations				
(g)	Toll plaza[s]				
(i)	Failure of toll collection equipment including ETC or lighting				
(ii)	Damage to toll plaza				
(h)	Other Project Facilities and Approach roads				

Nature of defect or deficiency		Defect found (Yes/No)	If defect found, Chainage & side	Compliance of previous defect (Yes/No/NA)	AE Remarks
(i)	Damage or deterioration in Approach Roads, -[pedestrian facilities, truck lay-bys, bus-bays, bus- shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works]				
BRIDGES					
(a)	Superstructure of bridges				
(i)	Cracks				
(ii)	Spalling/scaling				
(b)	Foundations of bridges				
(i)	Scouring and/or cavitation				
(c)	Piers, abutments, return walls and wing walls of bridges				
(i)	Cracks and damages including settlement and tilting				
(d)	Bearings (metallic) of bridges				
(i)	Deformation				
(e)	Joints in bridges				
(i)	Loosening and malfunctioning of joints				
(f)	Other items relating to bridges				
(i)	Deforming of pads in elastomeric bearings				
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes				
(iii)	Damage or deterioration in parapets and handrails				
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches				
(v)	Damage to wearing coat				

Nature of defect or deficiency		Defect found (Yes/No)	If defect found, Chainage & side	Compliance of previous defect (Yes/No/NA)	AE Remarks
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds				
(vii)	Growth of vegetation affecting the structure or obstructing the waterway				

Annexure IV- Month of survey for equipment based road condition assessment

Equipment based road inspections shall be done by the Authority's Engineer twice a year as per the month of the year defined in the following table.

However, since the first survey shall be conducted at the time of completion testing, the following modification to the schedule shall be adopted. For example, if majority of highway length (>50%) passes through a state, where defined survey months are May and November, if completion testing is conducted in April, then the first equipment based survey shall be conducted in the month of April. This shall be considered as the equipment based survey to be conducted in the month of May. The 2nd equipment based survey shall be conducted in the month of November, the 3rd survey shall be conducted in the month of May and so on. As regards FWD, the first test/survey shall be conducted at the time of completion in April. The 2nd test/survey shall be conducted in April of next year and soon.

Region	State	Survey before rains	Survey after rains
East	Bihar	May	Nov
East	Chhattisgarh	May	Nov
East	Jharkhand	May	Nov
East	Orissa	May	Nov
East	West Bengal	May	Nov
Central	Madhya Pradesh	May	Nov
NE	Arunachal Pradesh	Mar	Oct
NE	Assam	Mar	Oct
NE	Manipur	Mar	Oct
NE	Meghalaya	Mar	Oct
NE	Mizoram	Mar	Oct
NE	Nagaland	Mar	Oct
NE	Sikkim	Mar	Oct
NE	Tripura	Mar	Oct
North	Chandigarh	May	Nov
North	Delhi	May	Nov
North	Haryana	May	Nov
North	Himachal	May	Nov
North	Jammu And Kashmir	May	Nov
North	Punjab	May	Nov
North	Uttar Pradesh	May	Nov

Region	State	Survey before rains	Survey after rains
North	Uttaranchal	May	Nov
South	Andaman And Nicobar Islands	Apr	Nov
South	Andhra Pradesh	Apr	Nov
South	Karnataka	Apr	Nov
South	Kerala	Apr	Nov
South	Pondicherry	Jun	Jan
South	Tamil Nadu	Jun	Jan
West	Dadar Nagar Haveli	Apr	Oct
West	Daman And Diu	Apr	Oct
West	Goa	May	Nov
West	Gujarat	Apr	Oct
West	Maharashtra	May	Nov
West	Rajasthan	Apr	Oct

Annexure V- Monthly Progress Report in Construction Phase

[NAME & LOGO OF IMPLEMENTING AGENCY]

[PROJECT NAME]

Authority Engineer

[NAME OF CONSULTING FIRM]

MONTHLY PROGRESS REPORT NO.[XX]

FOR THE MONTH OF: [MONTH],[YEAR]

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1 Executive Summary

Construction progress in current month

Key reporting metrics	Value/ %/ Amount
Scheduled Physical Progress (%)	
Cumulative Physical Progress upto current month (%)	
Physical Progress during current month (%)	
Financial progress (%)	
Cumulative Expenditure till date (Rs Cr)	
Tests passed as % of total tests witnessed by IE	
Tests passed as % of total tests conducted by IE	
Number of pending COS proposals	
Amount for pending COS (Rs Cr)	

Current issues and recommended actions by IE /AE

- Slow Progress of Structures:** The progress of structures (especially, major bridges, flyovers and ROB's) is very slow. Overall progress is only XX%. Out of the total YY underpasses not even single underpass structure and its approaches is completed so far. No bridge is open to traffic so far.

a Recommendation: Concessionaire should improve the progress of structures. Request for revised workplan from Concessionaire including specific activities on structures.
- Status of Change of Scope Proposals:** Concessionaire has submitted Xx No. Change of Scope proposals. Yy No. of them are still pending for decision. Concessionaire has not submitted necessary clarifications /details for the following Changes of Scope in spite of several reminders.

a Recommendation: Concessionaire to submit all pending clarifications to Authority. Authority and Concessionaire to expedite pending COS proposals.

Strip Plan(Summary)

1. WorkfrontUnavailable & reason for Unavailability			2. Length completed bylayer(MCW)			3. Length completed by layer(Service Road)		
	Length (km)	% Total Pending Length		Length (km)	% Total Length		Length (km)	% Total Length
Total Length	80		Total Length	80		Total Length	35	
Total Workfront Unavailable	7	12%	Total Length Completed(Till DBM)	27.5	33%	Total Length Completed (Till DBM)	0	0%
Pending Land Acq.	0	0%	BC	27	32%	BC	0	0%
Pending Clearances	7	12%	DBM	27.5	33%	DBM	0	0%
Encumbrances	0	0%	WMM	29.5	35%	WMM	0	0%
			GSB	32.5	39%	GSB	0	0%
			Sub-Grade	35	42%	Sub-Grade	0	0%
			C&G	47.9	57%	C&G	0	0%

Strip Plan(Details)

Not Started/ NA Work In Progress Completed

LHS-Service Road Const.																		
LHS-Service Road Workfront Available																		
LHS-MCW Construction	BC																	
	DBM																	
	WMM																	
	GSB																	
	Sub-Grade C&G																	
LHS-MCW Workfront	Others	- Other Hindrances																
	Clearances	- Clearance pending																
		3D pending																
	LA pending	3G pending																
		Disbursement pending																
		Land not under possession																
	Workfront Available			0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0
Chainage			0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0
RHS-MCW Workfront	Workfront Available																	
	LA pending	Land not under possession																
		Disbursement pending																
		3G pending																
		3D pending																
	Clearances	- Clearance pending																
Others	- Other Hindrances																	
RHS-MCW	C&G																	
	Sub-Grade																	
	GSB																	
	WMM																	
	DBM BC																	
RHS-Service Road Workfront																		
RHS-Service Road Const.																		
Bypass																		
Status of Structures																		
Number of Structures																		
Type of Structures																		

Workfront Available

Workfront Unavailable

2 Project Overview**Salient Features of Project**

Project Name	
NH No. (New/ Old)	
Scheme/ Phase	
Mode of the Execution (BOT Toll/BOT Annuity/EPC/HAM/ Item Rate/Others)	
No. of Lanes/ Configuration	
Length of the Project (in Km)	
Total Project Cost (in Cr)	
No. of Bypasses (Name of Town, Length)	
No. of Major Bridges (Number and Location)	
No. of Toll Plazas (Number and Location)	
No. of Fly Overs (Number and Location)	
DPR Authority's Engineer Name	
Lead & Consortium Members of Banks	
Concessionaire Name (SPV & Parent Company)	
Date of Award (LOA Date)	
Appointed Date	
Concession Period	
Construction Period (in Days)	
O&M Period (in Days)	
Scheduled Date of Completion	
Authority Engineer	
IE / AE Agreement Date	
IE / AE Mobilization Date	

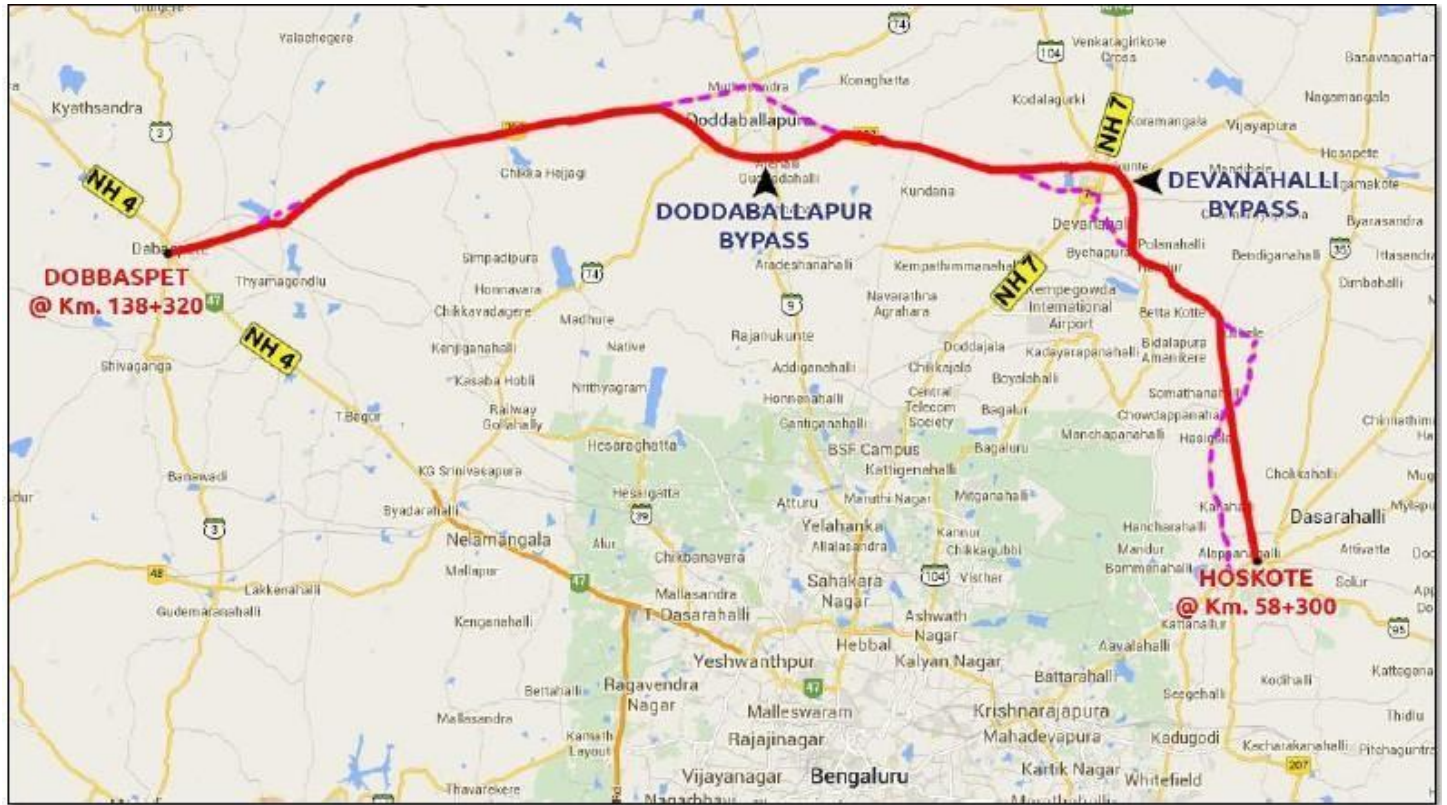
ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

Project Milestones

Project Milestone	Description (Days from Appointed Date)	Planned		Actual		Delay (No. of months)	Current Status
		Physical Progress (%)	Scheduled Date	Physical Progress (%)	Revised Date		
Milestone I	<i>[Description]</i>	25	<i>[DD/MM/YYYY]</i>	25	<i>[DD/MM/YYYY]</i>	5	Achieved
Milestone II	<i>[Description]</i>	65	<i>[DD/MM/YYYY]</i>		<i>[DD/MM/YYYY]</i>	22	Started, not achieved
Scheduled Completion	<i>[Description]</i>	100	<i>[DD/MM/YYYY]</i>		<i>[DD/MM/YYYY]</i>	21	Not started

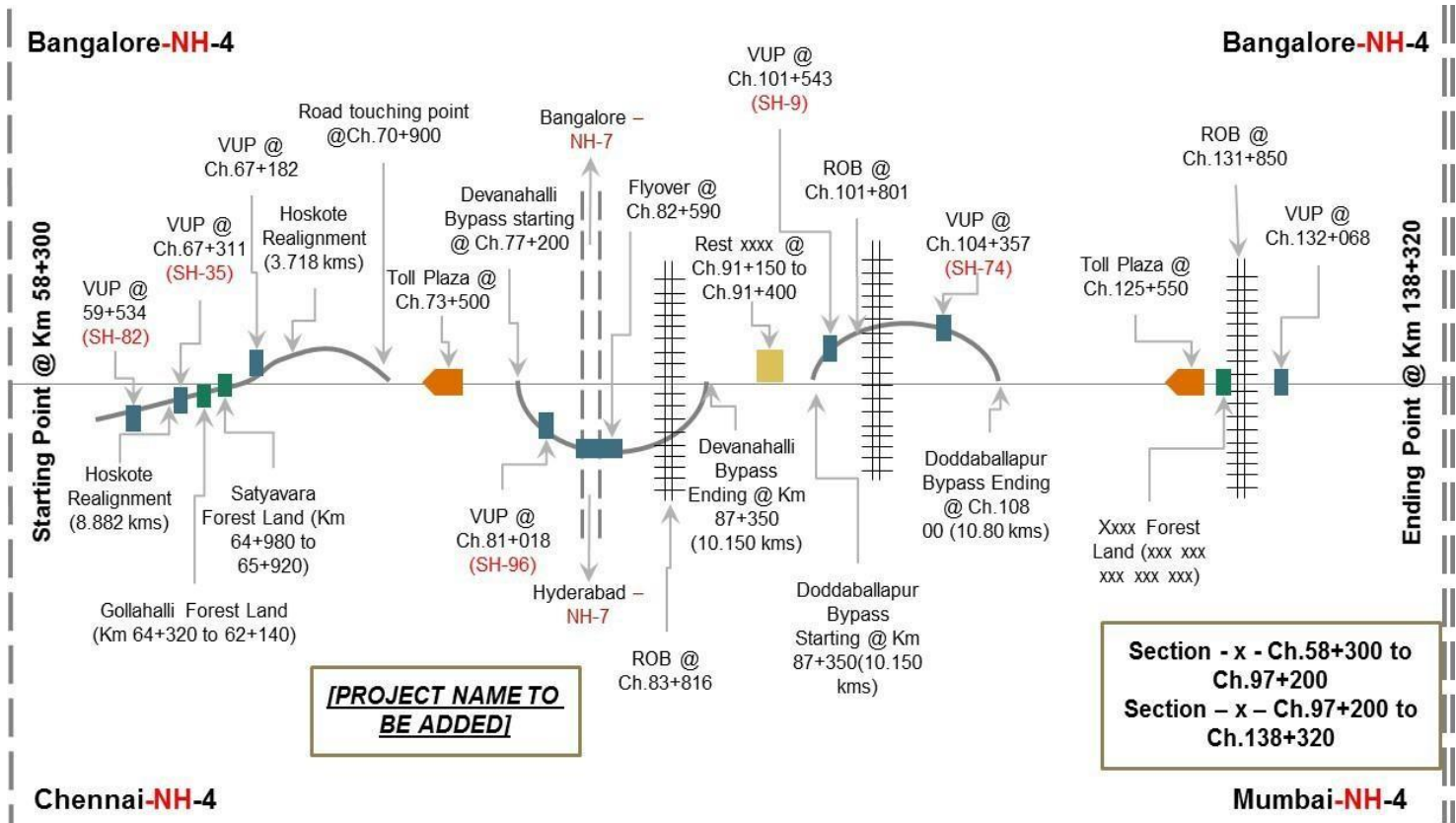
ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

LocationMap



ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

Key Plan



[Above image is illustrative only. Please include chainage and name below the axis and list of features above the axis]

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

3 Critical Issues & ActionLog

Pending Issues & ActionLog

S.No	Issue Description	Type	Ongoing/ New Issue/ Resolved	Concerned Authority	Chainage(s) affected due to the issue	Length affected (km)	Action(s) taken till now	Action(s) suggested by the AE	Expected date/Actual Date for resolving issue
1	Diversion of Xxhaofforest Land	Clearance	Ongoing Issue	MoEF	[Chainage]	4 kms	1. Proposal submitted to MoEF letter sent by RO to MoEF nodal officer on [DD/MM/YYYY]	Escalate to higher level officers at MoEF	[DD/MM/YYYY]
2	21 Cr compensation disbursement pending	Land Acquisition	Resolved	[CALA Name]	[Chainage]	2.4km	1. Escalated to chief secretary level through DO from Chairman/ Secretary, dated [DD/MM/YYYY]		[DD/MM/YYYY]
3	Slow progress by concessionaire	Concessionaire Issue	New Issue	[Concess. Name]	[Chainage]	57 km	None	Project Director to call higher ups of concessionaire	[DD/MM/YYYY]

Obligations as perContract

Expected Contents & Structure
<p><i>Please write a summary of non-compliances of contractual obligations highlighting reasons for delay, stating pending actions and their potential risk to the project's progress and recommended actions by the IE.</i></p> <ul style="list-style-type: none"> ▮ <u>Critical</u> obligation sand constraints of concessionaire as percontract ▮ <u>Critical</u> obligations of authority as percontract ▮ <u>Critical</u> pending obligations of IE as per contract <p>NOTE: Please include important issues requiring intervention of various parties, giving details and background wherever necessary</p>

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

4 Physical Progress

Componen nt	% Weightag e	Physical Progress(Durin g Current Month)	Physical Progress (Cumulativ e, Upto Current Month)
Road Works	35.00%	5%	15.0%
MajorBridgeworksandROB/RUB	40.00%	1.20%	26.2%
Structures	21.00%	0.00%	0.8%
Other Works	4.00%	0.00%	0.0%
Physical Progress		2%	42.0%

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

Detailed Scope of Work & Physical Progress by Component

Component	Cost Weightage in Project (%)	Item Description	Cost Weightage in Component (%)	Planned in Scope (As per Scope of Work)	Progress till Date	% Physical Progress	Value of Physical Progress (7X4)
1	2	3	4	5	6	7	8
1. Road works including culverts, minor bridges, underpasses, overpasses, approaches to ROB/RUB/ Major Bridges/ Structures (but excluding service roads)	35.00%	1. C&G	5.00%	80 km	45 km	56%	2.8%
		2. Embankment	5.00%	80 km	40 km	50%	2.5%
		3. Sub Grade	5.00%	80 km	35 km	44%	2.2%
		4. GSB	5.00%	80 km	33 km	41%	2.1%
		5. WMM	5.00%	80 km	30 km	38%	1.9%
		6. DBM	5.00%	80 km	28 km	35%	1.8%
		7. BC	5.00%	80 km	27 km	34%	1.7%
2. Major Bridge works and ROB/RUB	40.00%	1. Major Bridges	10.00%	6 No	6 No	100%	10.0%
		2. Minor Bridges	5.00%	23 No	21 No	91%	4.6%
		3. Flyovers	5.00%	2 No	0	0%	0.0%
		4. ROB	5.00%	228 No	121 No	53%	2.7%
		5. VUP	5.00%	11 No	6 No	55%	2.7%
		6. PUP	5.00%	15 No	6 No	40%	2.0%
		7. RUB	5.00%	136 No	114 No	84%	4.2%
3. Structures (elevated sections, reinforced earth)	21.00%	1. Foundation	5.00%	35 km	2.2 km	6%	0.2%
		2. Sub-structure	5.00%	35 km	2.1 km	6%	0.2%
		3. Super-structure	5.00%	35 km	2.1 km	6%	0.2%
		4. Reinforced Earth Wall	6.00%	35 km	2.1 km	6%	0.2%
4. Other Works	4.00%	1. Toll Plaza	4.00%	4 No	0	0%	0.0%
GRAND TOTAL			100%				42.0%

5 Land Acquisition and Clearance

LA Summary

Description	Total Required (ha)	Total in possession at start (ha)	Total to be acquired (ha)
Existing ROW	135.00	135.00	0.00
Pvt. Land To be Acquired	240.00	0.000	240.00
Public Land To be Transferred	52.00	50.35	1.65
Grand Total	427	185	242

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

LA Detail by CALA

CALA	Total Land left to be Acquired (Ha)	3H Pending (ha)	3H Done (ha)	3G Pending (ha)	3G Done (ha)	3D Pending (ha)	3D Done (ha)	3A Pending (Ha)	3A Done (ha)	Amount Awarded (Crore Rs.)	Amount Deposited (Crore Rs.)	Amount Disbursed by CALA (Crore Rs.)	Pending Amount (Crore Rs.)
[CALA1]	150	15	15	15	135	0	150	0	150	396	370	327	43
[CALA2]	67	0	0	0	67	0	67	0	67	132	132	120	23
[CALA3]	23	23	23	23	0	14	9	0	23	0	0	0	0
Grand Total	240	38	202	38	202	14	226	0	240	528	502	447	66

LA Detail by Village for each CALA

CALA1

Village	Total Land left to be Acquired (Ha)	3H Pending (ha)	3H Done (ha)	3G Pending (ha)	3G Done (ha)	3D Pending (ha)	3D Done (ha)	3A Pending (Ha)	3A Done (ha)	Amount Awarded (Crore Rs.)	Amount Deposited (Crore Rs.)	Amount Disbursed by CALA (Rs Cr)	Pending Amount (Rs Cr)
[Village 1]	150	15	15	15	135	0	150	0	150	396	370	327	43
[Village 2]	67	0	0	0	67	0	67	0	67	132	132	120	23
[Village 3]	23	23	23	23	0	14	9	0	23	0	0	0	0
Grand Total	240	38	202	38	202	14	226	0	240	528	502	447	66

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Manpower details of CALA

CALA	Provided by <Agency> / State Govt	Amins/ Surveyors	Patwaris / Village accountant	Revenue Inspectors/ Kanungo	Tehsildars/ Dep. Tehsildars	Clerks/ Sahayaks	Accountants	Computer operators	Peons	Chainman	Total
[CALA 1]	<Agency>	4	1	0	0	3	0	3	1	0	12
[CALA 1]	StateGovt	2	0	2	0	0	0	1	0	0	5
[CALA 2]	<Agency>										
[CALA 2]	StateGovt										
Grand Total											

ClearancesSummary

Environment				
Proposal Description	Status	Length Impacted	Current Stage	Issues/ Comments
Approval of construction in coastal zone	Obtained	Nil	Completed	
Forest Land				
Proposal Description	Status	Length Impacted	Current Stage	Issues/ Comments
Diversion of Xx ha ([Chainage])	Pending	[Length in km]	Completed	Stage 1 clearance pending
Diversion of Xx Ha. ([Chainage])	Obtained	Nil	Ongoing	

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

Wildlife				
Proposal Description	Status	Length Impacted	Current Stage	Issues/ Comments
Diversion of Xx Ha. of forest land	Pending	<i>[Length in km]</i>	Ongoing	QueryessenttoMoEFbyRO, compliancepending
TreeCutting				
Proposal Description	Status	Length Impacted	Current Stage	Issues/ Comments
N.A.	N.A.	N.A.	N.A.	N.A.
Railway (ROBs/RUBs)				
Proposal Description	Status	Length Impacted	Current Stage	Issues/ Comments
<i>[GAD Number]</i>	Proposal Submitted, Approvalpending	<i>[Chainage]</i>	Uploaded on portal on <i>[DD/MM/YYYY]</i>	N.A.

Status of utilities shifting

Utility Category	Name	Status	Length affected	Department	Date of request by Authority for estimate	Date when Estimate was Received from concerned dept.	Date of Approval by Authority RO/ HQ	Date of Deposit of supervision charge	Progress of Physical Shifting	Date of Certification from Agency for Completion	Estimate Amount	Issue/ Comments
Water		Estimate Approved	[Length in km]	[DEPARTMENT]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]	Not started	TBD		
Electricity		Estimate Approved	[Length in km]	[DEPARTMENT]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]	Not started	TBD		
Others		Estimate Approved	[Length in km]	[DEPARTMENT]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]	[DD/MM / YYYY]		TBD		

6 Change of Scope

S No.	Proposal Details	Date of first submission to AE	Current Status	COS Amount	ed/ Actual Date of Approval
1	Construction of [Flyover Name] at [Chainage]	[DD/MM/YYYY]	Approved in principle by Authority. Detailed quantities in proper order yet to be submitted	[+/- Amount]	[DD/MM/YYYY]
2	Nallah diversion through box culvert at [Chainage]	[DD/MM/YYYY]	Clarification to be submitted by Concessionaire, expected date [DD/MM/YYYY]	[+/- Amount]	[DD/MM/YYYY]

7 Mobilization of Resources

S No.	Equipment Name	Make	Model	Age of Equipment	Planned/ Required Quantity	Actual Quantity	Deployed During the Month	Reason(s) for Under/Over Mobilization	Expected Delay due to Under-Mobilization	Remarks
	Excavator/ Poclain					5				
	Paver					2				
	Transit Meter					0				
	Plate Compactors					0				
	[ADD OTHERS]									

8 Financial Progress Details (for PPP projects)

Pen Picture -Escrow

TPC (Cr)	Cumulative inflow to Escrow till previous month (Cr)	Cumulative outflow from Escrow till previous month (Cr)	Inflow to Escrow during the month (Cr)	Outflow from Escrow during the month (Cr)
1,206	1,033	900	30	35

Are the Escrow withdrawals in accordance with the order of withdrawal as specified in the Concession Agreement?

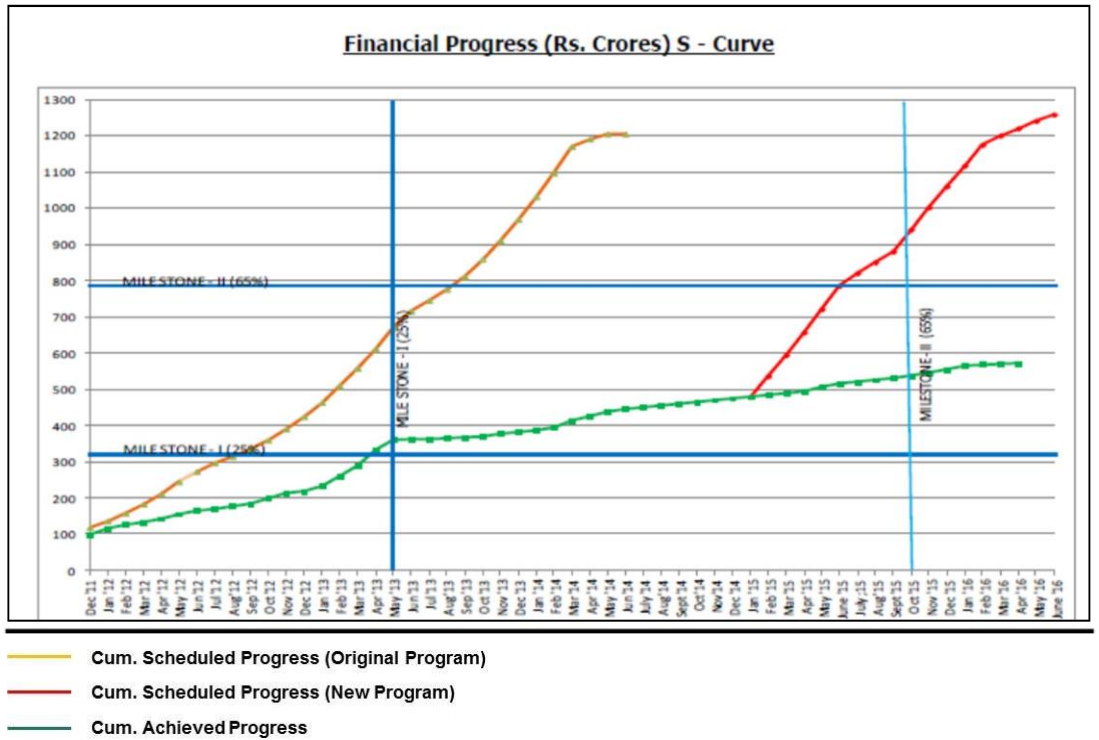
Tick as applicable

If not, details to be provided below:

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Escrowdetails

TPC (Cr)	Cumulative exp. till date (Cr)	EscrowPlan till date-Debt (BOT)(Cr)	Escrow Plan till date-Equity (BOT) (Cr)	EscrowPlan till date-VGF (BOT)(Cr)	Escrow Actual till date-Debt (BOT)(Cr)	EscrowActual till date-Equity (BOT)(Cr)	Escrow Actual till date- VGF (BOT) (Cr)
1,206	1,033	900	306	-	769	264	-



PLEASE EXCLUDE OUTSTANDING MOBILIZATION FEE/ ADVANCE IN S-CURVE

9 Summary of quality control tests

Tests witnessed by IE/AE

Description	Frequency of tests		Unit	Total test up to Previous Month			Total test in This Month			Cumulative No. of tests			Remarks
	No. s	Qty.		Conducte d	Pas s	Fai l	Conducte d	Pas s	Fai l	Conducte d	Pas s	Fai l	
Sub grade													
Procter test	1	150 0	m3	0	0	0	0	0	0	0	0	0	
Atterberg Limits	1	150 0	m3	0	0	0	0	0	0	0	0	0	
Free Swell Index	1	150 0	m3	0	0	0	0	0	0	0	0	0	
Grain Size Analysis	1	150 0	m3	0	0	0	0	0	0	0	0	0	
C.B.R	1	300 0	m3	0	0	0	0	0	0	0	0	0	
Granular Sub Base													
Gradation	1	200	m3	151	151	0	5	5	0	156	156	0	
Atterberg Limits	1	200	m3	151	136	15	5	5	0	151	136	15	
Procter test	1	150 0	m3	0	0	0	0	0	0	0	0	0	
Wet Mix Macadam													
Filter material													
Concrete													
Cement													
Water													
Prime Coat													
Tack coat													
Dense Bituminou													

Description	Frequency of tests		Unit	Total test up to Previous Month			Total test in This Month			Cumulative No. of tests			Remarks
	No. s	Qty.		Conducted	Pas s	Fai l	Conducted	Pas s	Fai l	Conducted	Pas s	Fai l	
s Macadam													
Bituminous Concrete													
Bitumen test													
DLC													
Steel													

Tests conducted by IE /AE

<Quality inspection test results to be reported in a table similar to the table provided in previous section>

ALL FIGURES & GRAPHS IN TEMPLATES ARE ILLUSTRATIVE. PLEASE ADD ACTUAL DETAILS

10 Monitoring of maintenance obligations during construction phase

Critical issues and action log

SNo	Issue Description	Ongoing/New Issue	Concerned Authority	Chainage(s) affected due to the issue	Length affected (km)	Action(s) taken till now	Action(s) suggested by SC	Expected Date for resolving issue
1	Drying up of plants on median	Ongoing	Concessionaire	325+200 to 327+800	2.6	Irregular watering	Replacement of plants and daily watering	NA
2	Large potholes	New	Concessionaire	387+300 LHS	0.1	None	Filling of potholes	<DD/MM>

Summary of repairwork

SNo	Description	Unit	Total	Work done upto previous month	Work done during reporting month	Balance	Remarks
1	Carriageway and paved shoulders						
(a)	Pot Holes	Sqm	42	-	-	42	
(b)	Roughness value exceeding 2,500mm	mm					
(c)	Cracking in more than 5% of road surface	Sqm	7179	-	-	7179	
(d)	Rutting exceeding 10mm in more than 2% of road surface	Sqm	5	-	-	5	
(e)	Bleeding/Skidding	Sqm					
(f)	Ravelling	Sqm					
(g)	Damage to pavement edges exceeding 10cm	m					
2	Hard/Earth Shoulders						

SNo	Description	Unit	Total	Work done upto previous month	Work done during reporting month	Balance	Remarks
(a)	Raincuts/gulliesinslope	Cum	650	25	-	625	
(b)	Edge drop at shoulders exceeding 40 mm	m					
3	Drains and culverts						
(a)	Cleaning of Culvert	Nos	1	-	-	1	
(b)	Damage to or silting of culverts						
(c)	Silting of drains in urban/ semi urban areas						
4	Road furniture						
(a)	Sign Boards	Nos	456	-	-	456	
(b)	Kilometer Stones						
(c)	Metal Beam Crash Barrier						
(d)	Bus Shelters	Nos	72	4	-	68	
(e)	Junction signs	Nos	26	8	-	18	
(f)	Median Grills	Rmt	894	-	-	894	
(g)	Studs	Nos	5328	-	-	5328	
(h)	Delinators	Nos	8236	-	-	8236	
(i)	Road Marking	Sqm	1899	-	-	1899	
(j)	Kerb Painting	Sqm	4575	-	-	4575	
(k)	Guard Posts	Nos	3657	-	-	3657	
5	Street lighting and telecom (ATMS)						
(a)	Street lights	Nos					
(b)	Telecom	Nos					
6	Trees and plantation						
(a)	Removalofvegetation affecting sightlineand roadstructures	Ha	77.42	-	3.57	73.85	
(b)	Replacement of trees and bushes	Nos	15072	-	-	15072	

SNo	Description	Unit	Total	Work done upto previous month	Work done during reporting month	Balance	Remarks
7	Buildings and bridges						
(a)	Rest areas						
(b)	Toll plazas						
(c)	Bridges						

Status of damages

SNo	Period	Amount of damages (Rs)
1	Upto June 2016	
2	Jul 2016	
3	Aug 2016	
4	Sep 2016	
	Total	

11 Safety features

Pen picture of safety features

Details to be provided after assessment of the site requirement vis-à-vis provisions in the Concession Agreement:

Location of Black Spots	Suggested Remedial Measures within provisions of Concession Agreement	Additional Remedial Measures (if any)	Financial implications of additional Remedial Measures for Authority (Cr.)

11.2 Accident Report

S No	1	
Date	1/1/17	
Chainage no	382/050 R/S	
Time of accident	05:25 pm	
Sex (M/F)	M	
Accident location	A	2
Nature of accident	B	2
Classification of	C	3
Causes	D	4
Load conditions of	E	1
Road condition	F	1
Intersection type of	G	-
Weather condition	H	1
Age of victim	I	3
Type of victim	J	1
Type of vehicle	K	3
No of affected persons	Fatal	-
	Major	1
	Minor	1
Help provided by	Ambu	

Mapping of report fields to responses

A	1. Urban 2. Rural
B	1.Overturned2.HeadOnCollision3.HitfromBack4.HittoFixObject5.RightturnCollision 6.LeftturnCollision7.VeeredOutoffTheRoad8.HitPedestrian9.Unknown/Hit&RanAway
C	1. Fatal 2. Major injury 3. Minor injury
D	1.Drunken2.OverSpeeding3.VehicleoutofControl4.Drivenonwrongside5.Mechanical Problem6.Drowsiness/NotApplicable7.FaultofDriver
E	1. Normally Loaded 2. Overloaded/Handing 3. Empty 4. Unknown
F	1. Straight road 2. Slight Curve 3. Sharp Curve 4. Hump 5. Dip
G	1.T-Junction2.Y-Junction3.FourarmJunction4.StaggeredJunction5.Junctionwithmore than 6. Roundabout
H	1.Fine/Clear2.Mist/Fog3.Cloudy4.LightRain5.HeavyRain6.StrongWind7.DustStorm8. Cold 9.Hot
I	1. 0-18 Years 2. 18-25 Years 3. 25-40 Years 4.40-60 Years 5. 60-80 Years
J	1. Driver 2. Passenger 3. Pedestrian 4. Cyclist 5. Others
K	1.TwoWheeler2.AutoRickshaw3.Car/Jeep4.Bus5.LightTruck6.HeavyTruck7.Tractor 8. Bicycle 9. Cycle Rickshaw 10. Hand Drawn Cart 11. Animal Drawn Cart

12 Annexures

Annex 1. Detailed List of Physical Components as per ScheduleG

Component	Physical Item
Road works including culverts, minor bridges, underpasses, overpasses, approaches to ROB/RUB/ Major Bridges/ Structures (but excluding service roads)	A- Widening and strengthening of existing road
	(1) Earthwork up to top of the sub-grade
	(2) Granular work (sub- base, base, shoulders)
	(a) GSB
	(b) WMM
	(3) Shoulders
	(4) Bituminous work
	(a) DBM
	(b) BC
	(5) Rigid Pavement
	Concrete work
	(6) Widening and repair of culverts
	(7) Widening and repair of minor bridges
	B- New realignment/bypass
	(1) Earthwork up to top of the sub-grade
	(2) Granular work (sub- base, base, shoulders)
	(a) GSB
	(b) WMM
	(3) Shoulders
	(4) Bituminous work
	(a) DBM
	(b) BC
	(5) Rigid Pavement
	Concrete work
	C-New culverts, minor bridges, underpasses, overpasses on existing road, realignments, bypasses:
	(1) Culverts
	(2) Minor bridges
	(a) Foundation
	(b) Sub-structure
	(c) Super-structure (including crash barriers etc. complete)
	(3) Cattle/Pedestrian underpasses
	(a) Foundation
	(b) Sub-structure
(c) Super-structure (including crash barriers etc. complete)	
(4) Pedestrian overpasses	
(a) Foundation	
(b) Sub-structure	
(c) Super-structure (including crash barriers etc. complete)	
(5) Grade separated structures	
(a) Underpasses	

Component	Physical Item
	(i) Foundation
	(ii) Sub-structure
	(iii) Super-structure (including crash barriers etc. complete)
	(b) Overpass
	(i) Foundation
	(ii) Sub-structure
	(iii) Super-structure (including crash barriers etc. complete)
	(c) Flyover
	(i) Foundation
	(ii) Sub-structure
	(iii) Super-structure (including crash barriers etc. complete)
	(d) Foot over Bridge
Major Bridge works and ROB/RUB	A- Widening and repairs of Major Bridges
	(1) Foundation
	(a) Open Foundation
	(b) Pile Foundation/Well Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
	B- Widening and repair of
	(a) ROB
	(1) Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
	(b) RUB
	(1) Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
	C- New Major Bridges
	(1) Foundation
	(a) Open Foundation
	(b) Pile Foundation/Well Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
	D- New rail-road bridges
	(a) ROB
	(1) Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
	(b) RUB
	(1) Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)
Structures (elevated sections, reinforced earth)	(1) Foundation
	(2) Sub-structure
	(3) Super-structure (including crash barriers etc. complete)

Component	Physical Item
	(4) Reinforced Earth Wall (includes Approaches of ROB, Underpasses, Overpasses, Flyover etc.
Other Works	(i) Service roads/ Slip Roads
	(ii) Toll Plaza
	(iii) Road side drains
	(iv) Road signs, markings, km stones, safety devices,
	(a) Road signs, markings, km stones,
	(b) Concrete Crash Barrier/ W-Beam Crash Barrier in Road work
	(v) Project facilities
	(a) Bus bays
	(b) Truck lay-byes
	(c) Rest areas
	(vi) Repairs to bridges/structures
	(vii) Road side plantation
	(viii) Protection works
	(a) Boulder Pitching on slopes
	(b) Toe/Retaining wall
	(ix) Tunnel
	(a) Excavation
	(b) Construction of support system including rock bolting, lining etc.
	(c) On complete completion of tunnel
	(x) Miscellaneous

* The above list is illustrative and may require modification as per the actual scope of the work

Annex 2. Onwards

IE / AE should include comments, status update, data points and reports in following annexures which have not been included elsewhere in the main report. Such reports may include but not limited to:

- ▯ Review status of drawings/ designreports
- ▯ Review status of otherdocuments
- ▯ Minutes of reviewmeeting
- ▯ Detailed Inspection report of projecthighway
- ▯ Correspondence details
- ▯ Weatherreport
- ▯ Organizational chart of Concessionaire / Contractor and IE /AE
- ▯ List of labequipment
- ▯ Details of usercomplaints
- ▯ Projectphotographs

[NAME&LOGOOFIMPLEMENTINGAGENCY]

[PROJECT NAME (O&M)]

Authority Engineer

[NAME OF CONSULTING FIRM]

MONTHLY STATUS REPORT NO. [XX]

FOR THE MONTH OF: [MONTH], [YEAR]

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All figures and graphs in templates are illustrative. Please add actual details.

1 Executive Summary

Overall road condition

Road condition	LHS	RHS
Satisfactory road condition	40 km	20 km
Poor road condition	50 km	70 km
Total length of project	90 km	90 km

Key reporting metrics

Key metrics	Value/Amount
No of pending NCRs	35
Damages amount recommended on Concessionaire (Rs Cr)	Rs 5.9 Cr
No of pending Change of Scope proposals	2
No of pending disputes	2
Monthly toll collection (Rs Cr) <i>(If applicable)</i>	Rs 3.8 Cr
No of accidents	12
No of encroachments	47

Key maintenance activities undertaken

Asset	Maintenance activities undertaken
Pavement	☐ Concessionaire has commenced the work for renewal and repair of pavement on the project highway w.e.f. 14th September 2016
Shoulder	
Drainage	☐ Cleaning of drainage in built up areas in progress
Median	
Road furniture	☐ Concessionaire has taken up repairs and maintenance of MCB and electric poles, etc in issuance of NCPs from Authority Engineer
Bridges	
Buildings	☐ As per provisions of CA and policy decided by MoRTH / <Agency>, 2 ETC lanes at each toll plaza have been operationalised w.e.f. 25th September 2016. The connectivity of ETC lanes with Central Clearing House (CCH) has been achieved and presently ETC lanes are operationalized in Hybrid Mode due to less number of tags purchased by highway users
Horticulture	☐ Planting of new trees from Chainage 200+300 to 226+650 ☐ Trimming of plants which were causing obstruction to highway users

Pending issues

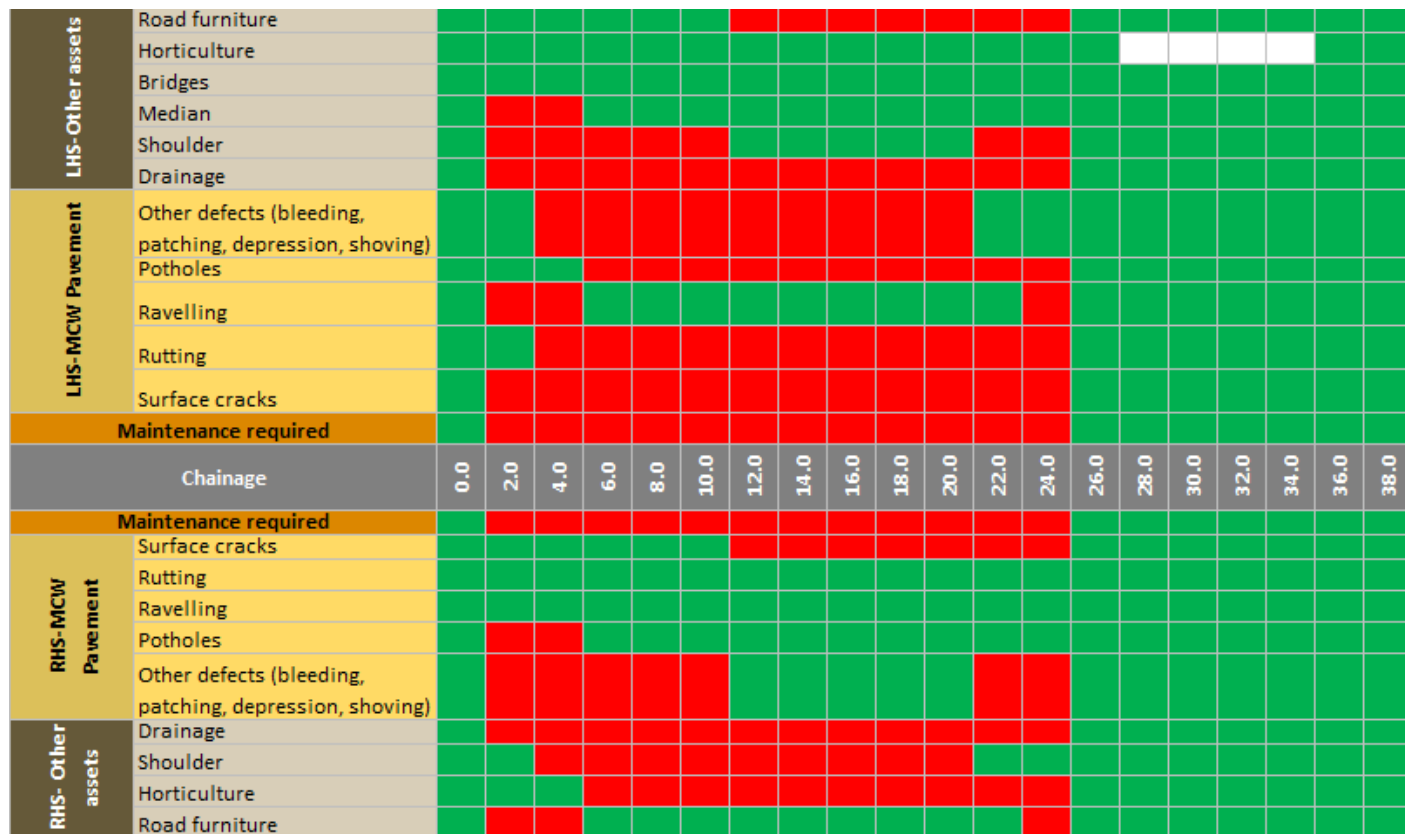
- ▯ Overlay on the entire stretch of project length of 252 km and service roads has not been taken up by Concessionaire yet since the date of completion of overlay is due in next 25 days
- ▯ Over all progress is very slow regarding repair of potholes and rutting on Main Carriageway which is causing inconvenience to highway users and is also a concern from road safety point of view.
- ▯ Street lighting in
 - ▯ **Anantapur bypass** completed on main carriageway and is energized but for service roads street lighting is pending on both sides
 - ▯ **Kurnool bypass** erection of poles only completed in main carriageway not yet energized till to date, but for service roads not started

Recommended actions by Authority Engineer

- ▯ In spite of the repeated requests, there is no material change in status of works pertaining to repairs/ rectifications of defects on the project highway. AE has recommended the damages of Rs 5.9 Cr on the Concessionaire on account of delay in repairs of defects in road and bridge works in terms of the provision of Clause 15.8.1 of the Concession Agreement. Concessionaire shall be liable for imposition of further damages on similar lines till the date of completion
- ▯ Concessionaire is requested to take at most care for completing the overlay before 31.03.2017 since the existing road condition is getting deteriorated day by day causing much inconvenience to the traffic

All figures and graphs in templates are illustrative. Please add actual details.

Strip Plan formaintenance



Satisfactory road condition (Maintenance not required)	Green
Poor road condition (Maintenance required)	Red

All figures and graphs in templates are illustrative. Please add actual details.

Mainreport

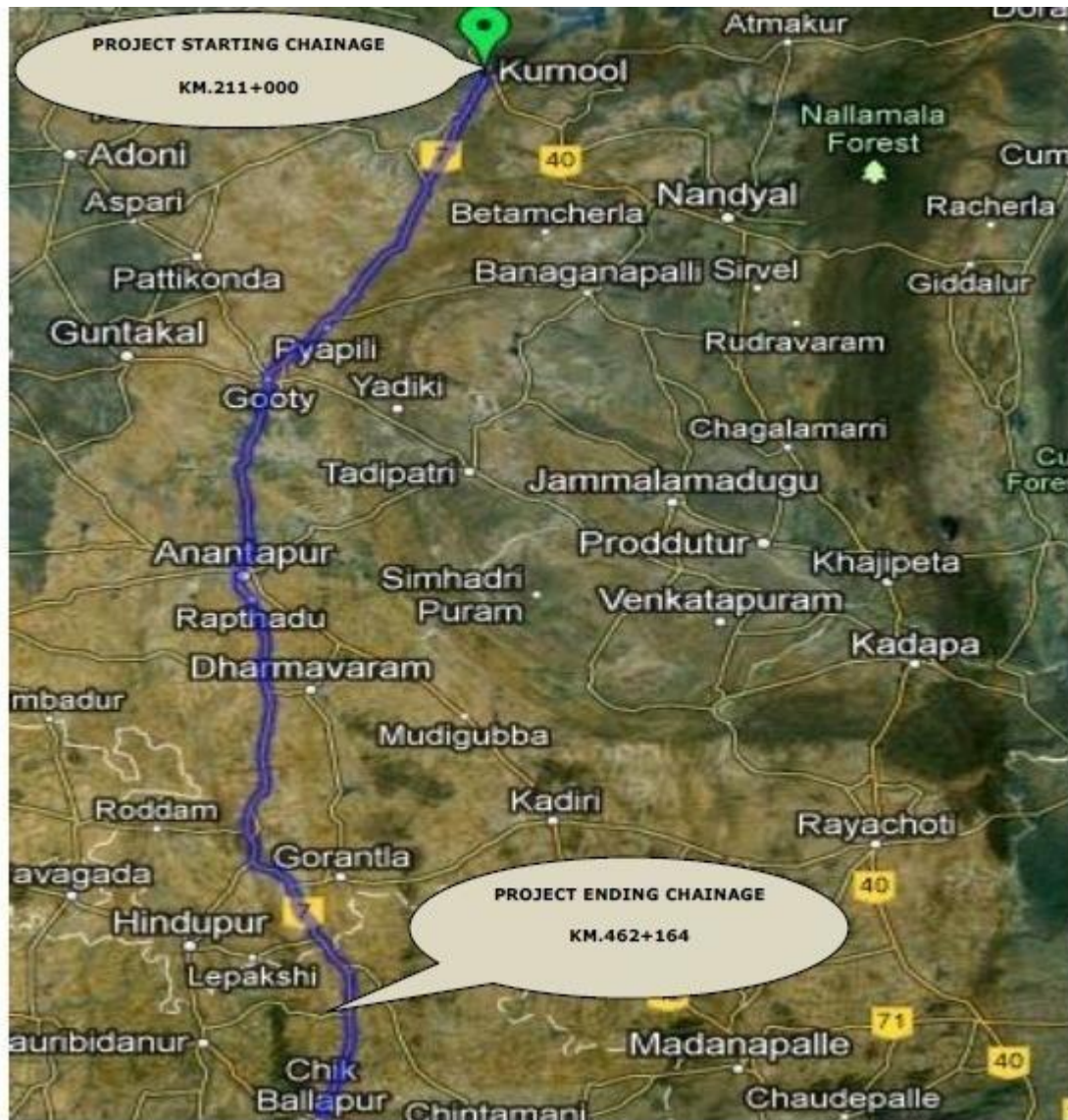
2 ProjectOverview

Key projectdetails

Project Name	
NH no (New/Old)	
Mode of the Project	
No. of Lanes	
Length of the Project	
Total Project Cost	
Concessionaire/ Contractor	
Date of Award (LOA date)	
Appointed Date	
Commercial Operation Date (COD)	
Concession Period	
O&M Period	
Authority Engineer	
AE Agreement Date	
AE Mobilization Date	
AE Scheduled Completion Date	
AE EOT (Extension Of Time)	

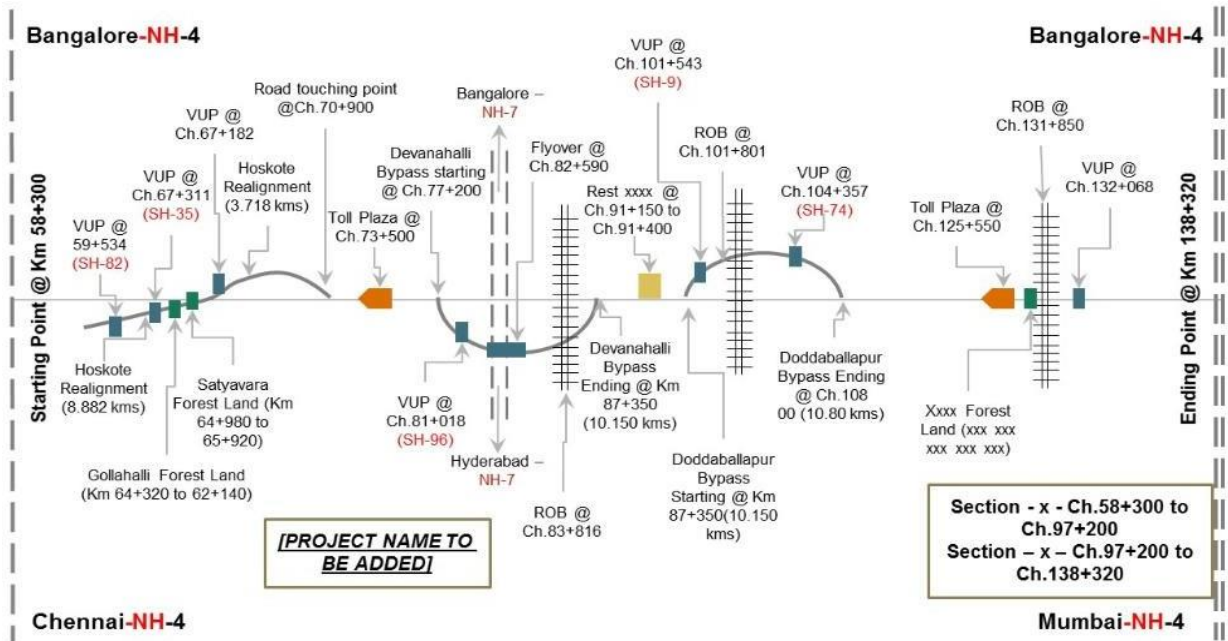
All figures and graphs in templates are illustrative. Please add actual details.

LocationMap



All figures and graphs in templates are illustrative. Please add actual details.

Keyplan



RoWavailability

Width of RoW available on both sides of the highway

LHS- Width of RoW available	>20 m																				
	20 m																				
	18 m																				
	16 m								16	16	16	16	16	16	16						
	14 m																				
	12 m																				
	10 m																				
	8 m			8.2	8.2	8.2	8.2	8.2													
	6 m																				
	4 m																		4.7	4.7	
2 m		1.8	1.8																		
Chainage																					
RHS- Width of RoW available	2 m																				
	4 m																				
	6 m																				
	8 m														6.2	6.2	6.2	6.2	6.2	6.2	
	10 m		10	10																	
	12 m																				
	14 m																				
	16 m																				
	18 m				17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5							
	20 m																				
>20 m																			25	25	25

All figures and graphs in templates are illustrative. Please add actual details.

Summary of projectfeatures

SNo	Particulars	Value
1	No of flyovers	2
2	Service Road	45
3	ROBs	5
4	ROB location (chainage)	261.975, 299.606, 350.547, 396.135 & 420.302
5	RUBs	0
6	RUB location (chainage)	NA
7	No of Bypass	7
8	Length of Bypass	43
9	No of Major Bridges	7
10	No of Minor Bridges	67
11	No of Culvert	640
12	No of VUP	16
13	No of PUP/ Cattle Underpass	12
14	No of Major Intersection/ Junction	22
15	No of Toll Plaza	3
16	Location of Toll Plaza (chainage)	
17	No of Truck Laybye	30
18	No of Bus Bays	122
19	No of Wayside Amenities	0
20	Location of Wayside Amenities (chainage)	NA

All figures and graphs in templates are illustrative. Please add actual details.

3 Critical Issues and Action taken

Issue and action log

SNo	Issue Description	Ongoing/New Issue	Concerned Authority	Chainage(s) affected due to the issue	Length affected (km)	Action(s) taken till now	Action(s) suggested by SC	Expected Date for resolving issue
1	Drying up of plants on median	Ongoing	Concessionaire	325+200 to 327+800	2.6	Irregular watering	Replacement of plants and daily watering	NA
2	Large potholes	New	Concessionaire	387+300 LHS	0.1	None	Filling of potholes	<DD/M M>

All figures and graphs in templates are illustrative. Please add actual details.

Summary of items (Cumulative Observations/Deficiencies)

SNo	Description	Unit	Total	Work done upto previous month	Work done during reporting month	Balance	Remarks
1	Carriageway and paved shoulders						
(a)	Pot Holes	Sqm	42	-	-	42	
(b)	Roughness value exceeding 2,500mm	mm					
(c)	Cracking in more than 5% of road surface	Sqm	7179	-	-	7179	
(d)	Rutting exceeding 10mm in more than 2% of road surface	Sqm	5	-	-	5	
(e)	Bleeding/Skidding	Sqm					
(f)	Ravelling	Sqm					
(g)	Damage to pavement edges exceeding 10cm	m					
2	Hard/Earth Shoulders						
(a)	Raincuts/gullies in slope	Cum	650	25	-	625	

SNo	Description	Unit	Total	Work done upto previous month	Work done during reporting month	Balance	Remarks
(b)	Edge drop at shoulders exceeding 40 mm	m					
3	Drains and culverts						
(a)	Cleaning of Culvert	Nos	1	-	-	1	
(b)	Damage to or silting of culverts						
(c)	Silting of drains in urban/ semi urban areas						
4	Road furniture						
(a)	Sign Boards	Nos	456	-	-	456	
(b)	Kilometer Stones						
(c)	Metal Beam Crash Barrier						
(d)	Bus Shelters	Nos	72	4	-	68	
(e)	Junction signs	Nos	26	8	-	18	
(f)	Median Grills	Rmt	894	-	-	894	
(g)	Studs	Nos	5328	-	-	5328	
(h)	Delinators	Nos	8236	-	-	8236	
(i)	Road Marking	Sqm	1899	-	-	1899	
(j)	Kerb Painting	Sqm	4575	-	-	4575	
(k)	Guard Posts	Nos	3657	-	-	3657	
5	Street lighting and telecom (ATMS)						
(a)	Street lights	Nos					
(b)	Telecom	Nos					
6	Trees and plantation						
(a)	Removal of vegetation affecting sightline and road structures	Ha	77.42	-	3.57	73.85	
(b)	Replacement of trees and bushes	Nos	15072	-	-	15072	
7	Buildings and bridges						
(a)	Rest areas						
(b)	Toll plazas						
(c)	Bridges						

Obligations as per contract

Please write a summary of contractual obligations of Concessionaire and non-compliances of critical obligations highlighting reasons for delay and stating pending actions

▮ **Critical obligations of Concessionaire as per contract**

▮ **Non compliances of critical contractual obligations**

Major maintenance and Inspection schedule

Item	Responsibility	Last completed on	Due date
Major maintenance	Concessionaire	[DD/MM/YY]	[DD/MM/YY]
Periodic overlay	Concessionaire	[DD/MM/YY]	[DD/MM/YY]
Pavement inspection using NSV	Authority Engineer	[DD/MM/YY]	[DD/MM/YY]
Roughness using Laser Profilometer	Authority Engineer	[DD/MM/YY]	[DD/MM/YY]
Pavement strength using FWD	Authority Engineer	[DD/MM/YY]	[DD/MM/YY]
Bridge inspection using MBIU	Authority Engineer	[DD/MM/YY]	[DD/MM/YY]
Road sign inspection using Reflectometer	Authority Engineer	[DD/MM/YY]	[DD/MM/YY]
Other			

All figures and graphs in templates are illustrative. Please add actual details.

4 Inspection Report

Summary of NCR issued

SNo	Highway asset	Total NCR issued till previous month (A)	NCR issued in reporting month (B)	NCR closed in reporting month (C)	Balance NCR (A+B-C)
1	Pavement	48	12	25	35
2	Shoulder	7	0	3	4
3	Drainage				
4	Median				
5	Road furniture				
6	Bridges				
7	Buildings				
8	Horticulture				
9	[Other assets]				
	Total				

Equipment based inspection report

Starting Chainage	Ending Chainage	Lane number	Pavement Surface Defects							Roughness	Pavement Strength		
			Cracks (cm)	Potholes (cm)	Raveling (cm)	Bleeding (cm)	Rutting depth (mm)	Texture depth (mm)	Skid Resistance	IRI (International Roughness Index)	Elastic Modulus Bituminous E1	Elastic Modulus	Elastic Modulus
0.000	0.500	L1	2X10	20X35	2.5X1.2	4X12	25	1.4		4.23	7110	34	14
0.500	1.000	L1	3X5	10X15	1.5X0.8	3X10	24	1.8		2.68	7430	36	15
1.000	1.500	L1											

Report of equipment based inspection needs be provided as an Annexure to monthly report as per the defined frequency. Following documents/media to be submitted for equipment based inspection.

- Video footage of all cameras installed on Network Survey Vehicle- ROW cameras and pavement camera
- Network Survey Vehicle report capturing dimensions of following key metrics of pavement

- Cracks
- Potholes
- Raveling
- Bleeding
- Rutting
- Texture depth
- Skidresistance
- Roughness(IRI)
- Falling Weight Deflectometer (FWD) report capturing following key metrics of pavementstrength
 - Deflection Bowl (Transient Deflections at seven differentpoints)
 - Corrected Elastic Modulus BituminousE1
 - Corrected Elastic Modulus GranularE2
 - Corrected Elastic Modulus SubgradeE3
 - SubgradeCBR
 - Bituminous layer coefficientA1
 - Base layer coefficientA2
 - Granular base layer coefficientA3
 - Modified structuralnumber
- Mobile Bridge Inspection Report (MBIU) capturing following key metrics ofbridges
 - ConditionApproach
 - Condition Signs
 - Condition Debris
 - ConditionJoint
 - ConditionDeck
 - ConditionRails
 - ConditionProtect
 - ConditionStream
 - ConditionSuperstructure
 - Condition Piers
 - Condition Abutment
- Retro reflectometer report capturing following key metrics of roadfurniture
 - Coefficient of retroreflected luminance R_A (night time retroreflection) ofroad trafficsigns

All figures and graphs in templates are illustrative. Please add actual details.

5 Monitoring of ETClanes

Monthly ETCReport

TYPE OF VEHICLE			For Corresponding month of previous year		For Previous Month		For Current Month		
			No of vehicles	Fee Collected	No of vehicles	Fee Collected	Fee per vehicle	No of vehicles	Fee Collected
A	Car	Total	3845	384500	4659	465,900.00	100	4289	428,900.00
B	LCV	Total	1521	243360	1312	209,920.00	160	1399	223,840.00
C	Bus	Total	2404	793386	2284	765,207.00	201	2349	786,915.00
D	Truck	Total	1603	528924	1523	510,138.00	134	1566	524,610.00
E	3 Axle	Total	18990	6836400	16310	5,953,150.00	365	15127	5,521,355.00
F	MAV	Total	16119	8381880	21111	11,188,830.00	530	18790	9,958,700.00
G	Over Size	Total	1	630	27	17,280.00	640	36	23,040.00
Total for the Month			49844	18,050,618	52963	19,898,834		49016	18,265,661

On-ground infrastructure report

Total number of plaza lanes =

Total number of dedicated ETC lanes =

Total number of hybrid lanes =

SNo	Description	Total units	Units working	Units damaged/missing	Equipment owner/provider	Equipment as per specifications (Y/N)	Remarks
1	Hardware						
(a)	Over-head transceiver	4	3	1	ABC Co.	Y	
(b)	Hand-held reader						
(c)	Lane controller						
(d)	AVC						
(e)	Camera						
(f)	Weigh-in-motion						
(g)	Static weigh bridge						
(h)	Any other items						
2	Softwares						

SNo	Description	Total units	Units working	Units damaged/missing	Equipment owner/provider	Equipments per specifications (Y/N)	Remarks
(a)	Software - Lane/ Plaza level						
(b)	TMS						
(c)	Any other items						

On-ground ETC operations and SLA adherence

Lane	Average queue length during peak time	Average queue length during non peak time	Average Transaction time (cash)	Average transaction time (RFID)	Average transaction time (cards)	Average transaction time (wallet)	Average transaction time (others)
Lane 1	10 vehicles	5 vehicles	15 seconds	10 seconds	20 seconds	25 seconds	UPI-20 seconds
Lane 2							
Lane 3							

- ☑ Average system uptime =80%
- ☐ Transactions uploaded (as per SLA) =80%
- ☐ Blacklists uploaded (as per SLA) =50%
- ☐ Blacklists downloaded (as per SLA) =85%

6 Status of Damages for breach of maintenance activities

Damages for non completion of project facilities

SNo	Period	Amount of damages (Rs)
1	Upto June 2016	15,00,35,000
2	Jul 2016	2,00,88,000
3	Aug 2016	2,00,88,000
4	Sep 2016	1,94,40,000
	Total	20,96,51,000

Supporting Calculations for damages for Sep 2016

- ☐ No of days in Sep =30
- ☐ Performance security is Rs 64,80,00,000
- ☐ As per CA Clause 12.3.2 damages payable is 0.1% of performance security per day = Rs6,48,000
- ☑ Total damages payable = 30 X 6,48,000 = Rs1,94,40,000

Damages for breach of maintenance activities

SNo	Period	Amount of damages (Rs)
1	Upto June 2016	1,00,35,000
2	Jul 2016	6,63,196
3	Aug 2016	6,63,196
4	Sep 2016	52,22,444
	Total	1,65,83,836

Supporting Calculations for damages for reporting month

S No	Nature of defect	Unit	Total Quantity	Rate	Cost o repair as estimated	Damages as per CA	Damages at higher side	Date of inspection	Noofdaysas perCA	Damages from	No of days damages	Damages amount

Damages for non completion of major maintenance/ periodicoverlay

SNo	Period	Amount of damages (Rs)
1	June 2016	6,48,000
2	Jul 2016	2,00,88,000
3	Aug 2016	2,00,88,000
4	Sep 2016	1,94,40,000
	Total	6,02,64,000

Supporting Calculations for damages for Sep 2016

- No of days in Sep =30
- Performance security is Rs64,80,00,000
- As per CA Clause 12.3.2 damages payable is 0.1% of performance security per day = Rs 6,48,000
- ☑ Total damages payable = 30 X 6,48,000 = Rs1,94,40,000

All figures and graphs in templates are illustrative. Please add actual details.

7 Change of Scopeproposals

SN o	Proposal Details	Date offirst submission toAE	Current status	COS Amount	Expected/ Actualdate ofapproval
1	Construction of [Flyover Name] at [Chainage]	[DD/MM/YYYY]	Approved in principle by Authority. Detailed quantitSCsinproperorder yettobesubmitted	[+/- Amount]	[DD/MM/YYYY Y]
2	Nallah diversion through box culvert at [Chainage]	[DD/MM/YYYY]	Clarifications to be submitted by Concessionaire, expected date [DD/MM/YYYY]	[+/- Amount]	[DD/MM/YYYY Y]

8 Status of pendingdisputes

SN o	Dispute Details	Date of first submission to AE	Suggested resolution by AE	Dispute Amount (if applicable)	Current stage
1	Increased tollable length to be applicableintollfee calculations	[DD/MM/YYYY]	Nomeritinincreasingtollable lengthhencenoactionrequired by<Agency>	NA	SAROD
2	Filling stations energized without obtainingNOCfrom ministry	[DD/MM/YYYY]	<Agency>to consider the Concessionaire's request for intervention and assistance	[+/- Amount]	B/w Concession aire and <Agency>

All figures and graphs in templates are illustrative. Please add actual details.

9 Reports

Monthly Toll Collection Report (Applicable only if project highway istolled)

TYPE OF VEHICLE			For Corresponding month of previous year		For Previous Month		For Current Month		
			No of vehicles	Fee Collected	No of vehicles	Fee Collected	Fee per vehicle	No of vehicles	Fee Collected
A	Car	Single	3845	384500	4659	465,900.00	100	4289	428,900.00
		Return	1506	218370	1972	295,800.00	150	1758	263,700.00
		Local	769	38450	979	48,950.00	50	1029	51,450.00
B	LCV	Single	1521	243360	1312	209,920.00	160	1399	223,840.00
		Return	134	31490	162	38,880.00	240	132	31,680.00
		Local	1683	134640	1838	147,040.00	80	1461	116,880.00
C	Bus	Single	2404	793386	2284	765,207.00	201	2349	786,915.00
		Return	359	177903	173	87,567.00	303	203	102,717.00
		Local	277	45738	205	34,782.00	102	318	54,060.00
D	Truck	Single	1603	528924	1523	510,138.00	134	1566	524,610.00
		Return	240	118602	116	58,378.00	202	136	68,478.00
		Local	185	30492	136	23,188.00	68	212	36,040.00
E	3 Axle	Single	18990	6836400	16310	5,953,150.00	365	15127	5,521,355.00
		Return	131	70740	34	18,700.00	550	37	20,350.00
		Local	69	12420	84	15,540.00	185	131	24,235.00
F	MAV	Single	16119	8381880	21111	11,188,830.00	530	18790	9,958,700.00
		Return	2	1550	20	15,800.00	790	35	27,650.00
		Local	6	1560	18	4,770.00	265	8	2,120.00
G	Over Size	Single	1	630	27	17,280.00	640	36	23,040.00
		Return		0	0	-	965		-
		Local		0	0	-	320		-
Total for the Month			49844	18,050,618	52963	19,898,834		49016	18,265,661

All figures and graphs in templates are illustrative. Please add actual details.

9.2 Accident Report

S No		1	
Date		1/1/17	
Chainage no		382/050 RHS	
Time of accident		05:25 pm	
Sex (M/F)		M	
A	Accident location		2
B	Nature of accident		2
C	Classification of accident		3
D	Causes		4
E	Load conditions of vehicle		1
F	Road condition		1
G	Intersection type of control		-
H	Weather condition		1
I	Age of victim		3
J	Type of victim		1
K	Type of vehicle		3
No of affected persons	Fatal		-
	Major		1
	Minor		1
Help provided by		Ambu	

Mapping of report fields to responses

A	1. Urban 2. Rural
B	1. Overturned 2. Head On Collision 3. Hit from Back 4. Hit to Fix Object 5. Right turn Collision 6. Left turn Collision 7. Veered Off the Road 8. Hit Pedestrian 9. Unknown/Hit & Ran Away
C	1. Fatal 2. Major injury 3. Minor injury
D	1. Drunken 2. Over Speeding 3. Vehicle out of Control 4. Driven on wrong side 5. Mechanical Problem 6. Drowsiness/Not Applicable 7. Fault of Driver
E	1. Normally Loaded 2. Overloaded/Handing 3. Empty 4. Unknown
F	1. Straight road 2. Slight Curve 3. Sharp Curve 4. Hump 5. Dip
G	1. T-Junction 2. Y-Junction 3. Four arm Junction 4. Staggered Junction 5. Junction with more than 6. Round about Junction
H	1. Fine/Clear 2. Mist/Fog 3. Cloudy 4. Light Rain 5. Heavy Rain 6. Strong Wind 7. Dust Storm 8. Cold 9. Hot
I	1. 0-18 Years 2. 18-25 Years 3. 25-40 Years 4. 40-60 Years 5. 60-80 Years
J	1. Driver 2. Passenger 3. Pedestrian 4. Cyclist 5. Others
K	1. Two Wheeler 2. Auto Rickshaw 3. Car/Jeep 4. Bus 5. Light Truck 6. Heavy Truck 7. Tractor 8. Bicycle 9. Cycle Rickshaw 10. Hand Drawn Cart 11. Animal Drawn Cart

All figures and graphs in templates are illustrative. Please add actual details.

Details of complaints

SNo	Toll plaza	Complaint No	Date	Name of the person	Contact details of person	Details of complaint	Compliance by the concessionaire
1							
2							
3							

All figures and graphs in templates are illustrative. Please add actual details.

Encroachment list

SNo	Stretch Chainage (km)	Side (LHS/RHS)	District / Tehsil	Village	Encroachment type (Temporary/Permanent)	Category (Tea stall, Temple, etc)	Establishment (New/ existing)	Distance from road edge (m)	Encroachment width and length	Name of Encroacher
1										
2										

Lane Closure Report

S.No	Date	Chainage (Km)		Side	Time of Closure	Reasons for Lane Closure & Approval Details	Remarks
		From	To				
1							

10 Annexures

Annexure 1: Detailed visual inspection report of project highway

Assets to be covered- Pavement, Shoulder, Drainage, Median, Bridges, Road furniture, Buildings, Horticulture, Service Road

SNo	NCP/ SNo	Date of issue	Description of defect	Chainage	Side	AE Remarks
1						
2						
3						
4						

Annexure 2 onwards:

AE should include comments, status update, data points and reports in following annexures which have not been included elsewhere in the main report. Such reports may include but not limited to:

- ▯ Minutes of review meeting
- ▯ Correspondence details
- ▯ Weather report
- ▯ Organizational chart of Concessionaire and AE
- ▯ Project photographs

Annexure VII-OUTPUT FORMAT FROM NETWORK SURVEY VEHICLE AND FWD TESTING

[NAME & LOGO OF IMPLEMENTING AGENCY]

[PROJECT NAME]

Authority Engineer

[NAME OF CONSULTING FIRM]

OUTPUT FROM NETWORK SURVEY VEHICLE AND FWD TESTING

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Annexure VII: OUTPUT FORMAT FROM NETWORK SURVEY VEHICLE AND FWD TESTING (SECTION 1: TESTING AT TIME OF COMPLETION, SECTION 2: FWD ATTRIBUTES - ANNUALLY, BALANCE PARAMETERS –BIANNUALLY AFTER CONSTRUCTION PHASE)

In addition to the reports being submitted on equipment based inspection as specified in Section 4.2 of the Monthly Progress Report in the O&M phase, the Authority Engineer (AE) shall submit electronically in excel (.xls) format certain key parameters to the Project Director in the following format.

Worksheets under Section 1 ('Road inventory data') shall be updated from surveys conducted only once at the time of completion testing. Worksheets under Section 2 ('Road condition data') shall be updated from surveys carried out annually for FWD attributes and biannually for the remaining attributes.

The fields to be updated in each of the worksheets are described below. Each description is followed by an example of data for a sample project.

SECTION 1 - ROAD INVENTORY DATA

Road inventory data consists of parameters which provide basic information about roads such as pavement type, number of lanes, topography, etc. These parameters are largely static in nature, and therefore a survey to update this dataset shall be conducted only once at the time of completion testing. The road inventory data shall be used to update specific worksheets listed below.

Location Reference Post (LRP) Master

The following table lists the fields which need to be populated for the 'LRP Master' attribute. The descriptions of the fields are given below.

Field	Description	Example
Road Number	New number	NH0065
LRP Name	Name of location reference post (LRP)	Km stone 17
Chainage	Chainage of the survey point (in km)	17
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Old Number	Old National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad-Vijayawada)

A sample output is shown below for reference

Road Number	LRP Name	Chainage	Direction	Latitude	Longitude	Altitude	Survey Date	Old Number	Section Code
NH0xxx	Road Start	1.230	Increasing	9.98897	78.02671	63.07767	23-12-15	NH0yyy	ABC-DEF
NH0xxx	Km Stone 8	8.000	Increasing	9.98444	78.02934	68.60126	23-12-15	NH0yyy	ABC-DEF
NH0xxx	Km Stone 8	8.030	Increasing	9.98341	78.03004	68.15520	23-12-15	NH0yyy	ABC-DEF
NH0xxx	Km Stone	9.008	Increasing	9.98107	78.03078	65.17153	23-12-15	NH0yyy	ABC-DEF
NH0xxx	Km Stone	12.012	Increasing	9.96328	78.04160	56.03436	23-12-15	NH0yyy	ABC-DEF
NH0xxx	Km Stone 17	17.085	Increasing	9.95385	78.05255	56.24748	23-12-15	NH0yyy	ABC-DEF

CarriagewayType

The following table lists the fields which need to be populated for the 'Carriageway Type' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Carriageway Type	Type of carriageway, classified into one of the below categories: <ul style="list-style-type: none"> □ Divided □ Undivided 	Divided
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference

NHNumber	Section	Start Chainage	End Chainage	Carriageway Type	Dateof Survey	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.794	Undivided	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.794	1.000	Undivided	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.000	2.810	Undivided	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	2.810	4.335	Undivided	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	4.335	6.666	Undivided	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	6.666	12.906	Undivided	06-05-17	9.95385	78.05255

Road Type

The following table lists the fields which need to be populated for the 'Road Type' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Road Type	Classification of road on basis of number of lanes <input type="checkbox"/> Single Lane <input type="checkbox"/> Two Lane <input type="checkbox"/> Intermediate Lane <input type="checkbox"/> Four Lane <input type="checkbox"/> Six Lane	Four Lane
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section	Start Chainage	End Chainage	Road Type	Date of Survey	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.794	Two Lane	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.794	1.000	Two Lane	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.000	2.810	Two Lane	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	2.810	4.335	Two Lane	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	4.335	6.666	Two Lane	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	6.666	12.906	Two Lane	06-05-17	9.95385	78.05255

Pavement Type

The following table lists the fields which need to be populated for the 'Pavement Type' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Pavement Type	Classification of pavement based on type of surface:	Asphalt

Field	Description	Example
	<ul style="list-style-type: none"> ▣ Asphalt ▣ Cementconcrete 	
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section	Start Chainage	End Chainage	Direction	Pavement Type	Date of Survey	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.804	Both	Asphalt	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.804	1.000	Both	Asphalt	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.000	1.172	Both	Asphalt	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	1.172	2.821	Both	Asphalt	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	2.821	4.350	Both	Asphalt	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	4.350	6.710	Both	Asphalt	06-05-17	9.95385	78.05255
NH00xx	ABC-DEF	6.710	12.925	Both	Asphalt	06-05-17	9.93102	78.05648

PavementWidth

The following table lists the fields which need to be populated for the 'Pavement Width' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Codeindicatingstartingandendinglocationsof section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ▣ Increasing(chainage) ▣ Decreasing(chainage) 	Increasing
Pavement Width	Widthofthepavementinmetres,classifiedintooneof the belowcategories <ul style="list-style-type: none"> ▣ $\geq 3.75\text{m}$ and $<5.5\text{m}$ ▣ $>5.5\text{m}$ and $<7\text{m}$ ▣ $\geq 7\text{m}$ and $<10.5\text{m}$ ▣ $\geq 10.5\text{m}$ and $\leq 12.5\text{m}$ ▣ $>12.5\text{m}$ 	$>7\text{m}$ and $<10.5\text{m}$
Pavement Width Value	Width of the pavement in metres, rounded to two places after decimal	7.0

Field	Description	Example
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section Code	Start Chainage	End Chainage	Direction	Pavement Width	Pavement Width Value	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.794	Both	7 – 10.5 m	7.00	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.794	1.000	Both	7 – 10.5 m	7.00	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.000	2.810	Both	7 – 10.5 m	7.00	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	2.810	4.335	Both	7 – 10.5 m	7.00	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	4.335	6.666	Both	7 – 10.5 m	7.00	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	6.666	12.906	Both	7 – 10.5 m	7.00	06-05-17	9.95385	78.05255

ShoulderType

The following table lists the fields which need to be populated for the 'Shoulder Type' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Shoulder Type	Type of shoulder, classified into one of the below categories: <input type="checkbox"/> None <input type="checkbox"/> Paved <input type="checkbox"/> Gravel <input type="checkbox"/> Earth	Gravel
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section Code	StartChainage	End Chainage	Direction	ShoulderType	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.763	Increasing	No Shoulder	09-01-16	9.98897	78.02671
NH00xx	ABC-DEF	0.763	0.834	Increasing	Gravel	09-01-16	9.98444	78.02934

NH00xx	ABC-DEF	0.834	1.254	Increasing	Gravel	09-01-16	9.98341	78.03004
NH00xx	ABC-DEF	1.254	2.945	Increasing	Gravel	05-01-16	9.98107	78.03078
NH00xx	ABC-DEF	2.945	4.327	Increasing	Gravel	05-01-16	9.96328	78.04160
NH00xx	ABC-DEF	4.327	4.405	Increasing	Gravel	05-01-16	9.95385	78.05255
NH00xx	ABC-DEF	4.405	6.844	Increasing	Gravel	05-01-16	9.93102	78.05648
NH00xx	ABC-DEF	6.844	9.359	Increasing	Gravel	05-01-16	9.91229	78.04961
NH00xx	ABC-DEF	9.359	12.966	Increasing	Gravel	05-01-16	9.89041	78.03458

ShoulderWidth

The following table lists the fields for the 'Shoulder Width' attribute, which need to be populated. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending location of section	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ▣ Increasing(chainage) ▣ Decreasing(chainage) 	Increasing
Shoulder Width	Width of the shoulder in metres, classified into one of the below categories <ul style="list-style-type: none"> ▣ No shoulder ▣ <1m ▣ >= 1m and <=2m ▣ >2m 	< 1m
Shoulder Width Value	Width of the shoulder in metres, rounded to one place after decimal	0.5
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Shoulder Width	Shoulder Width Value	Survey Date	Latitude	Longitude
NH0xxx	ABC-DEF	0.000	0.785	Increasing	No Shoulder	0.0	03-01-16	9.98897	78.02671
NH0xxx	ABC-DEF	0.785	2.612	Increasing	No Shoulder	0.0	03-01-16	9.98444	78.02934
NH0xxx	ABC-DEF	2.612	3.170	Increasing	1-2m	2.0	03-01-16	9.98341	78.03004
NH0xxx	ABC-DEF	3.170	5.194	Increasing	1-2m	2.0	03-01-16	9.98107	78.03078
NH0xxx	ABC-DEF	5.194	6.793	Increasing	1-2m	2.0	03-01-16	9.96328	78.04160
NH0xxx	ABC-DEF	6.793	11.404	Increasing	1-2m	2.0	03-01-16	9.95385	78.05255

Topography

The following table lists the fields which need to be populated for the 'Topography' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending location of section	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Topography	Topography of the road, classified into one of the below categories <ul style="list-style-type: none"> □ Flat □ Rolling □ Hilly 	Flat
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Topography	Survey Date	Latitude	Longitude
NH0xxx	ABC-DEF	0.000	0.808	Flat	05-01-16	9.98897	78.02671
NH0xxx	ABC-DEF	0.808	1.254	Flat	05-01-16	9.98444	78.02934
NH0xxx	ABC-DEF	1.254	2.828	Flat	05-01-16	9.98341	78.03004
NH0xxx	ABC-DEF	2.828	4.363	Flat	05-01-16	9.98107	78.03078
NH0xxx	ABC-DEF	4.363	6.724	Flat	05-01-16	9.96328	78.04160
NH0xxx	ABC-DEF	6.724	12.933	Flat	05-01-16	9.95385	78.05255

CrossSection

The following table lists the fields which need to be populated for the 'Cross Section' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending location of section	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> □ Increasing(chainage) □ Decreasing(chainage) 	Increasing
Cross Section	Cross section type, classified into one of the below categories	Fill

Field	Description	Example
	<ul style="list-style-type: none"> □ Cut □ Fill □ Cut and Fill □ Level 	
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Cross Section	Survey Date	Latitude	Longitude
NH0xxx	ABC-DEF	0.000	0.822	Increasing	Level	03-01-16	9.98897	78.02671
NH0xxx	ABC-DEF	0.822	2.642	Increasing	Level	03-01-16	9.98444	78.02934
NH0xxx	ABC-DEF	2.642	3.199	Increasing	Level	03-01-16	9.98341	78.03004
NH0xxx	ABC-DEF	3.199	5.360	Increasing	Level	03-01-16	9.98107	78.03078
NH0xxx	ABC-DEF	5.360	5.715	Increasing	Fill	03-01-16	9.96328	78.04160
NH0xxx	ABC-DEF	5.715	6.941	Increasing	Level	03-01-16	9.95385	78.05255
NH0xxx	ABC-DEF	6.941	11.163	Increasing	Level	03-01-16	9.93102	78.05648

Drain Type

The following table lists the fields which need to be populated for the 'Drain Type' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> □ Increasing(chainage) □ Decreasing(chainage) 	Increasing
Drain Type	Type of drain, classified into one of the below categories <ul style="list-style-type: none"> □ Open unlinedrain □ Open linedrain □ Covered linedrain □ Nodrain 	Open linedrain
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	SectionCode	StartChainage	EndChainage	Direction	DrainType	SurveyDate	Latitude	Longitude
NH0xxx	ABC-DEF	0.000	0.069	Increasing	Open Unlined Drain	09-01-16	9.98897	78.02671
NH0xxx	ABC-DEF	0.069	0.782	Increasing	OpenLinedDrain	09-01-16	9.98444	78.02934
NH0xxx	ABC-DEF	0.288	0.000	Decreasing	Open Unlined Drain	09-01-16	9.98341	78.03004
NH0xxx	ABC-DEF	0.782	0.846	Increasing	Open Unlined Drain	09-01-16	9.98107	78.03078
NH0xxx	ABC-DEF	0.846	1.254	Increasing	Open Unlined Drain	09-01-16	9.96328	78.04160
NH0xxx	ABC-DEF	1.254	2.265	Increasing	Open Unlined Drain	05-01-16	9.95385	78.05255
NH0xxx	ABC-DEF	1.929	0.288	Decreasing	Open Unlined Drain	09-01-16	9.93102	78.05648
NH0xxx	ABC-DEF	1.952	1.929	Decreasing	No Drain	09-01-16	9.91229	78.04961
NH0xxx	ABC-DEF	2.265	3.005	Increasing	Open Unlined Drain	05-01-16	9.89041	78.03458
NH0xxx	ABC-DEF	2.680	1.952	Decreasing	Open Unlined Drain	09-01-16	9.88489	78.02995
NH0xxx	ABC-DEF	3.005	4.424	Increasing	Open Unlined Drain	05-01-16	9.87474	78.02828
NH0xxx	ABC-DEF	3.109	2.680	Decreasing	Open Unlined Drain	09-01-16	9.87363	78.02744
NH0xxx	ABC-DEF	3.320	3.109	Decreasing	Covered Line Drain	09-01-16	9.84857	78.01535
NH0xxx	ABC-DEF	3.917	3.320	Decreasing	Open Unlined Drain	09-01-16	9.83764	78.00392
NH0xxx	ABC-DEF	4.424	4.601	Increasing	Open Unlined Drain	05-01-16	9.83711	77.98576
NH0xxx	ABC-DEF	4.601	5.693	Increasing	Open Unlined Drain	05-01-16	9.83386	77.97729

MedianOpening

The following table lists the fields which need to be populated for the 'Median Opening' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Codeindicatingstartingandendinglocationsof section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ☐ Increasing(chainage) ☐ Decreasing(chainage) 	Increasing
Median Type	Type of median, classified into one of the below categories <ul style="list-style-type: none"> ☐ Raised; ☐ Depressed; ☐ Barrier; ☐ None. 	Raised

Field	Description	Example
Median Width	Width of the median in metres, rounded to one place after decimal	0.5
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section Code	Start Chainage	End Chainage	Direction	Median Type	Median Width	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.794	Both	Raised	0.5	05-01-16	9.98897	78.02671
NH00xx	ABC-DEF	0.794	1.000	Both	Raised	0.5	05-01-16	9.98444	78.02934
NH00xx	ABC-DEF	1.000	2.810	Both	No Median	0.0	05-01-16	9.98341	78.03004
NH00xx	ABC-DEF	2.810	4.335	Both	Raised	1.5	05-01-16	9.98107	78.03078
NH00xx	ABC-DEF	4.335	6.666	Both	No Median	0.0	05-01-16	9.96328	78.04160
NH00xx	ABC-DEF	6.666	12.906	Both	No Median	0.0	05-01-16	9.95385	78.05255

Right Of Way

The following table lists the fields which need to be populated for the 'Right of Way' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ▣ Increasing(chainage) ▣ Decreasing(chainage) 	Increasing
Row Width	Width of Right of Way (in metres)	24
Remarks		
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section Code	Start Chainage	End Chainage	Direction	ROW Width	Remarks	Survey Date	Latitude	Longitude
NH0xxx	ABC-DEF	0.000	1.000	Increasing	28		05-05-15	9.98897	78.02671
NH0xxx	ABC-DEF	1.000	2.000	Increasing	24		05-05-15	9.98444	78.02934
NH0xxx	ABC-DEF	2.000	3.000	Increasing	30		05-05-15	9.98341	78.03004
NH0xxx	ABC-DEF	3.000	4.000	Increasing	26		05-05-15	9.98107	78.03078
NH0xxx	ABC-DEF	4.000	11.000	Increasing	24		05-05-15	9.96328	78.04160

Pavement composition

The following table lists the fields which need to be populated for the 'Pavement composition' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Pavement Type	Type of pavement <input type="checkbox"/> Asphalt <input type="checkbox"/> Cementconcrete	Asphalt
Bituminous Surface Course Type	Type of bituminous surface course	BC
Bituminous Surface Course Thickness MM	Thickness of BSC layer in mm	40
BSC Construction Year	Year of construction of BSC layer in flexible pavements	2015
Bituminous Base Course Type	Type of bituminous base course	DBM
Bituminous Base Course Thickness	Thickness of BBC layer in mm	100
BBC Construction Year	Year of construction of BBC layer in flexible pavements	2015
Granular Base Type	Type of granular base	WMM
Granular Base Thickness	Thickness of GB layer in mm	250
GB Construction Year	Year of construction of GB layer in flexible pavements	2015
Pavement Quality Concrete Type	Type of pavement quality concrete	PQC
Pavement Quality Concrete Thickness	Thickness of PQC layer in mm	300
PQC Construction Year	Year of construction of PQC layer in rigid pavements	2015
Dry Lean Concrete Thickness MM	Thickness of DLC layer in mm	100
Dry Lean Concrete Type	Type of dry lean concrete	DLC
DLCC Construction Year	Year of construction of DLC layer in rigid pavements	2015
Granular Sub Base Type	Type of granular sub base	GSB
Granular Sub Base Thickness	Thickness of GSB layer in mm	200
GSB Construction Year	Year of construction of GSB layer	2014
Design CBR	Design CBR of the subgrade, expressed in %	5%
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897

Field	Description	Example
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH No.	Section Code	Start Chainage	End Chainage	Direction	Pavement Type	Bituminous Surface Course Type	Bituminous Surface Course Thickness	BSC Construction Year	Bituminous Base Course Type	Bituminous Base Course Thickness	BBC Construction Year	Granular Base Type	Granular Base Thickness
NH00x	ABC-DEF	0.0	5.0	Both side	Asphalt	BC	40.0	2015	DBM	100	2015	WMM	250
NH00x	ABC-DEF	5.0	11.0	Both side	Asphalt	BC	40.0	2015	DBM	80	2015	WMM	250
NH00x	ABC-DEF	11.0	20.0	Both side	Asphalt	SDBC	25.0	2015	BM	115	2015	WMM	250
NH00x	ABC-DEF	20.0	22.0	Both side	Asphalt	BC	40.0	2015	DBM	100	2015	WMM	250
NH00x	ABC-DEF	22.0	30.0	Both side	Asphalt	SDBC	25.0	2015	BM	115	2015	WMM	250
NH00x	ABC-DEF	30.0	31.0	Both side	Asphalt	BC	40.0	2015	DBM	100	2015	WMM	250

(table continued...)

GB Construction Year	Pavement Quality Concrete Type	Pavement Quality Concrete Thickness	PQC Construction Year	Dry Lean Concrete Thickness	Dry Lean Concrete Type	DLC Construction Year	Granular SubBase Type	Granular SubBase Thickness	GSB Construction Year	Design CBR	Survey Date	Latitude	Longitude
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.99	78.03
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.98	78.03
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.98	78.03
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.98	78.03
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.96	78.04
2015	NA	NA	NA	NA	NA	NA	GSB	300	2015	5%	05-05-15	9.95	78.05

Carriageway Furniture

The following table lists the fields which need to be populated for the 'Carriageway Furniture' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Chainage	Chainage of the point (in km)	0.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing

Field	Description	Example
Wayside Amenity Type	Wayside amenities classified into one of the below categories: <ul style="list-style-type: none"> ▯ Crashbarriers ▯ Signs ▯ StreetLights ▯ Kmstone 	Road sign
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	SectionCode	Chainage	Direction	EventType	SurveyDate	Latitude	Longitude
NH00xx	ABC-DEF	0.012	Increasing	Street Light Start	03-01-16	9.98897	78.02671
NH00xx	ABC-DEF	0.287	Increasing	Street Light End	03-01-16	9.98444	78.02934
NH00xx	ABC-DEF	2.491	Decreasing	Road Sign	03-01-16	9.98341	78.03004
NH00xx	ABC-DEF	2.708	Decreasing	Road Sign	03-01-16	9.98107	78.03078
NH00xx	ABC-DEF	3.496	Increasing	Road Sign	03-01-16	9.96328	78.04160
NH00xx	ABC-DEF	5.160	Increasing	Road Sign	03-01-16	9.95385	78.05255
NH00xx	ABC-DEF	5.356	Decreasing	Road Sign	03-01-16	9.93102	78.05648
NH00xx	ABC-DEF	8.402	Decreasing	Road Sign	03-01-16	9.91229	78.04961
NH00xx	ABC-DEF	10.966	Decreasing	Road Sign	03-01-16	9.89041	78.03458

WaysideAmenities

The following table lists the fields which need to be populated for the 'Wayside Amenities' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Chainage	Chainage of the point (in km)	0.500
Direction	Direction of survey <ul style="list-style-type: none"> ▯ Increasing(chainage) ▯ Decreasing(chainage) 	Increasing
Wayside Amenity	Wayside amenities classified into one of the below categories: <ul style="list-style-type: none"> ▯ Busshelter; ▯ Culverts; ▯ Restaurant/Motel; ▯ Toilet/Publicconvenience; ▯ RestRoomsforshortstay; ▯ TollPlaza; ▯ First aid/Medicalcentre; 	Restaurant/Motel

Field	Description	Example
	<ul style="list-style-type: none"> ☐ Telephonebooth; ☐ Petrolpump/minorrepairshop(optional); ☐ PoliceStation; ☐ Temple/Mosque; ☐ Bridges. 	
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Data Source		
Remarks		
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Chainage	Direction	Wayside Amenity	Survey Date	Data Source	Remarks	Latitude	Longitude
NH00xx	ABC-DEF	0.650	Increasing	Restaurant/Motel	05-01-16			9.98897	78.02671
NH00xx	ABC-DEF	1.998	Increasing	Restaurant/Motel	05-01-16			9.98444	78.02934
NH00xx	ABC-DEF	5.524	Increasing	Petrol Pump	05-01-16			9.98341	78.03004
NH00xx	ABC-DEF	11.413	Increasing	Restaurant/Motel	05-01-16			9.98107	78.03078

Land Use

The following table lists the fields which need to be populated for the 'Land Use' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending location of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ☐ Increasing(chainage) ☐ Decreasing(chainage) 	Increasing
Land Use	Land use classified into one of the below categories: <ul style="list-style-type: none"> ☐ Residential; ☐ Commercial; ☐ Industrial; ☐ Agricultural; ☐ Waterbodies; ☐ Mixed. 	Commercial
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897

Field	Description	Example
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	SectionCode	StartChainage	EndChainage	Direction	LandUse	SurveyDate	Latitude	Longitude
NH00xx	ABC-DEF	0.000	0.797	Increasing	Mixed	03-01-16	9.98897	78.02671
NH00xx	ABC-DEF	0.511	0	Decreasing	Mixed	03-01-16	9.98444	78.02934
NH00xx	ABC-DEF	0.797	2.699	Increasing	Mixed	03-01-16	9.98341	78.03004
NH00xx	ABC-DEF	0.835	0.511	Decreasing	Mixed	03-01-16	9.98107	78.03078
NH00xx	ABC-DEF	0.987	0.835	Decreasing	Mixed	03-01-16	9.96328	78.04160
NH00xx	ABC-DEF	1.641	0.987	Decreasing	Agriculture	03-01-16	9.95385	78.05255
NH00xx	ABC-DEF	2.081	1.641	Decreasing	Barren Land	03-01-16	9.93102	78.05648
NH00xx	ABC-DEF	2.378	2.081	Decreasing	Agriculture	03-01-16	9.91229	78.04961
NH00xx	ABC-DEF	2.458	2.378	Decreasing	Agriculture	03-01-16	9.89041	78.03458
NH00xx	ABC-DEF	2.699	3.234	Increasing	Agriculture	03-01-16	9.88489	78.02995

SECTION 2 - ROAD CONDITION DATA

Road condition data consists of parameters which directly affect maintenance requirements of the road. These parameters are dynamic in nature, and therefore a survey to update this dataset shall be conducted annually for FWD testing and every six months as per Annexure IV for network survey vehicle testing. The first survey shall be conducted at the time of completion testing and the remaining surveys shall be conducted as per the defined frequency.

As an example, if majority of highway length (>50%) passes through a state, where defined survey months are May and November, if completion testing is conducted in April, then the first network survey shall be conducted in the month of April. This shall be considered as the network survey to be conducted in the month of May. The 2nd survey shall be conducted in the month of November, the 3rd survey shall be conducted in the month of May and so on. As regards FWD, the first test/survey shall be conducted at the time of completion in April. The 2nd test/survey shall be conducted in April of next year and so on.

The road condition data shall be used to update specific worksheets, which are listed below.

Visual condition

The following table lists the fields which need to be populated for the 'Visual Condition' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065

Field	Description	Example
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ☐ Increasing(chainage) ☐ Decreasing(chainage) 	Increasing
Lane Number	Number of the lane: L1, L2, R1, R2, etc., L1 being 1 st lane on the left from centre line of carriageway, L2 being 2 nd lane on the left from center line and so on	L1
Ravelling	Percent of pavement area affected by ravelling, which is converted to the following ratings scale: <ul style="list-style-type: none"> ☐ 1-Very Poor(>30%) ☐ 2 - Poor(11-30%) ☐ 3-Fair(6-10%) ☐ 4-Good(1-5%) ☐ 5 - Very Good(0%) 	2
Pot Holes	No. of potholes, which is converted to the following ratings scale: <ul style="list-style-type: none"> ☐ 1 - Very Poor (>5) ☐ 2 - Poor(3-5) ☐ 3 - Fair(2) ☐ 4 - Good(1) ☐ 5 - Very Good(0) 	1
Edge Break	Pavement area containing edge breaks, which is converted to the following rating scale: <ul style="list-style-type: none"> ☐ 1-Very Poor(>5m²) ☐ 2-Poor(1-5m²) ☐ 3-Fair(0.5-1m²) ☐ 4 - Good(0-0.5m²) ☐ 5 - Very Good(0m²) 	3
Cracking	Percent of pavement area affected by cracking, which is converted to the following ratings scale: <ul style="list-style-type: none"> ☐ 1-Very Poor(>30%) ☐ 2 - Poor(21-30%) ☐ 3-Fair(11-20%) ☐ 4-Good(5-10%) ☐ 5 - Very Good(<5%) 	3
Disintegration	Percent of pavement area affected by disintegration, which is converted to the following ratings scale: <ul style="list-style-type: none"> ☐ 1-Very Poor(>50%) ☐ 2 - Poor(20-50%) ☐ 3-Fair(10-20%) ☐ 4-Good(1-10%) ☐ 5 - Very Good(<1%) 	2

Field	Description	Example
Depression	Percent of pavement area affected by depression, which is converted to the following rating scale: □ 1-VeryPoor(>5%) □ 2 - Poor(3-5%) □ 3 - Fair(1-2%) □ 4 - Good(0-1%) □ 5 - Very Good(0)	5
Bleeding	Percent of pavement area affected by bleeding, which is converted to the following ratings scale: □ 1-VeryPoor(>50%) □ 2 - Poor(20-50%) □ 3-Fair(10-20%) □ 4-Good(1-10%) □ 5 - Very Good(<1%)	3
Patching	Percent of pavement area affected by patching, which is converted to the following ratings scale: □ 1-VeryPoor(>30%) □ 2 - Poor(16-30%) □ 3-Fair(6-15%) □ 4-Good(2-5%) □ 5 - Very Good(<2%)	4
Drain Condition	Condition of the drain, which is converted to the following rating scale: □ 1 -Poor □ 2 -Fair □ 3 -Good	2
Shoulder Condition	Condition of the shoulder, which is converted to the following ratings scale: □ 1 -Poor □ 2 -Fair □ 3 -Good	Fair
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNumber	Section	Start Chainage	End Chainage	Direction	Lane Number	Ravelling	PotHoles	EdgeBreak	Cracking
NH00xx	ABC-DEF	0.000	0.500	Increasing	L1	4	4	4	4
NH00xx	ABC-DEF	0.500	1.000	Increasing	L1	4	4	4	5
NH00xx	ABC-DEF	1.000	1.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	1.500	2.000	Increasing	L1	5	5	5	5
NH00xx	ABC-DEF	2.000	2.500	Increasing	L1	5	5	5	5
NH00xx	ABC-DEF	2.500	3.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	3.000	3.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	3.500	4.000	Increasing	L1	5	4	3	5

NHNumber	Section	Start Chainage	End Chainage	Direction	Lane Number	Ravelling	PotHoles	EdgeBreak	Cracking
NH00xx	ABC-DEF	4.000	4.500	Increasing	L1	4	4	4	5
NH00xx	ABC-DEF	4.500	5.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	5.000	5.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	5.500	6.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	6.000	6.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	6.500	7.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	7.000	7.500	Increasing	L1	5	5	5	5
NH00xx	ABC-DEF	7.500	8.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	8.000	8.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	8.500	9.000	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	9.000	9.500	Increasing	L1	5	5	4	5
NH00xx	ABC-DEF	9.500	10.000	Increasing	L1	5	5	3	5

(table continued...)

Disintegration	Depression	Bleeding	Patching	Drain Condition	ShoulderCondition	Dateof Survey	Latitude	Longitude
4	4	4	4	2	2	06-05-17	9.98897	78.02671
4	4	4	4	2	2	06-05-17	9.98444	78.02934
5	5	5	4	2	2	06-05-17	9.98341	78.03004
5	5	5	5	2	2	06-05-17	9.98107	78.03078
5	5	5	5	2	2	06-05-17	9.96328	78.04160
5	5	5	5	2	2	06-05-17	9.95385	78.05255
5	5	5	5	2	3	06-05-17	9.93102	78.05648
4	4	4	4	2	3	06-05-17	9.91229	78.04961
4	4	4	4	2	2	06-05-17	9.89041	78.03458
5	5	5	5	2	2	06-05-17	9.88489	78.02995
5	5	5	5	2	2	06-05-17	9.87474	78.02828
5	5	5	5	2	2	06-05-17	9.87363	78.02744
5	5	5	5	2	2	06-05-17	9.84857	78.01535
5	5	5	5	2	2	06-05-17	9.83764	78.00392
5	5	5	5	2	2	06-05-17	9.83711	77.98576
5	5	5	5	1	2	06-05-17	9.83386	77.97729
5	5	5	5	2	2	06-05-17	9.81804	77.97875
5	5	5	5	2	2	06-05-17	9.77426	77.98129
5	4	4	4	2	2	06-05-17	9.73071	77.97999
5	5	5	3	2	2	06-05-17	9.68686	77.97017

Roughness

The following table lists the fields which need to be populated for the 'Roughness' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad- Vijayawada)

Field	Description	Example
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
LwpIri	International roughness index (IRI) of left wheel path measured from laser profilometer	2.33
RwpIri	Internationalroughnessindex(IRI)ofrightwheelpath measured from laserprofilometer	1.97
LaneIri	Average of the International roughness index (IRI) of left and right wheel paths	2.15
Speed	Speed of vehicle in km/h	42
Survey Date	Date of survey in the format <DD-MM-YYYY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Lane Number	LwpIri	RwpIri	LaneIri	Speed	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.0	0.1	Increasing	L1	3.31	5.16	4.24	20	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.1	0.2	Increasing	L1	2.81	3.54	3.18	37	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	0.2	0.3	Increasing	L1	2.31	1.92	2.12	42	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	0.3	0.4	Increasing	L1	2.17	2.37	2.27	46	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	0.4	0.5	Increasing	L1	2.11	1.72	1.92	42	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	0.5	0.6	Increasing	L1	2.33	1.97	2.15	49	06-05-17	9.95385	78.05255
NH00xx	ABC-DEF	0.6	0.7	Increasing	L1	2.37	2.00	2.19	42	06-05-17	9.93102	78.05648
NH00xx	ABC-DEF	0.7	0.8	Increasing	L1	2.15	2.17	2.16	33	06-05-17	9.91229	78.04961
NH00xx	ABC-DEF	0.8	0.9	Increasing	L1	2.45	2.05	2.25	32	06-05-17	9.89041	78.03458
NH00xx	ABC-DEF	0.9	1.0	Increasing	L1	2.18	2.51	2.35	48	06-05-17	9.88489	78.02995

Rutting

The following table lists the fields which need to be populated for the 'Rutting' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500

Field	Description	Example
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ☐ Increasing(chainage) ☐ Decreasing(chainage) 	Increasing
Lane Number	Numberofthelane:L1,L2,R1,R2,etc.,L1being1 st laneontheleftfromcentrelineofcarriageway,L2being 2 nd laneontheleftfromcenterlineandsoon	L1
Rutting Left	Rut depth in mm, measured from left wheel path	20
Rutting Right	Rut depth in mm, measured from left wheel path	18
Rutting Avg	Average rut depth measured from left and right wheel paths	19
Speed	Speed of vehicle in km/h	42
Survey Date	Date of survey in the format <DD-MM-YYYY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Lane Number	Rutting Left	Rutting Right	Rutting Avg	Speed	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.0	0.5	Increasing	L1	15	14	15	20	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.5	1.0	Increasing	L1	20	18	19	37	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.0	1.5	Increasing	L1	10	8	9	42	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	1.5	2.0	Increasing	L1	5	6	6	46	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	2.0	2.5	Increasing	L1	10	10	10	42	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	2.5	3.0	Increasing	L1	7	5	6	49	06-05-17	9.95385	78.05255
NH00xx	ABC-DEF	3.0	3.5	Increasing	L1	20	18	19	42	06-05-17	9.93102	78.05648
NH00xx	ABC-DEF	3.5	4.5	Increasing	L1	5	5	5	33	06-05-17	9.91229	78.04961
NH00xx	ABC-DEF	4.5	5.0	Increasing	L1	5	5	5	32	06-05-17	9.89041	78.03458

TextureDepth

The following table lists the fields which need to be populated for the 'Texture Depth' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Codeindicatingstartingandendinglocationsofsection	HYD-VIJ (Hyderabad-Vijayawada)
Start Chainage	Chainage of the start point (in km)	0.500

Field	Description	Example
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Lane Number	Numberofthelane:L1,L2,R1,R2,etc.,L1being1 st laneontheleftfromcentrelineofcarriageway,L2being 2 nd laneontheleftfromcenterlineandsoon	L1
Texture Left	Textureddepthofpavementinmm,measuredfromleft wheelpath	0.40
Texture Right	Textureddepthofpavementinmm,measuredfromleft wheelpath	0.30
Texture Average	Averagetextureddepthmeasuredfromleftandright wheelpaths	0.35
Speed	Speed of vehicle in km/h	42
Survey Date	Date of survey in the format <DD-MM-YYYY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Lane Number	Texture Left	Texture Right	Texture Average	Speed	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.0	0.5	Increasing	L1	0.40	0.30	0.35	20	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.5	1.0	Increasing	L1	0.60	0.50	0.55	37	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.0	1.5	Increasing	L1	0.80	0.90	0.85	42	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	1.5	2.0	Increasing	L1	0.40	0.40	0.4	46	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	2.0	2.5	Increasing	L1	0.30	0.30	0.3	42	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	2.5	3.0	Increasing	L1	0.70	0.60	0.65	49	06-05-17	9.95385	78.05255
NH00xx	ABC-DEF	3.0	3.5	Increasing	L1	0.40	0.50	0.45	42	06-05-17	9.93102	78.05648
NH00xx	ABC-DEF	3.5	4.5	Increasing	L1	0.90	0.80	0.85	33	06-05-17	9.91229	78.04961
NH00xx	ABC-DEF	4.5	5.0	Increasing	L1	0.40	0.30	0.35	32	06-05-17	9.89041	78.03458

SkidResistance

The following table lists the fields which need to be populated for the 'Skid Resistance' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Codeindicatingstartingandendinglocationsofsection	HYD-VIJ (Hyderabad-Vijayawada)

Field	Description	Example
Start Chainage	Chainage of the start point (in km)	0.500
End Chainage	Chainage of the end point (in km)	1.500
Direction	Direction of survey <ul style="list-style-type: none"> ▣ Increasing(chainage) ▣ Decreasing(chainage) 	Increasing
Lane Number	Numberofthelane:L1,L2,R1,R2,etc.,L1being1 st laneontheleftfromcentrelineofcarriageway,L2being 2 nd laneontheleftfromcenterlineandsoon	L1
Skid Left	Skid resistance of pavement measured as skid number, measured from left wheel path	25
Skid Right	Skidresistanceofpavementmeasuredasskid number,measuredfromleftwheelpath	24
Skid Average	Average skid resistance measured from left and right wheel paths	24.5
Speed	Speed of vehicle in km/h	42
Survey Date	Date of survey in the format <DD-MM-YYYY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Start Chainage	End Chainage	Direction	Lane Number	Skid Left	Skid Right	Skid Average	Speed	Survey Date	Latitude	Longitude
NH00xx	ABC-DEF	0.0	0.5	Increasing	L1	25.0	24.0	24.5	20	06-05-17	9.98897	78.02671
NH00xx	ABC-DEF	0.5	1.0	Increasing	L1	23.0	23.0	23.0	37	06-05-17	9.98444	78.02934
NH00xx	ABC-DEF	1.0	1.5	Increasing	L1	23.0	24.0	23.5	42	06-05-17	9.98341	78.03004
NH00xx	ABC-DEF	1.5	2.0	Increasing	L1	22.0	22.0	22.0	46	06-05-17	9.98107	78.03078
NH00xx	ABC-DEF	2.0	2.5	Increasing	L1	20.0	21.0	20.5	42	06-05-17	9.96328	78.04160
NH00xx	ABC-DEF	2.5	3.0	Increasing	L1	24.0	24.0	24.0	49	06-05-17	9.95385	78.05255
NH00xx	ABC-DEF	3.0	3.5	Increasing	L1	28.0	28.0	28.0	42	06-05-17	9.93102	78.05648
NH00xx	ABC-DEF	3.5	4.5	Increasing	L1	21.0	21.0	21.0	33	06-05-17	9.91229	78.04961
NH00xx	ABC-DEF	4.5	5.0	Increasing	L1	25.0	24.0	24.5	32	06-05-17	9.89041	78.03458

Falling Weight Deflectometer(FWD)

The following table lists the fields which need to be populated for the 'FWD' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065

Field	Description	Example
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad-Vijayawada)
Chainage	Chainage of survey point (in km)	0.500
Direction	Direction of survey <ul style="list-style-type: none"> ▣ Increasing(chainage) ▣ Decreasing(chainage) 	Increasing
Lane Number	Numberofthelane:L1,L2,R1,R2,etc.,L1being1 st laneonthe leftfromcentrelineofcarriageway,L2being2 nd laneontheleft from centerline and soon	L1
Air Temperature	Air temperature recorded in °C	33
Surface Temperature	Temperature of the pavement surface, recorded in °C	39.3
Peak Load	Peak impulse load, measured in kN	45.7
Deflection0	Surfacedeflectionatthetestloadcenter,measuredinmicron	246
Deflection1	Surface deflection at location 1 from the test load center, measured in micron	110
Distance1	Distance of location 1 from the test load center	300
Deflection2	Surface deflection at location 2 from the test load center, measured in micron	153
Distance2	Distance of location 2 from the test load center	600
Deflection3	Surface deflection at location 3 from the test load center, measured in micron	110
Distance3	Distance of location 3 from the test load center	900
Deflection4	Surface deflection at location 4 from the test load center, measured in micron	76
Distance4	Distance of location 4 from the test load center	1200
Deflection5	Surface deflection at location 5 from the test load center, measured in micron	59
Distance5	Distance of location 5 from the test load center	1500
Deflection6	Surface deflection at location 6 from the test load center, measured in micron	44
Distance6	Distance of location 6 from the test load center	1800
Deflection7	Surface deflection at location 7 from the test load center, measured in micron	35
Distance7	Distance of location 7 from the test load center	2100
Deflection8	Surface deflection at location 8 from the test load center, measured in micron	28
Distance8	Distance of location 8 from the test load center	2400
Elastic Modulus BituminousE1	Elastic modulus of bituminous layer, back calculated in MPa	3359
Elastic Modulus GranularE2	Elastic modulus of granular layer, backcalculated in MPa	396
Elastic Modulus SubGradeE3	Elastic modulus of subgrade, back calculated in MPa	90

Field	Description	Example
Corrected Elastic Modulus BituminousE1	Corrected elastic modulus of bituminous layer in MPa	3424
Corrected Elastic Modulus GranularE2	Corrected elastic modulus of granular layer in MPa	300
CorrectedElasticModulusSubGradeE3	Corrected elastic modulus of subgrade in MPa	69
Bituminous Layer	Thickness of bituminous layer in mm	105
Base Layer	Thickness of base layer in mm	230
GSB Layer	Thickness of GSB layer in mm	200
Subgrade CBR	CBR of subgrade	0.08
BituminousLayerCoefficientA1	Layer coefficient of the bituminous layer	0.36
BaseLayerCoefficientA 2	Layer coefficient of the base layer	0.17
GranularBaseLayerCoefficientA3	Layer coefficient of the GSB layer	0.17
Structural Number	Structural number of the pavement	3.86
Modified Structural Number	Modifiedstructuralnumberincludingcontributionfromsubgrade	4.85
Survey Date	Date of survey in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NH Number	Section Code	Chainage	Direction	Lane Number	Air Temperature	Surface Temperature	Peak Load	Deflection 0	Deflection 1	Location 1	Deflection 2
NH00xx	ABC-DEF	0.500	RHS	R2	32.6	43.7	45.7	333	188	300	243
NH00xx	ABC-DEF	1.000	LHS	L1	29.9	32.6	45.4	317	163	300	217
NH00xx	ABC-DEF	1.499	RHS	R1	33.0	39.3	45.7	246	110	300	153
NH00xx	ABC-DEF	2.000	LHS	L2	28.7	32.4	46.0	293	130	300	187
NH00xx	ABC-DEF	2.500	RHS	R2	33.7	45.8	45.3	429	232	300	316
NH00xx	ABC-DEF	3.000	LHS	L1	29.0	33.0	45.7	343	204	300	252
NH00xx	ABC-DEF	3.500	RHS	R1	33.5	45.4	44.5	373	194	300	268
NH00xx	ABC-DEF	4.010	LHS	L2	28.9	33.5	45.0	348	201	300	254
NH00xx	ABC-DEF	4.500	RHS	R2	33.3	40.3	46.0	393	241	300	301

(table continued...)

Location 2	Deflection 3	Location 3	Deflection 4	Location 4	Deflection 5	Location 5	Deflection 6	Location 6	Deflection 7	Location 7	Deflection 8
600	180	900	128	1200	102	1500	75	1800	58	2100	42
600	158	900	104	1200	70	1500	48	1800	38	2100	28
600	110	900	76	1200	59	1500	44	1800	35	2100	28
600	126	900	81	1200	62	1500	44	1800	32	2100	23
600	227	900	152	1200	116	1500	86	1800	71	2100	58
600	196	900	144	1200	117	1500	85	1800	65	2100	48
600	187	900	118	1200	83	1500	47	1800	31	2100	22
600	198	900	135	1200	105	1500	64	1800	42	2100	26
600	231	900	162	1200	123	1500	82	1800	62	2100	46

(table continued...)

Location 8	Elastic Modulus Bituminous E1	Elastic Modulus Granular E2	Elastic Modulus Subgrade E3	Corrected Elastic Modulus Bituminous E1	Corrected Elastic Modulus Granular E2	Corrected Elastic Modulus Subgrade E3	Bituminous Layer	Base Layer	GSBLayer	Subgrade CBR
2400	6213	185	100	6447	135	78	105	230	200	0.08
2400	5356	195	100	5295	143	78	105	230	200	0.08
2400	3359	396	90	3424	300	69	105	230	200	0.08
2400	4830	226	100	4770	169	78	105	230	200	0.08
2400	4570	137	97	4781	93	75	105	230	200	0.08
2400	8454	135	100	8374	91	78	105	230	200	0.08
2400	4394	165	100	4590	117	78	105	230	200	0.08
2400	7817	139	96	7762	95	74	105	230	200	0.08
2400	7666	123	95	7847	81	73	105	230	200	0.08

(table continued...)

Bituminous Layer Coefficient A1	Base Layer Coefficient A2	Granular Base Layer Coefficient A3	Structural Number	Modified Structural Number	Survey Date	Latitude	Longitude
0.45	0.13	0.13	3.68	4.82	01-07-16	9.98897	78.02671
0.42	0.13	0.13	3.56	4.70	23-06-16	9.98444	78.02934
0.36	0.17	0.17	3.86	4.85	01-07-16	9.98341	78.03004
0.41	0.14	0.14	3.65	4.79	23-06-16	9.98107	78.03078
0.41	0.11	0.11	3.24	4.34	01-07-16	9.96328	78.04160
0.49	0.11	0.11	3.58	4.72	23-06-16	9.95385	78.05255
0.40	0.12	0.12	3.34	4.48	01-07-16	9.93102	78.05648
0.48	0.12	0.12	3.67	4.75	23-06-16	9.91229	78.04961
0.48	0.11	0.11	3.53	4.59	01-07-16	9.89041	78.03458

Falling Weight Deflectometer (FWD) Rigid

The following table lists the fields which need to be populated for the 'FWD Rigid' attribute. The descriptions of the fields are given below.

Field	Description	Example
NH Number	New National Highway number	NH0065
Section Code	Code indicating starting and ending locations of section	HYD-VIJ (Hyderabad-Vijayawada)
Chainage	Chainage of the point (in km)	0.500
Direction	Direction of survey <input type="checkbox"/> Increasing(chainage) <input type="checkbox"/> Decreasing(chainage)	Increasing
Lane Number	Number of the lane: L1, L2, R1, R2, etc.	L2
Air Temperature	Air temperature recorded in °C	30.1
Surface Temperature	Temperature of the pavement surface, recorded in °C	39.4
Peak Load	Peak impulse load, measured in kN	103.7
Deflection1	Surface deflection at the test load center, measured in micron	140
Deflection2	Surface deflection at 300mm from the test load center, measured in micron	121
Deflection3	Surface deflection at 600mm from the test load center, measured in micron	108
Deflection4	Surface deflection at 900mm from the test load center, measured in micron	101
Concrete Slab Thicknessh	Thickness of concrete slab, measured in mm	300
Area of Deflection Basin	Area of deflection basin, calculated from measured deflections, in cm ²	761
Radius of Relative Stiffness	Radius of relative stiffness, calculated in mm	823
Normalized Deflection d 1	Normalized deflection at location 1, in mm	3.1
Normalized Deflection d 2	Normalized deflection at location 2, in mm	2.9
Normalized Deflection d 3	Normalized deflection at location 3, in mm	2.4
Normalized Deflection d 4	Normalized deflection at location 4, in mm	1.9
Modulus of Subgrade Reaction k	Modulus of subgrade reaction, measured in MPa/m	131
Elastic Modulus of Concrete Ec	Elastic modulus of concrete, calculated in MPa	26118
Cube Strength of Concrete fck	Cube strength of concrete, calculated in MPa	27
Flexural strength of concrete fmr	Flexural strength of concrete, calculated in MPa	3.7
Date Of Testing	Date of testing in the format <DD-MM-YY>	06-05-17
Latitude	Latitude of survey point	9.98897
Longitude	Longitude of survey point	78.02671

A sample output is shown below for reference:

NHNo	Section Code	Chain -age	Direction	Lane No.	Air Temperature	Surface Temperature	Peak Load	Deflection 1	Deflection 2	Deflection 3	Deflection 4	Concrete Slab Thickness
NH00x	ABC-DEF	0.0	LHS	L2	29.0	34.9	104.1	167	143	130	119	300
NH00x	ABC-DEF	0.5	RHS	R2	30.5	38.1	104.4	141	130	122	115	300
NH00x	ABC-DEF	1.0	LHS	L1	30.0	35.6	105.2	147	111	100	91	300
NH00x	ABC-DEF	1.5	RHS	R1	28.9	38.3	102.4	140	126	116	107	300
NH00x	ABC-DEF	2.0	LHS	L2	30.1	39.4	103.7	140	121	108	101	300
NH00x	ABC-DEF	2.5	RHS	R2	29.0	37.5	104.6	150	134	126	117	300
NH00x	ABC-DEF	3.0	LHS	L1	30.6	38.9	102.7	124	109	104	92	300
NH00x	ABC-DEF	3.5	RHS	R1	29.3	39.1	105.9	149	136	128	119	300
NH00x	ABC-DEF	4.5	RHS	R2	30.3	41.0	104.9	138	127	121	114	300

(table continued...)

Area of Deflection Basin	Radius of Relative Stiffness	Normalized Deflection d1	Normalized Deflection d2	Normalized Deflection d3	Normalized Deflection d4	Modulus of Subgrade Reaction k	Elastic Modulus of Concrete Ec	Cube Strength of Concrete fck	Flexural strength of concrete fmr	Date Of Testing	Latitude	Longitude
759	816	3	3	2	2	112	21590	19	3	25-06-16	9.98897	78.02671
821	1214	3	3	3	2	62	58161	135	8	28-06-16	9.98444	78.02934
684	580	3	3	2	1	246	12051	6	2	25-06-16	9.98341	78.03004
796	1014	3	3	3	2	87	39783	63	6	28-06-16	9.98107	78.03078
761	823	3	3	2	2	131	26118	27	4	25-06-16	9.96328	78.04160
800	1040	3	3	3	2	79	39908	64	6	28-06-16	9.95385	78.05255
789	971	3	3	3	2	107	41290	68	6	25-06-16	9.93102	78.05648
814	1150	3	3	3	2	66	50086	100	7	28-06-16	9.91229	78.04961
826	1257	3	3	3	2	59	64082	164	9	28-06-16	9.89041	78.03458

SECTION 7: DRAFT FORM OF CONTRACT

Note: This draft Agreement is a generic document and shall be modified based on particularof the Project.

CONTRACT FOR CONSULTANT'S SERVICES

Between

(Name of Client)

And

(Name of Consultant)

Dated:

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1.

FORM OF CONTRACT

COMPLEX TIME BASED ASSIGNMENTS

This CONTRACT (hereinafter called the "Contract") is made the _____ day of the Month of _____, 201, between, on the one hand _____ (hereinafter Called the "Client) and, on the other hand _____ hereinafter called the "Consultants")

[Note: If the Consultants consist of more than one entity, the above should be partially amended to read as follows:*

"...(hereinafter called the "Client") and, on the other hand, a joint venture consisting of the following entities, each of which will be jointly severally liable to the Client for all the Consultants' obligations under this Contract, namely, _____ and _____ (hereinafter called "Consultants")]

WHEREAS

- (a) the Client has requested the Consultants to provide certain consulting services as defined in the General Conditions of Contract attached to this Contract (hereinafter called the "Services");
- (b) the Consultants, having represented to the Client that they have the required professional skills ,and 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:

[Note: If any of these Appendices are not used, the words "Not Used" should be inserted below next to the title of the Appendix on the sheet attached hereto carrying the title of that Appendix].

- Appendix A : Description of the Services**
- Appendix B : Reporting Requirements**
- Appendix C : Key Personnel and Sub-consultants**
- Appendix D : Medical Certificate**
- Appendix E : Hours of Work for Key Personnel**
- Appendix F : Duties of the Client**
- Appendix G : Cost Estimates**

- AppendixH : Form of Performance Bank Guarantee**
- AppendixI : Form of Bank Guarantee for Advance Payments**
- AppendixJ : Letter of invitation**
- AppendixK : Letter of Award**
- Appendix-L : Minutes of pre-Bid Meeting**
- Appendix-M : Memorandum of Understanding (in case of JV)**

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) The 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
[NAME OF THE CLIENT]

By
(Authorized Representative)

FOR AND ON BEHALF OF
[NAME OF THE CONSULTANTS]

By
(Authorized Representative)

[Note: If the Consultants consist of more than one entity, all of these entities should appear as signatures, e.g. in the following manner]

FOR AND ON BEHALF OF EACH OF
THE MEMBERS OF THE CONSULTANTS

[Name of the Member]

By
(Authorized Representative)

[Name of the Member]

By
(Authorized Representative)

GENERAL CONDITIONS OF CONTRACT

1. General Provisions

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

Definitions

- (a) "Applicable Law" means the laws and any other instruments having the force of law in the Government's country [or in such other country as may be specified in the Special Conditions of Contract (SC)], 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;
- (e) 'GC' means these General Conditions of Contract;
- (f) "Government" means the Government of Client's Country;
- (g) 'Local currency' means the Indian Rupees;
- (h) "Consultant" wherever mentioned in this Contract Agreement means the "Authority Engineer (AE)" and includes sub-consultants or Associates engaged by the primary consultant.
- (i) "Member", in case the Consultants consist of a joint venture of more than one entity, means any of these entities, and "Members" means all of these entities;
- (j) "Party" means the Client or the Consultants, as the case may be, and Parties means both of them;
- (k) "Personnel" means persons hired by the Consultants or by any Sub-Consultants and/or Associates 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 the Government's Country, "Local Personnel" means such persons who at the time of being so hired had their domicile inside the Government's Country; and 'key personnel' means the personnel referred to in Clause GC 4.2 (a).
- (l) "SC" means the Special Conditions of Contract by which these General Conditions of Contract may be amended or supplemented;
- (m) "Services" means the work to be performed by the Consultants pursuant to his contract, as described in Appendix A hereto. The scope of work will be strictly as given in various Clauses in TOR. The approach and methodology to be

adopted by the Consultant for carrying out the assignment as Authority Engineer may be modified depending on the site requirements and work programme of the EPC Contractor after mutual discussions with Employer, the EPC Contractor and the Authority Engineer. The work plan as indicated by the Consultant may be modified accordingly to the site requirements.

- (n) "Sub-Consultant and or Associates " means any entity to which the Consultants subcontract any part of the Services in accordance with the provisions of Clause GC 3.7; and
- (o) "Third Party" means any person or entity other than the Government, the Client, the Consultants or a Sub-consultant.

Relation between the Parties

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

Law Governing Contract

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

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.

Headings

The headings shall not limit, alter or affect the meaning of this Contract.

Notices

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

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

A Party may change its address for notice hereunder by giving the other Party notice of such change pursuant to the provisions listed in the SC with respect to Clause GC 1.6.2.

Location

The Services shall be performed at such locations as are specified in Appendix A hereto and, where the location of a particular task is not so specified, at such locations whether in Government's Country or elsewhere, as the Client may approve.

Authority of Member in Charge

In case the Consultants consist of a joint venture of more than one entity, 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.

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.

Taxes and Duties

Unless otherwise specified in the SC, the Consultants, Sub-consultants and Personnel shall pay such taxes, duties, fees and other impositions as may be levied under the Applicable Law. Goods & Service tax as applicable shall be paid to the Authority's Engineer while making payment for services rendered. The consultants shall then deposit the same with the tax authorities and provide a proof of having done so within next 90 days in line with policy circulars issued by Employer.

2. Commencement, Completion, Modification and Termination of Contract

Effectiveness of Contract

This Contract shall come into force and effect on the date (the "Effective 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.

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.

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.

Expiration of Contract

Unless terminated earlier pursuant to Clause GC2.9 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.

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.

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 as the case may be, has been obtained. Pursuant to Clause GC7.2 hereof, however, each Party shall give due consideration to any proposals for modification made by the other Party.

Force Majeure

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 in to 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.

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.

Measures to betaken

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

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.

Extension of Time for providing services of the Authority's Engineer shall be extended concurrently with the Extension of Time granted, if any, to the EPC Contractor for the project, subject to satisfactory performance of the Authority's Engineer.

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.

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.

Termination

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 (h) of this Clause GC 2.9.1, terminate this Contract.

- (a) if the Consultants fail to remedy a failure in the performance of their obligations hereunder, as specified in a notice of suspension pursuant to Clause GC 2.8 herein above, 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 GC 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.
- (g) if the consultant, in the judgment of the Client has engaged in corrupt or fraudulent practices in competing for or in executing the Contract. For the purpose of this clause:

"corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the selection process or in contract execution.

"fraudulent practice" means a misrepresentation of facts in order to influence a selection process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among consultants (prior to or after submission of proposals) designed to establish prices at artificial non-competitive levels and to deprive the Borrower of the benefit of free and open

competition.

- (h) if EP Contractor represents to Employer that the Consultant is not discharging his duties in a fair, efficient and diligent manner and if the dispute remains unresolved, Employer may terminate this contract.

By the Consultants

The Consultants may, by not less than thirty (30) days' 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 GC2.9.2, 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 Consultants 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 GC 8 hereof.

Cessation of Rights and Obligations

Upon termination of this Contract pursuant to Clauses GC 2.2 or GC2.9 hereof, or upon expiration of this Contract pursuant to Clause GC2.4 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 GC 3.3 hereof;
- (iii) the Consultants' obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause GC 3.6 (ii) hereof; and
- (iv) any right which a Party may have under the Applicable Law

Cessation of Services

Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GC2.9.1 or GC2.9.2 hereof, the Consultant 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 GC 3.9 or GC 3.10 hereof.

Payment upon Termination

Upon termination of this Contract pursuant to Clauses GC 2.9.1 or GC 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):

- (a) remuneration pursuant to Clause GC 6 hereof for Services satisfactorily performed prior to the effective date of termination;
- (b) reimbursable expenditures pursuant to Clause GC 6 hereof for expenditures actually incurred prior to the effective date of termination; and
- (c) except in the case of termination pursuant to paragraphs (a) through (d) of Clause GC 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 GC 2.9.1 or in Clause GC 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 GC 8 hereof, and this Contract shall not be terminated on account of such event except in accordance with the terms of any resulting arbitral award.

3. Obligation of the Consultants

General

3.1.1. Standard of Performance

The Consultants shall perform the Services and carry out their obligations hereunder 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 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 and/or Associates, as well as the Personnel of the Consultants and any Sub-consultants and/or Associates,

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.

Conflict of Interests

Consultants Not to Benefit from Commissions, Discounts, etc.

The Remuneration of the Consultants pursuant to Clause GC6 hereof shall constitute the Consultants' sole remuneration in connection with this Contract or the Services and, subject to Clause GC3.2.2 hereof, 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 and or Associates, as well as the Personnel and agents of either of them, similarly shall not receive any such additional remuneration.

If the Consultants, as part of the Services, have the responsibility of advising the Client on the procurement of goods, works or services, the Consultants shall comply with any applicable procurement guidelines of the Client (Employer) and or Associates Bank or of the Association, as the case may be, and other funding agencies and shall at all times exercise such responsibility in the best interest of the Client. Any discounts or commissions obtained by the Consultants in the exercise of such procurement responsibility shall be for the account of the Client.

Consultants and Affiliates Not to engage in Certain Activities

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 or Associates and any entity affiliated with such Sub Consultant and or Associates, 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. .

Prohibition of Conflicting Activities

The Consultants shall not engage, and shall cause their Personnel as well as their Sub-consultants and or Associates and their Personnel not to 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; and
- (b) after the termination of this Contract, such other activities as may be specified in the SC.

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 relating to the Project, the Services, this Contract or the Client's business or operations without the prior written consent of the Client.

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.

Insurance to be Taken Out by the Consultants

The Consultants (i) shall take out and maintain, and shall cause any Sub-consultant 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 coverages, as shall be specified in the 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.

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 such bases as may be specifically referred to in the SC); (ii) shall permit the Client or its designated representative periodically, and up to one year from the expiration or termination of this Contract, to inspect the same and make copies thereof as well as to have them audited by auditors appointed by the Client; and (iii) shall permit the client to inspect the Consultant's accounts and records relating to the performance of the Consultant and to have them audited by auditors appointed by the client.

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 'C' ("Consultants' Sub-consultants' Key Personnel") merely by title but not by name;
- (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; and
- (c) any other action that may be specified in the SC

Reporting Obligations

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

Documents Prepared by the Consultants to Be the Property of the Client

All plans, drawings, specifications, designs, reports, other documents and software prepared by the Consultants for the Client under this Contract 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 and software. Restrictions about the future use of these documents and software, if any, shall be specified in the SC.

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 instructions. While in possession of such equipment and materials, the Consultants, unless otherwise instructed by the Client in writing, shall insure them at the expense of the Client in an amount equal to their full replacement value.

4. Consultants' Personnel and Sub-consultants and or Associates

General

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

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 Personnel are described in Appendix C. If any of the Key Personnel has already been approved by the clients his/her name is listed as well.
- (b) If required to comply with the provisions of Clause GCC 3.1.1 hereof, adjustments with respect to the estimated periods "of engagement of Key Personnel set forth in Appendix C 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 GC 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 period of engagement of Key Personnel set forth in Appendix C may be increased by agreement in writing between the Client and the Consultants, provided that any such increase shall not, except as otherwise agreed, cause payments under this Contract to exceed the ceilings set for this Clause GC 6.1 (b) of this Contract.

Approval of Personnel

The Key Personnel i.e. Professional Staff and Sub-consultants listed by title as well as By name in Appendix C 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 and (in the case of Key personnel to be used within the country of the Government) a copy of a satisfactory medical certificate in the form attached here to as Appendix D. If the Client does not object in writing (stating the reasons for the objection) within thirty (30) calendar days from the date of receipt of such biographical data and (if applicable) such certificate, such Key Personnel shall be deemed to have been approved by the Client.

Working Hours, Overtime, Leave, etc.

- (a) Working hours and holidays for Key Personnel are set forth in Appendix E 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 E hereto.
- (b) The Personnel of all types engaged by Consultant to provide Services on this Contract shall not be entitled to be paid for overtime nor to take paid sick leave or vacation leave except as specified in Appendix E hereto, and except as specified. In such Appendix, the Consultants' remunerations shall be deemed to cover these items. All leave to be allowed to the Personnel is included in the staff-months of services set forth in **Appendix C**. Any taking of leave by Personnel shall be subject to the prior approval by the Client and the Consultants shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.

Removal and/or Replacement of Personnel

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

In case notice to commence services pursuant to Clause 2.1 of this Contract is not ordered by Client within 120 days of signing of contract the key personnel can excuse themselves on valid grounds, e.g., selection on some other assignment, health problem

developed after signing of contract, 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.

In case notice to commence services is given within 120 days of signing of contract the, the Authority expects all the Key Personnel specified in the Proposal to be available during implementation of the Agreement. The Authority will not consider any substitution of Key Personnel except under compelling circumstances beyond the control of the Consultant and the concerned Key Personnel. Such substitutions shall be limited to not more than three Key Personnel subject to equally or better qualified and experienced personnel being provided to the satisfaction of the Authority. Replacement of the Team Leader will not normally be considered and may lead to disqualification of the Applicant or termination of the Agreement. Replacement of one Key Personnel shall be permitted subject to reduction of remuneration equal to 5 % (five per cent) of the total remuneration specified for the Key Personnel who is proposed to be replaced. In case of second replacement the reduction in remuneration shall be equal to 10% (ten per cent) and for third and subsequent replacement, such reduction shall be equal to 15% (fifteen per cent) If the consultant finds that any of the personnel had made false representation regarding his qualification and experience, he may request the Employer for replacement of the personnel. There shall be no reduction in remuneration for such replacement. The replacement shall however be of equal or better score. The personnel so replaced shall be debarred from future projects for 2 years.

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.

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. For such replacement there will be no reduction in remuneration.

If any member of the approved team of a consultant engaged by **KSTP** 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 **KSTP**/ MoRTH projects.

2.6 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. Obligations of the Client

Assistance and Exemptions

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

- (c) 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;
- (d) assist for the Personnel and, if appropriate, their eligible dependents to be provided promptly with all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in Government's country;
- (e) Facilitate prompt clearance through customs of any property required for the Services and of the personal effects of the Personnel and their -eligible dependents;
- (f) 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;
- (g) assist the Consultants and the Personnel and any Sub-consultants and or Associates employed by the Consultants for the Services from any requirement to register or obtain any permit to practice their profession or to establish themselves either individually or as a corporate entity according to the Applicable Law;
- (h) grant to the Consultants, any Sub-consultants and or Associates and the Personnel of either of them the privilege, pursuant to the Applicable Law, of bringing into Government's country reasonable amounts of foreign currency for the purposes of the Services or for the personal use of the Personnel and their dependents and of withdrawing any such amounts as may be earned therein by the Personnel in the execution of the Services; and
- (i) Provide to the Consultants, Sub-consultants and or Associates and Personnel any such other assistance as may be specified in the SC.

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-Consultant or the Personnel of either of them.

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 GC 6.1(b).

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 F at the times and in the manner specified in said Appendix F, 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 it 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 GC 6.1(c) hereinafter.

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 GC 6 of this Contract.

Counterpart Personnel

- (a) If so provided in Appendix F hereto, the Client shall make available to the Consultants, as and when provided in such Appendix F, and free of charge, such counterpart personnel to be selected by the Client, with the Consultants' advice, as shall be specified in such **Appendix F**. Counterpart personnel shall work under the exclusive direction of the Consultants. If any member of the counterpart personnel fail to perform adequately any work assigned to him by the Consultants which is consistent with the position occupied by such member, the Consultants may request the replacement of such member, and the Client shall not unreasonably refuse to act upon such request.
- (b) If counterpart personnel are not provided by the Client to the Consultants as and when specified in Appendix F, the Client and the Consultants shall agree on (i) how the affected part of the Services shall be carried out, and (ii) the additional payments, if any, to be made by the Client to the Consultants as a result thereof pursuant to Clause GC 6.1(c) hereof.

6. **Payments to the Consultants**

Cost Estimates; Ceiling Amount

- (a) An estimate of the cost of the Services payable is set forth in Appendix G.
- (b) Except as may be otherwise agreed under Clause GC 2.6 and subject to Clause GC 6.1(c), payments under this Contract shall not exceed the ceilings specified in the SC. The Consultants shall notify the Client as soon as cumulative charges incurred for the Services have reached 80% of these ceilings.
- (c) Notwithstanding Clause GC 6.1(b) hereof, if pursuant to clauses GC 5.3, 5.4 or 5.6 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 GC 6.1(a) above, the ceiling or ceilings, as the case may be, set forth in Clause GC 6.1(b) above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

Remuneration and Reimbursable Expenditures

- (a) Subject to the ceilings specified in Clause GC 6.1(b) hereof, the Client shall pay to the Consultants (i) remuneration as set forth in Clause GC 6.2(b), and (ii) reimbursable expenditures as set forth in Clause GC 6.2(c). If specified in the SC, said remuneration shall be subject to price adjustment as specified in the SC.
- (b) Remuneration for the Personnel shall be determined on the basis of time actually spent by such Personnel in the performance of the Services after the date determined in accordance with Clause GC 2.3 and Clause SC 2.3 (or such other date as the Parties shall agree in writing) (including time for necessary travel via the most direct route) at the rates referred to, and subject to such additional provisions as are set forth, in the SC.
- (c) Reimbursable expenditures actually and reasonably incurred by the Consultants in the performance of the Services, as specified in SC.
- (d) Notwithstanding anything to the contrary stated in the GCC and SCC, it shall be mandatory to deploy the key personnel and sub-professional as per the Man-Months Input specified in the Terms of Reference.

Inadequate deployment of key personnel and sub-professional shall lead to deduction in the monthly payment as per following table. The key personnel and sub-professional shall be considered to be inadequately deployed if he/she is not present for at least 90% of the time stipulated in the month, as per the Man Months Input in the Terms of Reference and the Deployment Schedule proposed by the firm.

Sr. No.	Personnel	% reduction in monthly payment
Normal Highway Project		
1	Team Leader cum Senior Highway Engineer	20%
2	Resident Engineer cum Highway Engineer	25%
3	Bridge/Structural Engineer	20%
4	Other Key Personnel	20%
5	Sub- Professional Staff	15%
Standalone Bridge Project		
1	Team Leader cum Senior Bridge Engineer	20%
2	Resident cum Pavement Specialist	25%
3	Bridge/Structural Engineer	20%
4	Other Key Personnel	20%
5	Sub- Professional Staff	15%
Standalone Tunnel Project		
1	Team Leader cum Senior Tunnel Expert	20%
2	Resident Engineer cum Excavation Specialist	
3	Tunnel Design Engineer	20%
4	Other Key Personnel	20%
5	Sub- Professional Staff	15%

For avoidance of doubt, in case the Team Leader cum Senior Highway Engineer has not been made available for 90% of the stipulated time in the month, then only 80% of the monthly payment shall be released. In the case of "Other Key Personnel (Sr. No. 4)" and "Sub - Professional Staff (Sr. No. 5)", the average availability across the group shall be considered for calculation.

Currency of Payment

All payments shall be made in Indian Rupees and shall be subjected to applicable Indian laws withholding taxes if any.

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 interest bearing 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) to be in the form set for thin Appendix I hereto or in such other form as the Client shall have approved in writing.
- (b) As soon as practicable and not later than fifteen (15 days) after the end of each calendar month during the period of the Services, the Consultants shall submit to the Client, in duplicate, itemized statements, accompanied by copies of receipted invoices, vouchers and other appropriate supporting materials, of the

amounts payable pursuant to Clauses GC6.3 and 6.4 for such month. Each monthly statement shall distinguish that portion of the total eligible costs which pertains to remuneration from that portion which pertains to reimbursable expenditures.

- (c) 75% of bill raised by the Consultant shall be paid within 72 Hrs and remaining bill may be paid after due scrutiny. The Client shall cause the payment of the Consultants periodically as given in schedule of payment above within thirty (30) days after the receipt by the Client of bills with supporting documents. Only such portion of a monthly statement that is not satisfactorily supported may be withheld from payment. Should any discrepancy be found to exist between actual payment and costs authorized to be incurred by the Consultants, the Client may add or subtract the difference from any subsequent payments. Interest 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.
- (d) 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 statements shall be deemed approved by the Client as satisfactory ninety (90) calendar days after receipt of the final report and final statement by the Client unless the Client, within such ninety (90)-day period, gives written notice to the Consultants specifying in detail 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.
- (e) All payments under this Contract shall be made to the account of the Consultants specified in the SC.

7. Fairness and Good Faith

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.

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 GC 8 hereof.

8. Settlement of Disputes

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.

Dispute Resolution

Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the **"Dispute"**) shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 8.3.

The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non - privileged records, information and data pertaining to any dispute.

Conciliation

In the event of any Dispute between the Parties, either Party may call upon [Project Director of KSTP] and the Chairman of the Board of Directors of the Consultant or a substitute thereof for amicable settlement, and upon such reference, the said persons shall meet no later than 10(ten) days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 10(ten) day period or the Dispute is not amicably settled within 15(fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 8.2.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the Provisions of Clause 8.4.

Arbitration

8.4.1. Any Dispute which is not resolved amicably by conciliation, as provided in Clause 8.3, shall be finally decided by reference to arbitration by an Arbitral Tribunal appointed in accordance with Clause 8.4.2. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996 as amended. The venue of such

arbitration shall be Trivandrum and the language of arbitration proceedings shall be English.

Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator to be appointed as per the procedure below

- (a) Parties 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 therefrom, and the last remaining nominee on the list shall be 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.

Substitute Arbitrator

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.

Qualifications of Arbitrator

The sole arbitrator selected pursuant to Clause 8.2.1 hereof shall be expert with extensive experience in relation to the matter in dispute.

The Arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Clause 8 shall be final and binding on the Parties as from the date it is made, and the Consultant and the Authority agree and undertake to carry out such Award without delay.

The Consultant and the Authority agree that an Award may be enforced against the Consultant and/or the Authority, as the case may be, and their respective assets wherever situated.

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

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;
- (c) The decision of sole arbitrator 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;
and

(d) The schedule of Expenses and Fee payable to the Arbitrator shall be as under

Sr. No.	Particulars of Fees and Expenses	Maximum amount payable per case
1	Fee	(i) Rs. 25,000/- per day;
		(ii) 25% extra on fee at (i) above in case of fast-track procedure as per Section -29 (B) of A&C Act; Or 10%extraonfeeat(i)aboveifawardispublished within6monthsfromdateofenteringthereference byAT;
		Alternatively,theArbitratormayoptforalump-sumfee of Rs. 5.00 Lakh per case including counter -claims.
2	Reading charges- one Time	Rs 25,000/- per case including counter claims.
3	One -time charges for Secretarial Assistance and Incidental Charges (telephone, fax, postage etc.)	Rs. 25,000/- per case
4	One time charges for publishing/declaration of the Award	Rs. 40,000/-
5	Other expenses (As per actual against bills subject to celling given below	
(i)	Travelling expenses	Economyclass(byair),FirstclassAC(bytrain)andAC Car (by road)
(ii)	Lodging and Boarding	Rs.15,000/-perday(inmetrocities);or Rs.8000perday(inothercities);or Rs. 5,000/- per day, if any Arbitrator makes their own arrangements.
6.	Local travel	Rs. 2,000 /- per day
7	Extra charges for days other thanmeetingdays(maximum for 2 X ½days)	Rs. 5000 /- per ½ day for outstation Arbitrator
Note	1. LodgingboardingandtravellingexpensesshallbeallowedonlyfortheArbitrator who is are residing 100 kms. away from the venue of meeting,	
	2. Delhi,Mumbai,Chennai,Kolkata,BengaluruandHyderabadshallbeconsideredas Metro cities.	

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

9. Fake CV

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 KSTP. This would also apply even when the consulting firm is not successful in getting the assignment. In case CV of a person is turned out to be fake/incorrect/inflated during the assignment, the consultancy firms will have to refund the salary and perks drawn including interest @12% per annum in respect of the person apart from other consequences. In addition to above, 10% of the salary and perks to be refunded shall be recovered from the Firm as penalty.

II. SPECIAL CONDITIONS OF CONTRACT

GC Clause

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

1.1(a) The words "in the Government's country" are amended to read "in INDIA"

1.4 The language is: English

The addressees are:

Client: _____ Address of Employer

Attention: _____

Telex : _____

Facsimile : _____

Consultant: _____ Address of Consultant

Attention: _____

Cable address: _____

Telex : _____

Facsimile : _____

[Note' : Fill in the Blanks]

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 telexes, 24 hours following confirmed transmission;
- (c) in the case of telegrams, 24 hours following confirmed transmission; and
- (d) in the case of facsimiles, 24 hours following confirmed transmission.

The Member in Charge is: Member (P) Sh. _____

(Note: If the Consultants consist of a joint venture of more than one entity, the name of the entity whose address is specified in SC1.6.1 should be inserted here. If the Consultants consist of one entity, this Clause 1.8 should be deleted from the SC)

The Authorised Representative are:

For the Client: _____

For the Consultants: _____

The Consultants, Sub-consultants and the Personnel shall pay the taxes, duties, fees,

levies and other impositions levied under the existing, amended or enacted laws 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.

The effectiveness conditions are the following:

i) Approval of the Contract by the client

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

The time period shall be one month or such other time period as the Parties may agree in writing.

The time period shall be 78 months (30 month for construction period and 48 months for Maintenance period)

Limitation of the Consultants' Liability towards the Client

(a) Except in case of gross negligence or wilful 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) Consultant will maintain at its expenses; Professional Liability Insurance 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 Consultant to cover such 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 period" (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 Employer in a joint venture or 'in association', the policy must be procured and provided to Employer by the joint venture/in association entity and not by the individual partners of the joint venture/association.

(vi) The contract may include a provision whereby the Consultant does not cancel the policy mid-term without the consent of the Employer. The insurance company may provide an undertaking in this regard.

- (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.
- (c) Professional Liability Insurance may be accepted for initially one year which shall be extended annually for five years. PLI shall be uniformly taken for a period of five years.

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, of Rs. 1.0 million for the period of consultancy.
- (c) Professional liability insurance as per 3.4 (a) (ii) of SC of the consultancy, with a minimum coverage equal to estimated remuneration and reimbursable.
- (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
- (e) Insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this Contract, (ii) the Consultants' property used in the performance of the Services, and (iii) any documents prepared by the Consultants in the performance of the Services.

3.7(c) The other actions are

"(i) taking any action under a civil works contract designating the Consultants as "Authority's Engineer", for which action, pursuant to such civil works contract, the written approval of the Client as "Employer" is required".

3.9 The Consultants shall not use these documents for purposes unrelated to this Contract without the prior written approval of the Client.

"The person designated as Team Leader cum Senior Highway Engineer in Appendix C shall serve in that capacity, as specified in Clause GC4.6."

6.1(b) The amount payable Indian Rupee is: _____

6.2(a) "Payments for remuneration and reimbursable items made in accordance with Clause GC 6:2(a) :

- (i) Consultants shall be paid billing rates for services rendered by the personnel of all categories namely (i) key Personnel; (ii) sub-Professional personnel and (iii) Support staff on man-month basis . Billing rates of

remaining items of the financial proposal, namely (i) transportation , (ii) Duty travel to site (iii) Office Rent, (iv) office supplies communication etc. (v) reports & document printing and (vi) survey equipment etc. shall be worked out month wise as per actual expenditure Beginning 13th months from the last date of submission of bid, billing rates shall be increased to cover all items of contract i.e. remuneration, vehicle hire, office rent, consumables, furniture etc. @ 5% every 12 months. However, for evaluation and award of the Bid proposals, the quoted initial rate (as applicable for first 12 months from last date of submission of bid) shall be multiplied by the total time input for each position on this contract, i.e. without considering the increase in the billing rates. All payments shall be made in Indian Rupees and shall be subjected to applicable Indian laws withholding taxes if any.

- (ii) Remuneration paid pursuant to the rates set forth in Appendix G shall be adjusted every twelve (12) months (and, the first time, with effect for the billing rates earned in the 13th calendar month after the last date of submission of bid) by 5% every 12 month for personnel.

Notwithstanding any other provisions in the agreement in this regard, this provision will prevail and override any other provision to the contrary in this agreement.

- 6.2(b) (i) (1) Payment of Authority Engineer shall be released on approval of the monthly reports. Report shall be approved by the Authority only if it includes all the sections prescribed in the format and submitted as per specified timelines.
- (2) Payments shall be released as per rates quoted in Appendix C3- Breakup of Local currency costs
- (3) Forequipment based road inspection to be conducted in O&M phase, payment shall be released as per actual use of equipment on road and rates quoted in Appendix C3- Breakup of Local currency costs.
- (4) If any of the report is found to be misleading or containing incorrect information as determined by the Authority, 10% of payment linked to that report shall be deducted as penalty
- (5) It is understood (i) that the remuneration rates shall cover (A) such salaries and allowances as the Consultants shall have agreed to pay to the Personnel as well as factors for social charges and overhead, and (B) the cost of back stopping by home office staff not included in the Personnel listed in Appendix C, and (C) the Consultants' fee; (ii) that bonuses or other means of profit-sharing shall not be allowed as an element of overhead, and (iii) that any rates specified for persons not yet appointed shall be provisional and shall be subject to revision, with the written approval of the Client, once the applicable salaries and allowances are known.
- (6) Remuneration for periods of less than one month shall be calculated on an hourly basis for actual time spent in the Consultants' home office and directly

attributable to the Services (one hour being equivalent to 1/240th of a month) and on a calendar-day basis for time spent away from home office (one day being equivalent to 1/30th of a month).

6.2(b)(ii) The rates for foreign and local Personnel are set forth in Appendix G

6.4(a) The following provisions shall apply to the interest bearing advance payment and the advance payment guarantee:

- 1) An advance payment of 10% of the contract price in proportion to the quoted Indian currency (INR) in the bid shall be made within 60 days after receipt and verification of advance payment bank guarantee. The advance payment along with interest will be set off by the Client in equal installments against the statements for the first 12 months of the Service until the advance payment has been fully set off. The advance payment shall be in Indian Rupee.
- 2) The bank guarantee shall be in the amount and in the currency of the the advance payment.
- 3) Interest rates shall be 10% per annum (on outstanding amount).

6.4(c) The interest rate is 10% per annum.

6.4(e) The accounts are:

[Note: Insert account number, type of account and name and address of the Bank]

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

IV.APPENDICES

Appendix A: Description of the Services

[Give detailed descriptions of the Services to be provided; dates for completion of various tasks, place of performance for different tasks; specific tasks to be approved by Client, etc.]

Details as per TOR

Appendix B: Reporting Requirements

[List format, frequency, contents of reports and number of copies; persons to receive them; dates of submission etc. If no reports are to be submitted, state here "Not applicable".]

Please refer TOR

Appendix C: Key Personnel and Sub-consultants

[List under: C-1 Titles [and names, if already available], detailed job descriptions and minimum qualifications. Experience of Personnel to be assigned to work in India, and staff- months for each.

Same information as C-1 for Key local Personnel.

Same as C-1 for Key foreign Personnel to be assigned to work outside India.

List of approved Sub-consultants [if already available]; same information with respect to their Personnel as in C-1 through C-4)

Please refer TOR

Appendix D: Medical Certificate

[Show here an acceptable form of medical certificate for foreign Personnel to be stationed in India. If there is no need for a medical certificate, state here: "Not applicable. "]

The form of Medical Certificate as required under the rules of Govt. of India

Appendix E: Hours of Work for Key Personnel

The Consultants Key personnel and all other Professional / Sub Professional / Support Staff/Sub-Consultancy personnel shall work 6 days (Mondays through Saturday) every week and observe the Gazetted Holidays of Government of India as Holidays. The Consultant shall work as per the work program of the EPC Contractor. In this context in case the work plan of the Consultant needs suitable modifications, the same shall be carried out and submitted to the client for consideration. The Consultants hours of work normally shall match with that of Contractor's activities on the site. No extra remuneration shall be claimed or paid for extra hours of work required in the interest of Project completion.

In respect of foreign personnel, one day per trip as travel time from and to the country of the Government shall be allowed.

Appendix F: Duties of the Client

[List here under:

Services, facilities and property to be made available to the Consultants by the Client.

Counterpart personnel to be made available to the Consultants by the Client.]

Please refer TOR

Appendix G: Cost Estimates

List hereunder cost estimate in INR:

1. *Monthly rates for local Personnel (Key Personnel and other Personnel)*
2. *Reimbursable/Rental/Fixed expenditures as follows:*
 - a. *Cost of local transportation.*
 - b. *Cost of other local services, rentals, utilities, etc.*

Appendix H: FORM OF PERFORMANCE SECURITY

(PERFORMANCE BANK GUARANTEE)

(Clause-13 of TOR)

To

Address of Employer:

WHEREAS _____ [Name and address of Consultants]¹ (hereinafter called "the consultants") has undertaken, in pursuance of Contract No. _____ dated _____ to provide the services on terms and conditions set forth in this Contract _____ [Name of contract and brief description of works] (hereinafter called the "theContract").

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

AND WHEREAS we have agreed to give the Consultants such a Bank Guarantee;

NOW THEREOF we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Consultants up to a total of [amount of Guarantee]² _____ [in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limit of [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

We further agree that no change or addition to or other modification of the terms of the Contract or of the services to be performed there under or of any of the Contract documents which may be made between you and the Consultants shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

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

Notwithstanding anything contained herein before, our liability under this guarantee is restricted to Rs. _____ (Rs. _____) and the guarantee shall remain valid till _____. Unless a claim or a demand in writing is made upon us or before _____ all our liability under this guarantee shall cease.

This guarantee shall be valid for a period of 80 months i.e. upto 2 months beyond the expiry of

contract of 78 months.

Signature and Seal of the Guarantor _____ In presence of

Name and Designation _____

1. _____

(Name, Signature & Occupation)

Name of the Bank _____

Address 2. _____

(Name & Occupation)

Date _____

¹ Give names of all partners if the Consultants is a Joint Venture.

Appendix I: Form of Bank Guarantee for Advance Payments

(Reference Clause 6.4(a) of Contract)

(To be stamped in accordance with Stamp Act, if any, of the country of issuing bank)

Ref: BankGuarantee: _____

Date: _____

Dear Sir,

In consideration of M/s. _____ (herein after referred as the "Client", which expression shall, unless repugnant to the context or meaning there of include it successors, administrators and assigns) having awarded to M/s. _____ (herein after referred to as the "Consultant" which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a contract by issue of client's Contract Agreement No. dated _____ and the same having been unequivocally accepted by the Consultant, resulting in a Contract valued at _____.

For Contract (hereinafter called the "Contract") (scope of work) and the Client having agreed to make an advance payment to the Consultant for performance of the above Contract amounting to (in words and figures) as an advance against Bank Guarantee to be furnished by the Consultant.

We _____ (Name of the Bank) having its Head Office at _____ (herein after referred to as the Bank), which expressions 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 monies payable by the Consultant to the extent of _____ as aforesaid at any time upto _____ @ _____ 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 the advance 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 Client and to exercise the same at any time in any manner, and either to enforce or to forebear to enforce any covenants, contained or implied, in the Contract between the Client and the Consultant 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 options 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 above our liability under this guarantee is limited to _____ and it shall remain in force upto and including _____ And shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s. _____ on whose behalf this guarantee has been given.

Dated this _____ day of _____ 200 _____ at _____

WITNESS

(signature)

(Signature)

(Name)

(Name)

(Official Address)

Designation (with Bank Stamp)

Attorney as per Power of
Attorney No.

Dated

Strike out, whichever is not applicable.

Note 1: The stamp papers of appropriate value shall be purchased in the name of bank Who issues the "Bank Guarantee".

Note 2: The bank guarantee shall be from a Nationalized Indian Bank or reputed foreign commercial Bank acceptable to client for Foreign Consultant with counter guarantee from Nationalized Bank. Bank guarantee furnished by Foreign Consultant shall be confirmed by any Nationalized Bank in India.

Appendix J

Letter of invitation

Appendix K

Letter of Award

Appendix L

Minutes of pre-bid meeting

Appendix-M

**Memorandum of Understanding
between**

And

Whereas the **KSTP**/ Ministry of Road Transport &Highways(MoRT&H)/..... State PWD (the '**Employer**') has invited proposal for appointment of Authority's Engineer for _____(Name of project) hereinafter called theProject.

AndWhereas _____(LeadPartner)and _____JV partner/shave agreed to form a Joint Venture to provide the said services to the Employer as Authority's Engineer; and

Now, therefore, it is hereby agreed by and on behalf of the partners as follows:

- (i) _____ will be the leadpartnerand _____ will be the other JVpartner/s.
- (ii) _____(lead partner) shall be the incharge of overall administration of contract andshallbeauthorisedrepresentativeofallJVpartnersforconductingallbusinessfor andonbehalfoftheJVDuringthebiddingprocessandsubsequently,representthejoint venture for and on behalf of the JV for all contractual matters for dealing with the Employer/EPC Contractor if Consultancy work is awarded toJV.
- (iii) All JV partners do hereby undertake to be jointly and severely responsible for all the obligation and liabilities relating to the consultancy work and in accordance with the Terms of Reference of the Request for Proposal for the ConsultancyServices.
- (iv) Subsequently,iftheJVselectedtoprovidethedesiredconsultancyservices,adetailed MOU indicating the specific project inputs and role of each partner/s along with percentage sharing of cost of services shall be submitted to the Employer (Consultant may submit the detailed MOU along with percentage sharing of cost at the time of biddingalso).

For _____(Name of Leadpartner)

Managing Director/Head of theFirm
Address

For _____(Name of JVpartner/s)

Managing Director/Head of theFirm
Address

For _____(Name of Associate Partner/s)

DISCLAIMER

The Applicant must read all the instructions in the RFP and submit the same accordingly.