

[Name of Authority]

SELECTION

OF

TECHNICAL CONSULTANT

MODEL REQUEST FOR PROPOSALS

[Government of India]

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Preface

The Eleventh Five Year Plan envisages a steep rise in investment, public and private, in the infrastructure sectors – from Rs. 8,71,445 crore in the Tenth Five Year Plan to Rs. 20,56,150 crore in the Eleventh Plan. The share of private investment is expected to rise from Rs. 1,75,203 crore in the Tenth Plan to Rs. 6,19,591 crore in the Eleventh Plan, implying an increase of 3.5 times. The justification for promoting private participation in infrastructure lies in its potential to improve the quality of service at competitive costs, besides attracting private capital for funding public projects. The success of this endeavour, however, is predicated on a policy and regulatory framework that provides a fair, transparent and competitive environment.

The process of structuring Public Private Partnerships (PPPs) is complex and it is, therefore, necessary to rely on experienced consultants for procuring financial, legal and technical advice in formulating project proposals and bid documents for award and implementation of PPP projects in an efficient, transparent and fair manner. A poorly structured PPP contract can easily compromise user interests by recovery of higher charges and provision of low quality services. It can also compromise the public exchequer in the form of costlier or uncompetitive bids as well as subsequent claims for additional payments or compensation.

One of the key factors that would determine the quality of documents as well as the outcome of the bid process is the professional competence of the consultants engaged for a project. It is, therefore, important to follow a selection process that would ensure appointment of qualified and experienced consultants. The international best practices for selection of consultants rely on the four rules of transparency, fairness, cost-effectiveness and elimination of conflict of interest. A transparent process eliminates doubt and arbitrariness, and is a pre-requisite to the participation of reputed firms, which may stay away if the selection process is opaque. Fairness is achieved when all parties are treated equally, when they receive the same information at the same time, and are evaluated on the same criteria. Costs can be optimised by choosing the appropriate method for selecting consultants, e.g., competitive bidding for lump sum contracts. The effort should be to minimise costs without compromising on quality. Imparting clarity to the criteria for selection of consultants and specifying the scope of work precisely would also help reduce costs through the competitive process. Last but not the least, the selection process should avoid both actual and perceived conflict of interests, which may include the participation of firms that may be involved in later stages of the project.

The General Financial Rules, 2005 and the Manual of Policies and Procedure for Employment of Consultants issued by the Department of Expenditure, Ministry of Finance constitute the framework that governs the selection and employment of consultants. However, there was considerable divergence in the practices followed by different departments and statutory entities. A variety of technical, financial and other criteria were being used by the Project Authorities, and some of the qualification parameters appeared subjective and were, therefore, prone to disputes and controversy. A comprehensive review of the ongoing practices had, therefore, become necessary.

The present volume contains a model document which has been evolved after extensive consultations with the relevant ministries, stakeholders and experts. It provides a ready-to-use Model Request for Proposals (RFP) for selection of technical consultants. The Model RFP affords adequate flexibility for introducing project-specific modifications, as may be necessary for meeting the requirements in each case.

The processes and procedures contained in the RFP conform to international best practices as well as the extant rules on this subject. The Model RFP was evolved by an Inter-Ministerial Group (IMG), chaired by Special Secretary (Expenditure), and was subsequently approved by the Empowered Sub-Committee of the Committee on Infrastructure under the chairmanship of Deputy Chairman, Planning Commission. The document has since been approved by the Finance Minister and notified by the Department of Expenditure for adoption by all ministries and autonomous bodies of the Central Government. It would also serve as a best practice document for the State Governments to adopt.

It is hoped that adoption of this document would enhance the possibilities of a fair, transparent and competitive selection of consultants for delivery of successful PPP projects in infrastructure.

(Gajendra Haldea)
Adviser to Deputy Chairman
Planning Commission

May 25, 2009

Overview of the framework

Need for a standardised framework

With a view to enabling a smooth transition from public sector projects to PPPs and for adoption of best practices, Government of India has recognized the critical role of standardizing documents and processes to be adopted for structuring and award of Public Private Partnership (PPP) concessions. Standardised documents enable project authorities to save on the time and costs involved in structuring complex PPP projects. In addition, they afford protection to individual entities and officials against making errors and answering for them. Such standard documents typically lay down the norms, principles and parameters to be followed for PPP projects and enable project authorities to adopt them with considerable ease for meeting the specific requirements of individual projects.

Standardised documents save on time and costs; avoid costly mistakes

Need for Consultants

The process of structuring PPPs is complex and the requisite expertise does not normally exist within the government. Nor do the Project Authorities have the time and staff resources that go into fine tuning the documentation for PPPs. Employing experienced consultants enables the project authorities to enhance the possibilities of a successful project, helps in avoiding costly mistakes, promotes capacity building within the government sector and builds investor confidence in the entire process.

Consultants required for structuring a successful PPP project

Need for a Feasibility Report

The nature, extent and scope of each project needs to be determined through a feasibility study that is necessary for structuring a bankable project. A good Feasibility Report not only helps the project authority in structuring the project, it also enables investors and lenders to make decisions that would promote a competitive and efficient environment. This volume responds to the need for evolving a standard Request for Proposals (RFP) document for the selection of technical consultants in a fair and transparent manner. It is in conformity with the extant policies and guidelines laid down by Government of India in this regard.

Feasibility Report is necessary for defining a bankable project

Separate technical, financial and legal consultants

The Central Ministries, State governments or Statutory entities owning such projects (the “**Project Authorities**”) would normally need expert financial, legal and technical advice for formulating project documents necessary for award and implementation of PPP projects in an efficient, transparent and fair manner. Project Authorities sometimes seek the comfort of a single consultancy firm to handle all aspects of project preparation and award. While it may appear to be a convenient approach especially for Project Authorities lacking in experience, this can lead to sub-optimal outcomes and large contingent liabilities or claims arising out of the project document and contract. It is an international best practice to engage technical, legal and financial consultants separately as the firms rendering such services are independent of each other and must also provide their advice independently. Where necessary, the Project Authorities

Separate technical, legal and financial consultants

may also entrust the financial adviser with the role of transaction adviser for coordinating the bid process.

To begin the process of project structuring, it would be essential to engage technical consultants for preparing a feasibility report. In case of complex projects, a pre-feasibility report can also be considered. Besides establishing the physical and technical feasibility of a project, the feasibility report should also include a broad assessment of the financial viability of the project. When the feasibility of a project is established, it would be necessary to engage financial consultants for developing a financial model for the project and for assisting the project authorities in conducting the bid process. It would also be necessary to engage legal consultants for adapting the model documents for individual projects. Such model documents include the Request for Qualification (RFQ), Request for Proposals (RFP) and the Model Concession Agreements (MCAs). In case of sectors where an MCA is not available, it would be necessary to engage qualified and reputed law firms who have experience in drafting such concession agreements and can draw upon the provisions of MCAs to the extent they can be applied.

Role of technical consultants

Technical consultants are normally required for preparing Feasibility Reports, setting performance targets and determining investment needs. They are expected to be well conversant with the physical aspects of the infrastructure sector under consideration. They can provide a range of skills and services including general and architectural design, costing and quantity surveying, planning and traffic studies, technical feasibility studies and reviews, lifecycle costing and analysis, and project monitoring and management. In short, they are instrumental in defining the project.

Fair and transparent selection process

The appointment of consultants should not be treated in the same manner as procurement of goods and other services where the bid is awarded to the lowest financial bidder based on pre-determined specifications. This is so because what sets consultancy services apart from other procurements is the advisory and intellectual nature of services which are not amenable to precise quantification.

Procurement of consultants different from procurement of goods and services

Importance of Terms of Reference

The Terms of Reference (ToR) of the consultant provide a brief description of the services the consultant is required to perform. They should include background information, a statement of objectives, a precise scope of work, the nature and number of key personnel to be deployed, schedule for completion of task, the indicative work plan, level of effort, the inputs to be provided by the Project Authority and the deliverables/ outputs that will be required from the consultant.

The ToR should be detailed and clearly defined since the performance of the consultant would necessarily have to be measured in terms of the agreed ToR. Clarity in ToR is essential to ensure that the consultants have a clear

ToR should be clear and precise

understanding of the aims and objectives of the Project Authority and the relevance of their consultancy.

Deliverables

It is important to define in the RFP the deliverables expected by the Project Authority at various stages of the consultancy assignment. The deliverables in the form of reports should be formulated after suitable consultations with the Project Authority. The time frame for the deliverables should be clearly defined and must be adequate for the consultant to prepare an output that is desired by the Project Authority. Normally it is advisable to appoint a nodal/officer to interact with the consultant and to ensure that the period of consultancy is utilised to the optimum.

Key Dates

The Key Dates in the RFP indicate the time schedule that the Project Authority desires the consultant to follow in accordance with the requirement of awarding the project. Normally, for the preparation of feasibility report and architectural design a time period of 14-18 weeks is optimum. The payment to the consultant is linked to the deliverables and the payment schedule is stated upfront in the RFP.

Importance of Agreement

The draft contract agreement covers the terms and conditions of employment of the winning bidder. A standard contract should be used for this purpose. Key elements that the contract ought to include *inter alia* are the term or duration of the contract; description of the scope of work; provision for modifications to the scope of work; responsibility for contract administration and project management (both substantive review/ management and handling of invoices) on the government side; responsibility for project management on the consultant's side; definition of specific tasks and responsibilities; elimination of conflict of interest; change of personnel and use of sub-consultants; ownership of property used by consultant during the course of the project; insurance requirements with specified level of coverage; dispute resolution, including the use of specified rules for arbitration; treatment of Force Majeure; conditions for termination; contract price; and payment schedule.

A binding agreement is necessary

Eligible applicant firms and projects

Consultants should normally be selected on the basis of their track record and relevant experience. The RFP should clearly indicate the value and nature of past assignments that would be considered eligible for the purpose of evaluating the applicants. Besides a minimum eligibility criteria, the RFP should specify the manner in which past experience would be evaluated.

Evaluation should rely on track record

Key Personnel

The quality of the Feasibility Report would largely depend on the experience and expertise of the key personnel engaged for the assignment. The Project Authority must, therefore, determine the nature and discipline of the advice required and

Key personnel to be clearly specified in the bid documents

identify a limited number of key personnel, including the team leader, who would play a critical role in the consulting assignment. These key personnel should be clearly specified in the bid documents and their minimum qualifications and experience should also be indicated. Each such key personnel should be evaluated individually and marks assigned. About 30 per cent of the marks for each key personnel may be awarded for the number of relevant eligible assignments the respective key personnel has worked on and the remaining 70 per cent may be awarded for the comparative size and quality of such assignments and relevant experience.

The minimum time required from each key personnel must also be clearly spelt out in the bid documents so that their services are made available as specified in the bid documents. This would check the tendency of including senior experts in the bid documents but deploying junior experts when work begins. It is necessary to ensure that the key personnel who have been offered are actually deployed for project work or else the entire assignment would be vitiated. The RFP document, should, therefore, specify the days and hours that each key personnel must spend on the project and this stipulation should be amenable to close monitoring.

Evaluation of Key personnel must be undertaken with care and diligence

Two-envelope system

Consultancy services are normally procured through a 'two-envelope' system comprising a technical bid and a financial bid. This method of selection places due emphasis on the quality of consultants by assigning weightage to higher technical experience and expertise. The technical and financial bids are submitted in two separate sealed covers duly superscribed and kept inside a bigger cover which should also be duly sealed and superscribed. The technical bid comprises the information relating to the experience and qualification of the consultant whereas the financial bid comprises the financial offer made by the consultant for performing the services as per the Terms of Reference.

Weightage to higher technical competence

The technical bid is to be opened first. A technical evaluation should be carried out by an evaluation committee constituted by the Project Authority and a list of bidders qualifying the technical criteria should be prepared at this stage, based on pre-determined criteria. The bidders should be ranked according to their respective technical scores. Only the bidders scoring the minimum prescribed marks should be pre-qualified and not more than five bidders should normally be short-listed.

In the second stage, a financial evaluation is to be carried out. The financial bids of only the short listed bidders should be opened for the purpose of further evaluation. Proposals should be finally ranked based on their combined technical and financial scores.

Technical evaluation

The technical proposal should be evaluated mainly for the experience of the applicant firm as well as the experience and qualifications of the key personnel offered for the project. The indicative weightages that may be used for evaluation are 25 per cent of the total marks for experience of the applicant firm and 5per cent for the proposed methodology and work plan. Since the quality of the consulting assignment would largely depend on the qualifications and

Key personnel play a dominant role

relevant experience of key personnel proposed to be deployed on the project, 70 per cent of the maximum marks for technical evaluation should be assigned for the key personnel. Evaluation of key personnel is the most important component of evaluation and must, therefore, be undertaken with care and diligence.

Only those applicants, whose technical proposals score the minimum prescribed marks, say 60 points or more out of 100 should be ranked as per score achieved by them, from highest to the lowest technical score. Each key personnel must also score the minimum prescribed marks.

Short-listing of Applicants

Not more than 5 applicants should be prequalified and shortlisted for financial evaluation in the second stage. The purpose of restricting the number to five is to ensure that only proposals of high technical standards are considered. This would also provide applicants an incentive to prepare sound proposals. The advantages of getting competent professionals are obvious from the perspective of the Project Authorities.

Proposals of high technical standards to be considered

If the number of pre-qualified bidders is less than two, the Authority may in its sole discretion, pre-qualify the Applicant(s) whose technical score is less than 60 per cent, the minimum prescribed, so that at least two applicants compete for the assignment.

Financial Evaluation

In the second stage the financial evaluation should be carried out by assigning a financial score to each financial proposal. The total cost indicated in the financial proposal should be considered for the purpose of financial evaluation. The lowest financial proposal should be given a financial score of 100 points. The financial scores of other proposals should be determined proportionately.

Combined Scores

Proposals should finally be ranked according to their combined technical and financial scores, based on the respective weightage assigned to them. For the purpose of arriving at combined scores, appropriate weightages should be determined for the technical and financial bids. The ratio of weightages for technical and financial bids should be established well in advance and incorporated in the RFP document. The respective weightages should normally be 70 per cent for the technical bid and 30 per cent for the financial bid, but in case of complex projects where the experience and expertise of the consultants would play a critical role, the weightage for technical score could be increased to 80 per cent with the financial bid having a reduced weightage of 20 per cent.

Generally the successful applicant shall be the applicant having the highest combined score. In the event two or more proposals have the same scores in the final ranking, the proposal with the highest technical score should be ranked first.

Conclusion

A Model RFP document for appointment of technical consultant has been developed based on the principles outlined above. It is generic in nature and

Model RFP document should be followed

aims at lending transparency and efficiency to the selection process. It also provides the requisite sector-specific and project-specific flexibility by placing several provisions within square brackets, thus enabling the project authorities to make necessary substitutions. Some flexibility has also been afforded by the respective footnotes. To the extent possible, the concerned Ministries should standardise the provisions contained in square brackets so that case by case modifications are minimised.

The Model RFP document for appointment of technical consultants addresses the critical requirements that should be satisfied for conducting a fair and transparent bidding process. The administrative ministries and other government entities intending to procure the services of technical consultants for PPP projects should observe these guidelines and adopt the Model RFP document for selection of technical consultants.

GUIDELINES OF THE MINISTRY OF FINANCE

File No 24(23)/PF-II/2008

Government of India

Ministry of Finance

Department of Expenditure

Plan Finance II Division

New Delhi, 21 May 2009

OFFICE MEMORANDUM

Sub: Model Request for Proposal (RFP) for Appointment of Technical Consultants

1.0. *The undersigned is directed to state that for selection of technical consultants for PPP projects, the Model RFP contained herein may be followed henceforth.*

EXISTING GUIDELINES ON PROCUREMENT OF CONSULTANTS

2.0. *The General Financial Rules (GFR) lay down the general principles to be adopted for procurement of goods and services. In particular, Chapter 6 of GFR deals with 'Procurement of Goods and Services'.*

3.0. *In order to provide detailed generic guidelines, the Department of Expenditure had issued a Manual of Policies and Procedure for Employment of Consultants in August 2006. This Manual is intended to serve as a practical guide to Ministries and Departments for engaging the services of consultants for various projects. These guidelines suggest many alternate methodologies for procurement of consultants, which include: (i) Quality-cum-cost based selection system (QCBS) (ii) Combined quality-cum-cost based selection system (CQCBS), (iii) Quality based selection system (QBS) and (iv) Cost based selection system (CBS). The methodology to be adopted for selection of consultants depends on the nature and complexity of the projects for which consultants are proposed to be engaged, especially with respect to an appropriate balance between the quality and cost of engaging a consultant.*

NEED FOR AN RFP DOCUMENT

4.0. *The above mentioned Rules and Manual apply to all types of projects, whether Public Private Partnership (PPP) projects or EPC contracts. However, since PPP projects are inherently different from the normal projects implemented by Government Departments/Ministries, a need has arisen for a separate RFP document for selection and appointment of technical consultants for PPP projects.*

5.0. *For this purpose, an Inter-Ministerial Group (IMG) under Special Secretary (Expenditure) with representation from Planning Commission, Department of Economic Affairs and other related Ministries was constituted by the Empowered Sub-Committee of the Committee of Infrastructure (ESCOI) to evolve a Model RFP document for appointment of Technical Consultants. The RFP document evolved by this IMG was considered in the meeting of ESCOI on 23.1.2009 and was referred to a Committee chaired by Shri. B. K. Chaturvedi, Member Planning Commission with representatives from Department of Economic Affairs, Department of Expenditure and Department of Road Transport and Highways for resolution of some*

unresolved issues. The document finalised by the Committee was placed before the ESCOI in its meeting held on 13.4.2009 when it was commended for approval of the Government.

KEY PRINCIPLES GOVERNING RFP

6.0. *The key principles governing the RFP are stated below.*

Separate technical, financial and legal consultants

7.0. *The Project Authorities would normally need expert financial, legal and technical advice for formulating project documents necessary for award and implementation of projects in an efficient, transparent and fair manner. It is advisable to engage technical, legal and financial consultants separately as the firms rendering such services are independent of each other and must also provide their advice independently. However, a single consultant firm may be engaged for handling all aspects of project preparation and award in exceptional circumstances and for low value projects only.*

Role of technical consultants

8.0. *Technical consultants are normally required for preparing Feasibility Reports, setting performance targets and determining investment needs. They are expected to be well conversant with the physical aspects of the infrastructure sector under consideration. They can provide a range of skills and services including general and architectural design, costing and quantity surveying, planning and traffic studies, technical feasibility studies and reviews, lifecycle costing and analysis, and project monitoring and management. In short, they are instrumental in defining the project.*

Fair and transparent selection process

9.0. *The appointment of consultants should not be treated in the same manner as procurement of goods and other services where the bid is awarded to the lowest financial bidder based on pre-determined specifications. This is so because what sets consultancy services apart from other procurements is the advisory and intellectual nature of services which are not amenable to precise quantification.*

Importance of Terms of Reference

10.0. *The Terms of Reference (ToR) of the consultant provide a brief description of the services the consultant is required to perform. They should include background information, a statement of objectives, a precise scope of work, the nature and number of key personnel to be deployed, schedule for completion of task, the indicative work plan, level of effort, the inputs to be provided by the Project Authority and the deliverables/ outputs that will be required from the consultant.*

Deliverables

11.0. *It is important to define in the RFP the deliverables expected by the Project Authority at various stages of the consultancy assignment. The deliverables in the form of reports should be formulated after suitable consultations with the Project Authority. The time frame for the deliverables should be clearly defined and must be*

adequate for the consultant to prepare an output that is desired by the Project Authority. Normally it is advisable to appoint a nodal/officer to interact with the consultant and to ensure that the period of consultancy is utilised to the optimum.

Key Dates

12.0. *The Key Dates in the RFP indicate the time schedule that the Project Authority desires the consultant to follow in accordance with the requirement of awarding the project. Normally, for the preparation of feasibility report and architectural design a time period of 14-18 weeks is optimum.*

Importance of Agreement

13.0. *The draft contract agreement covers the terms and conditions of employment of the winning bidder. A standard contract should be used for this purpose. Key elements that the contract ought to include inter alia are the term or duration of the contract; description of the scope of work; provision for modifications to the scope of work; responsibility for contract administration and project management (both substantive review/ management and handling of invoices) on the government side; responsibility for project management on the consultant's side; definition of specific tasks and responsibilities; elimination of conflict of interest; change of personnel and use of sub-consultants; ownership of property used by consultant during the course of the project; insurance requirements with specified level of coverage; dispute resolution, including the use of specified rules for arbitration; treatment of Force Majeure; conditions for termination; contract price; and payment schedule.*

Eligible Projects

14.0. *Consultants should normally be selected on the basis of their track record and relevant experience. The RFP should clearly indicate the value and nature of past assignments that would be considered eligible for the purpose of evaluating the applicants. Besides a minimum eligibility criteria, the RFP should specify the manner in which past experience would be evaluated.*

Key Personnel

15.0. *The quality of the Feasibility Report would largely depend on the experience and expertise of the key personnel engaged for the assignment. The Project Authority must, therefore, determine the nature and discipline of the advice required and identify a limited number of key personnel, including the team leader, who would play a critical role in the consulting assignment.*

Two-envelope system

16.0. *Consultancy services are normally procured through a 'two-envelope' system comprising a technical bid and a financial bid. This method of selection places due emphasis on the quality of consultants by assigning weightage to higher technical experience and expertise. The technical and financial bids are submitted in two separate sealed covers duly superscribed and kept inside a bigger cover which should also be duly sealed and superscribed.*

17.0. *A technical evaluation should be carried out by an evaluation committee constituted by the Project Authority and a list of bidders qualifying the technical criteria should*

be prepared at this stage, based on pre-determined criteria. The bidders should be ranked according to their respective technical scores. Only the bidders scoring the minimum prescribed marks should be pre-qualified and not more than five bidders should normally be short-listed.

- 18.0. *In the second stage, a financial evaluation is to be carried out. The financial bids of only the short listed bidders should be opened for the purpose of further evaluation. Proposals should be finally ranked based on their combined technical and financial scores.*

Technical evaluation

- 19.0. *The technical proposal should be evaluated mainly for the experience of the applicant firm as well as the experience and qualifications of the key personnel offered for the project. Evaluation of key personnel is the most important component of evaluation and must, therefore, be undertaken with care and diligence.*

Short-listing of Applicants

- 20.0. *Not more than 5 applicants should be prequalified and shortlisted for financial evaluation in the second stage. The purpose of restricting the number to five is to ensure that only proposals of high technical standards are considered. This would also provide applicants an incentive to prepare sound proposals. If the number of pre-qualified bidders is less than two, the Authority may in its sole discretion, pre-qualify the Applicant(s) whose technical score is less than 70%, the minimum prescribed, so that at least two applicants compete for the assignment.*

Financial Evaluation

- 21.0. *In the second stage the financial evaluation should be carried out by assigning a financial score to each financial proposal. The total cost indicated in the financial proposal should be considered for the purpose of financial evaluation.*

Combined Scores

- 22.0. *Proposals should finally be ranked according to their combined technical and financial scores, based on the respective weightage assigned to them. For the purpose of arriving at combined scores, appropriate weightages should be determined for the technical and financial bids. The ratio of weightages for technical and financial bids should be established well in advance and incorporated in the RFP document. Generally the successful applicant shall be the applicant having the highest combined score. In the event two or more proposals have the same scores in the final ranking, the proposal with the highest technical score should be ranked first.*

Project-specific flexibility

- 23.0. *The Model RFP document provides the requisite sector-specific and project-specific flexibility by placing several provisions within square brackets, thus enabling the project authorities to make necessary substitutions. Some flexibility has also been afforded by the respective footnotes. To the extent possible, the concerned*

Ministries should standardise the provisions contained in square brackets so that case by case modifications are minimised.

CONCLUSION

- 24.0. *The Model RFP document annexed with this OM has been developed based on the principles outlined above. It is generic in nature and aims at lending transparency and efficiency to the selection process. It addresses the critical requirements that should be satisfied for conducting a fair and transparent bidding process. The administrative ministries and other government entities intending to procure the services of technical consultants should observe these guidelines and adopt the Model RFP document for selection of technical consultants.*
- 25.0. *This RFP shall apply to all Ministries and Departments of the Central Government, all statutory entities under the control of Central Government and all Central Public Sector Undertakings (CPSUs).*

RELAXATION OF GFR PROVISIONS

- 26.0. *GFR provisions relating to hiring of consultants stand relaxed to the extent of the procedure indicated in this OM specifically and only for the purposes of hiring of technical consultants for PPP projects.*
- 27.0. *These instructions shall come into force with immediate effect and will apply to all cases where bids are invited after June 1, 2009.*
- 28.0. *This issues with approval of the Finance Minister.*

(M.A. SIDDIQUE)
Deputy Secretary (PF II)
Tel: 23093109

1. *Chairman, Railway Board, Rail Bhawan, New Delhi.*
2. *Secretary, Department of Economic Affairs, North Block, New Delhi.*
3. *Secretary, Ministry of Civil Aviation, Rajiv Gandhi Bhawan, Safdarjung Airport, New Delhi.*
4. *Secretary, Department of Road Transport & Highways, Transport Bhawan, New Delhi.*
5. *Secretary, Department of Shipping, Transport Bhawan, New Delhi.*
6. *Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi.*
7. *Secretary, Ministry of Urban Development, Nirman Bhawan, New Delhi.*
8. *Secretary, Department of Telecommunication, Sanchar Bhawan, New Delhi.*

9. *Secretary, Ministry of New and Renewable Energy, CGO Complex, New Delhi.*
10. *Secretary, Ministry of Law and Justice, Department of Legal Affairs, Shastri Bhawan, New Delhi.*
11. *Adviser to Deputy Chairman, Planning Commission, Yojana Bhavan, New Delhi.*

Copy to: PS to JS(PF.II) / PS to AS(E) / PPS to Secretary (E)

SELECTION
OF
TECHNICAL CONSULTANT

MODEL REQUEST FOR PROPOSALS

Disclaimer

The information contained in this Request for Proposals document (“**RFP**”) or subsequently provided to Applicants, whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisers, is provided to Applicants on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is neither an offer nor invitation by the Authority to the prospective 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, which reflect various assumptions and assessments arrived at by the Authority in relation to the Consultancy. Such assumptions, assessments and statements do not purport to contain all the information that each Applicant may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each Applicant should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Applicants is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

The Authority, its employees and advisers make no representation or warranty and shall have no liability to any person including any Applicant under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise, howsoever caused, arising from reliance of any Applicant upon the statements contained in this RFP.

The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select an Applicant or to appoint the Selected Applicant, as the case may be, for the Consultancy and the Authority reserves the right to reject all or any of the Proposals without assigning any reasons whatsoever.

The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the Applicant and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

Glossary

Additional Costs	As in Item H of Form-2 of Appendix-II
Agreement	As defined in Schedule-2
Agreement Value	As defined in Clause 6.1.2 of Schedule-2
Applicable Laws	As defined in Schedule-2
Applicant	As defined in Clause 2.1.1
Associate	As defined in Clause 2.3.3
Authorised Representative	As defined in Clause 2.13.3
Authority	As defined in Clause 1.1.1
Bid Security	As defined in Clause 2.20.1
Concession Agreement	As defined in Clause 1.1.2
Concessionaire	As defined in Clause 1.1.2
Conditions of Eligibility	As defined in Clause 2.2.1
Conflict of Interest	As defined in Clause 2.3.1
Consultancy	As defined in Clause 1.2
Consultancy Team	As defined in [Paragraph 8] of Schedule-1
Consultant	As defined in Clause 1.2
CV	Curriculum Vitae
DBFOT	Design, Build, Finance, Operate and Transfer
Deliverables	As defined in Paragraph 4 of Schedule-1
Documents	As defined in Clause 2.12
Effective Date	As defined in Clause 2.1 of Schedule-2
Eligible Assignments	As defined in Clause 3.1.4
Expatriate Personnel	As defined in Clause 1.1.1(i) of Schedule-2
Feasibility Report or FR	As specified in [Paragraph 4(G)] of Schedule-1
Financial Proposal	As defined in Clause 2.15.1
Form of Agreement	Form of Agreement as in Schedule-2
INR, Re, Rs.	Indian Rupee(s)
Inception Report	As specified in [Paragraph 4(A)] of Schedule-1
Key Date or KD	As defined in [Paragraph 6.2] of Schedule-1
Key Personnel	As defined in Clause 2.1.4
Lead Member	As defined in Clause 2.1.1
LOA	Letter of Award
Lump Sum Payment	As defined in Paragraph 11.2 of Schedule-1
Manual	As defined in Paragraph 1.2 of Schedule-1

MCA	As defined in Clause 1.1.3
Member	As defined in Clause 2.3.3 (a)
Official Website	As defined in Clause 1.11.2
Personnel	As defined in Clause 1.1.1(n) of Schedule-2
PPP	Public Private Partnership
Professional Personnel	As defined in Clause 2.14.6
Prohibited Practices	As defined in Clause 4.1
Project	As defined in Clause 1.1.1
Project Manager	As defined in Clause 4.6 of Schedule-2
Proposal	As defined in Clause 1.2
Proposal Due Date or PDD	As defined in Clauses 1.5 and 1.8
Resident Personnel	As defined in Clause 1.1.1(o) of Schedule-2
RFP	As defined in Disclaimer
Selected Applicant	As defined in Clause 1.6
Selection Process	As defined in Clause 1.6
Services	As defined in Clause 1.1.1(q) of Schedule-2
Sole Firm	As defined in Clause 2.1.1
Statement of Expenses	As defined in Note 13, Form-2 of Appendix-II
Statutory Auditor	An Auditor appointed under Applicable Laws
Sub-Consultant	As defined in Clause 1.1.1(r) of Schedule-2
Support Personnel	As defined in Clause 2.14.6
Team Leader	As defined in Clause 2.1.4
Technical Proposal	As defined in Clause 2.14.1
TOR	As defined in Clause 1.1.3
US\$	United States Dollar
WG	As defined in Paragraph 9.1 of Schedule-1

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

Invitation for Proposals

1. INTRODUCTION[§]

1.1 Background¹

- 1.1.1 [The President of India acting through the ***** and represented by ***** (the “**Authority**”) is engaged in the development of ***** and as part of this endeavour, the Authority has decided to undertake ***** (the “**Project**”) through Public Private Partnership (the “**PPP**”) on Design, Build, Finance, Operate and Transfer (the “**DBFOT**”) basis. The indicative cost of the Project is Rs. *** cr. (Rupees ***** crore)].
- 1.1.2 With a view to inviting bids for the Project, the Authority has decided to conduct a feasibility study for determining the technical feasibility and financial viability of the Project. If found technically feasible and financially viable, the Project may be awarded on DBFOT basis to a private entity (the “**Concessionaire**”) selected through a competitive bidding process. The Project would be implemented in accordance with the terms and conditions stated in the concession agreement to be entered into between the Authority and the Concessionaire (the “**Concession Agreement**”).
- 1.1.3 In pursuance of the above, the Authority has decided to carry out the process for selection of a Technical Consultant, a Financial Consultant and a Legal Adviser for preparing the Feasibility Report and bid documents. The Financial Consultant will develop the revenue model and assist the Authority in the bidding process. The Legal Adviser will review the draft concession agreement based on the Model Concession Agreement for ***** through Public Private Partnership (the “**MCA**”) read with the Manual of Standards and Specifications. The Technical Consultant shall prepare the Feasibility Report in accordance with the Terms of Reference specified at Schedule-1 (the “**TOR**”).

1.2 Request for Proposals

The Authority invites proposals (the “**Proposals**”) for selection of a Technical Consultant (the “**Consultant**”) who shall prepare a Feasibility Report for development of the Project. The Feasibility Report shall include [traffic and

[§] Instructions for Applicants

Note 1: Blank spaces contain formats that are to be used by the Applicant after the RFP is issued. (See Appendix-III)

Note 2: Footnotes marked “\$” in the relevant Clauses of the RFP and Schedules are for guidance of the Applicants. In case of Appendices, the footnotes marked “\$” or in other non-numerical characters shall be omitted by the Applicants while submitting their respective Proposals. (See Appendix-III)

¹ Instructions for customisation of this document by the Authority

This Model Request for Proposals (the “RFP”) may be customised for project-specific use in accordance with the instructions below:

Note I: Serially numbered footnotes in this RFP are for guidance of the Authority and should be omitted from the RFP before it is issued to prospective Applicants. (See Appendix-IV)

Note II: All project-specific provisions in this RFP have been enclosed in square parenthesis and may be modified, as necessary, before issuing the RFP to prospective Applicants. The square parenthesis should be removed after carrying out the required modification. (See Appendix-IV)

Note III: The asterisks in this RFP should be substituted by project-specific particulars before issuing the RFP to prospective Applicants. (See Appendix-IV)

Note IV: Notes I, II, III and IV shall be omitted prior to issue of this RFP.

engineering surveys, alignment review, land plans and preliminary design of geometrics, pavement, structures, safety devices, toll plazas, project facilities] in conformity with the TOR (collectively the “**Consultancy**”).

The Authority intends to select the Consultant through an open competitive bidding process in accordance with the procedure set out herein.

1.3 Due diligence by Applicants

Applicants are encouraged to inform themselves fully about the assignment and the local conditions before submitting the Proposal by paying a visit to the Authority and the Project site, sending written queries to the Authority, and attending a Pre-Proposal Conference on the date and time specified in Clause 1.10.

1.4 Sale of RFP Document

RFP document can be obtained between 1100 hrs and 1600 hrs on all working days on payment of a fee of Rs. 1,000 (Rupees one thousand only) in the form of a demand draft or banker’s cheque drawn on any Scheduled Bank in India in favour of ***** and payable at *****. The document can also be downloaded from the Official Website of the Authority. In case of a downloaded form, the Applicant need not deposit the aforesaid fee.

1.5 Validity of the Proposal

The Proposal shall be valid for a period of not less than 90 days from the Proposal Due Date (the “**PDD**”).

1.6 Brief description of the Selection Process

The Authority has adopted a two stage selection process (collectively the “**Selection Process**”) for evaluating the Proposals comprising technical and financial bids to be submitted in two separate sealed envelopes. In the first stage, a technical evaluation will be carried out as specified in Clause 3.1. Based on this technical evaluation, a list of short-listed applicants shall be prepared as specified in Clause 3.2. In the second stage, a financial evaluation will be carried out as specified in Clause 3.3. Proposals will finally be ranked according to their combined technical and financial scores as specified in Clause 3.4. The first ranked Applicant shall be selected for negotiation (the “**Selected Applicant**”) while the second ranked Applicant will be kept in reserve.

1.7 Currency conversion rate and payment

- 1.7.1 For the purposes of technical evaluation of Applicants, [Rs. 60 (Rupees sixty)] per US\$ shall be considered as the applicable currency conversion rate. In case of any other currency, the same shall first be converted to US\$ as on the date 60 (sixty) days prior to the Proposal Due Date, and the amount so derived in US\$ shall be converted into INR at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date.

- 1.7.2 All payments to the Consultant shall be made in INR in accordance with the provisions of this RFP. The Consultant may convert INR into any foreign currency as per Applicable Laws and the exchange risk, if any, shall be borne by the Consultant.

1.8 Schedule of Selection Process

The Authority would endeavour to adhere to the following schedule:

Event Description	Date
1. Last date for receiving queries/clarifications	[20 days prior to PDD]
2. Pre-Proposal Conference	[16 days prior to PDD]
3. Authority response to queries	[11 days prior to PDD]
4. Proposal Due Date or PDD	[To be specified]
5. Opening of Proposals	On Proposal Due Date
6. Letter of Award (LOA)	[Within 15 days of PDD]
7. Signing of Agreement	Within 10 days of LOA
8. Validity of Applications	90 days of Proposal Due Date

1.9 Pre-Proposal visit to the Site and inspection of data

Prospective Applicants may visit the Site and review the available data at any time prior to PDD. For this purpose, they will provide at least two days' notice to the nodal officer specified below:

Phone: *****

Mobile: *****

Email: *****

However, for the convenience of the Applicants, a pre-Proposal visit to the Site has been arranged on *****, at 1100 hrs. The Applicants who desire to avail this facility may visit ***** on the date and time mentioned above.

1.10 Pre-Proposal Conference

The date, time and venue of Pre-Proposal Conference shall be:

Date: *****

Time: 1100 hrs

Venue: *****

1.11 Communications

1.11.1 All communications including the submission of Proposal should be addressed to:

Phone: *****

Email: *****

1.11.2 The **Official Website** of the Authority is:

http://www.*****

Note: Please open the page '*****' and then page '*****' to access all the posted and uploaded documents related to this RFP.

1.11.3 All communications, including the envelopes, should contain the following information, to be marked at the top in bold letters:

RFP Notice No. *****

FEASIBILITY REPORT

2. INSTRUCTIONS TO APPLICANTS

A. GENERAL

2.1 Scope of Proposal

- 2.1.1 Detailed description of the objectives, scope of services, Deliverables and other requirements relating to this Consultancy are specified in this RFP. In case an applicant firm possesses the requisite experience and capabilities required for undertaking the Consultancy, it may participate in the Selection Process either individually (the “**Sole Firm**”) or as lead member of a consortium of firms (the “**Lead Member**”) in response to this invitation. The term applicant (the “**Applicant**”) means the Sole Firm or the Lead Member, as the case may be. The manner in which the Proposal is required to be submitted, evaluated and accepted is explained in this RFP.
- 2.1.2 Applicants are advised that the selection of Consultant shall be on the basis of an evaluation by the Authority through the Selection Process specified in this RFP. Applicants shall be deemed to have understood and agreed that no explanation or justification for any aspect of the Selection Process will be given and that the Authority’s decisions are without any right of appeal whatsoever.
- 2.1.3 The Applicant shall submit its Proposal in the form and manner specified in this Part-2 of the RFP. The Technical proposal shall be submitted in the form at Appendix-I and the Financial Proposal shall be submitted in the form at Appendix-II. Upon selection, the Applicant shall be required to enter into an agreement with the Authority in the form specified at Schedule-2.
- 2.1.4 **Key Personnel**

The Consultancy Team shall consist of the following key personnel (the “**Key Personnel**”) who shall discharge their respective responsibilities as specified below:

Key Personnel²	Responsibilities
[Senior Highway Engineer] - cum - Team Leader (the “Team Leader”)	He will lead, co-ordinate and supervise the multidisciplinary team for preparation of the Feasibility Report. He shall spend at least [30 (thirty) days] at the Project site.
[Bridge Engineer]	He will be responsible for suggesting options for retention of existing bridges or their replacement and provision of bridges and other structures. He shall spend at least 20 (twenty) days at the Project site.]
[Traffic – cum – Safety]	He will be responsible for assessment of

² Key Personnel and their responsibilities may be modified as per project-specific requirements.

Expert	traffic forecast on the project highway and suggesting broad layout of intersections, interchanges, grade separators and safety devices. He shall spend at least 20 (twenty) days at the Project site.]
[Surveyor	He will be responsible for quick traverse survey of the alignment and preparing land plans of the project highway. He shall spend at least 40 (forty) days at the Project site.]
Financial Analyst	He will be responsible for financial analysis and modelling of the proposed Project. He shall spend at least [2 (two)] days at the Project site.
Environmental Expert	He will be responsible for Environmental Impact Assessment of the Project. He shall spend at least [7 (seven)] days at the Project site.

2.2 Conditions of Eligibility of Applicants

2.2.1 Applicants must read carefully the minimum conditions of eligibility (the “**Conditions of Eligibility**”) provided herein. Proposals of only those Applicants who satisfy the Conditions of Eligibility will be considered for evaluation.

2.2.2 To be eligible for evaluation of its Proposal, the Applicant shall fulfil the following:

- (A) **Technical Capacity:** The Applicant shall have, over the past 5 (five) years preceding the PDD, undertaken a minimum of [5 (five)] Eligible Assignments as specified in Clause 3.1.4.
- (B) **Financial Capacity:** The Applicant shall have received a minimum income of [Rs.2 (two) crore ³ or US \$ 1 (one) million]⁴ per annum from professional fees during each of the 3 (three) financial years preceding the Proposal Due Date. For the purpose of evaluation, Applicants having comparatively larger revenues from professional fees shall be given added weightage. For the avoidance of doubt, professional fees hereunder refers to fees received by the Applicant for providing advisory or consultancy services to its clients.
- (C) **Availability of Key Personnel:** The Applicant shall offer and make available all Key Personnel meeting the requirements specified in Sub-clause (D) below.

³ This amount may be fixed at about 2% (two per cent) of the indicative cost of the Project. For projects exceeding Rs. 1,000 (one thousand) crore, it may be suitably reduced but no less than 1% (one per cent) of the cost of the Project.

⁴ The ratio of Rs. 2 (two) crore to US\$ 1 (one) million may be maintained if the amount in rupees is modified.

- (D) **Conditions of Eligibility for Key Personnel:** Each of the Key Personnel must fulfil the Conditions of Eligibility⁵ specified below:

Key Personnel	Educational Qualification	Length of Professional Experience	Experience on Eligible Assignments
[Senior Highway Engineer] – cum - Team Leader	[Graduate in Civil Engineering]	10 years	He should have led the feasibility study teams for [2 (two)] Eligible Assignments.
[Bridge Engineer	Graduate in Civil Engineering	7 years	He should have worked as a Bridge Engineer for 2 (two) Eligible Assignments.]
[Traffic - cum-Safety Expert	Post Graduate in Traffic and/or Transportation Engineering/ Planning	7 years	He should have worked as a Traffic/ Transportation Engineer/ Planner for 2 (two) Eligible Assignments.]
[Surveyor	Diploma in Surveying or Graduate/Diploma in Civil Engineering	7 years	He should have worked as Surveyor for 2 (two) Eligible Assignments.]
Financial Analyst	Post Graduate in Commerce/ Chartered Accountant or equivalent	7 years	He should have undertaken financial analysis and modelling for [2 (two)] Eligible Assignments
Environmental Expert	Masters/ Bachelor in Environmental Science or equivalent	7 years	He should have led the environmental impact assessment teams or worked as a sole expert for [2 (two)] Eligible Assignments.

- 2.2.3 The Applicant shall enclose with its Proposal, certificate(s) from its Statutory Auditors⁵ stating its total revenues from professional fees during each of the 3

⁵ The Key Personnel and their Conditions of Eligibility may be suitably modified to address project-specific requirements.

⁵ No separate annual financial statements should be submitted.

(three) financial years preceding the PDD and the fee received in respect of each of the Eligible Assignments specified in the Proposal. In the event that the Applicant does not have a statutory auditor, it shall provide the requisite certificate(s) from the firm of Chartered Accountants that ordinarily audits the annual accounts of the Applicant.

- 2.2.4 The Applicant should submit a Power of Attorney as per the format at Form-4 of Appendix-I; provided, however, that such Power of Attorney would not be required if the Application is signed by a partner of the Applicant, in case the Applicant is a partnership firm or limited liability partnership.
- 2.2.5 Any entity which has been barred by the Central Government, any State Government, a statutory authority or a public sector undertaking, as the case may be, from participating in any project, and the bar subsists as on the date of Proposal, would not be eligible to submit a Proposal either by itself or through its Associate.
- 2.2.6 An Applicant or its Associate should have, during the last three years, neither failed to perform on any agreement, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Applicant or its Associate, nor been expelled from any project or agreement nor have had any agreement terminated for breach by such Applicant or its Associate.
- 2.2.7 While submitting a Proposal, the Applicant should attach clearly marked and referenced continuation sheets in the event that the space provided in the specified forms in the Appendices is insufficient. Alternatively, Applicants may format the specified forms making due provision for incorporation of the requested information.

2.3 Conflict of Interest

- 2.3.1 An Applicant shall not have a conflict of interest that may affect the Selection Process or the Consultancy (the “**Conflict of Interest**”). Any Applicant found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall forfeit and appropriate the Bid Security as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, *inter alia*, the time, cost and effort of the Authority including consideration of such Applicant’s Proposal, without prejudice to any other right or remedy that may be available to the Authority hereunder or otherwise.
- 2.3.2 The Authority requires that the Consultant provides professional, objective, and impartial advice and at all times hold the Authority’s interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The Consultant shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of the Authority.
- 2.3.3 Some guiding principles for identifying and addressing Conflicts of Interest have been illustrated in the Guidance Note at Schedule-3. Without limiting the

generality of the above, an Applicant shall be deemed to have a Conflict of Interest affecting the Selection Process, if:

- (a) the Applicant, its consortium member (the “**Member**”) or Associate (or any constituent thereof) and any other Applicant, its consortium member or Associate (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding or ownership interest of an Applicant, its Member or Associate (or any shareholder thereof having a shareholding of more than 5% (five per cent) of the paid up and subscribed share capital of such Applicant, Member or Associate, as the case may be) in the other Applicant, its consortium member or Associate is less than 5 per cent of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in sub-section (72) of section 2 of the Companies Act, 2013. For the purposes of this Clause 2.3.3(a), indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “**Subject Person**”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% (twenty six per cent) of the subscribed and paid up equity shareholding of such intermediary; or
- (b) a constituent of such Applicant is also a constituent of another Applicant; or
- (c) such Applicant or its Associate receives or has received any direct or indirect subsidy or grant from any other Applicant or its Associate; or
- (d) such Applicant has the same legal representative for purposes of this Application as any other Applicant; or
- (e) such Applicant has a relationship with another Applicant, directly or through common third parties, that puts them in a position to have access to each other’s information about, or to influence the Application of either or each of the other Applicant; or
- (f) there is a conflict among this and other consulting assignments of the Applicant (including its personnel and Sub-consultant) and any subsidiaries or entities controlled by such Applicant or having common controlling shareholders. The duties of the Consultant will depend on the circumstances of each case. While providing consultancy services to the

Authority for this particular assignment, the Consultant shall not take up any assignment that by its nature will result in conflict with the present assignment; or

- (g) a firm which has been engaged by the Authority to provide goods or works or services for a project, and its Associates, will be disqualified from providing consulting services for the same project save and except as provided in Clause 2.3.4; conversely, a firm hired to provide consulting services for the preparation or implementation of a project, and its Members or Associates, will be disqualified from subsequently providing goods or works or services related to the same project; or
- (h) the Applicant, its Member or Associate (or any constituent thereof), and the bidder or Concessionaire, if any, for the Project, its contractor(s) or sub-contractor(s) (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding or ownership interest of an Applicant, its Member or Associate (or any shareholder thereof having a shareholding of more than 5% (five per cent) of the paid up and subscribed share capital of such Applicant, Member or Associate, as the case may be,) in the bidder or Concessionaire, if any, or its contractor(s) or sub-contractor(s) is less than 5% (five per cent) of the paid up and subscribed share capital of such Concessionaire or its contractor(s) or sub-contractor(s); provided further that this disqualification shall not apply to ownership by a bank, insurance company, pension fund or a Public Financial Institution referred to in sub-section (72) of section 2 of the Companies Act, 2013. For the purposes of this sub-clause (h), indirect shareholding shall be computed in accordance with the provisions of sub-clause (a) above.

For purposes of this RFP, Associate means, in relation to the Applicant, a person who controls, is controlled by, or is under the common control with such Applicant (the “**Associate**”). As used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person by operation of law or by contract.

- 2.3.4 An Applicant eventually appointed to provide Consultancy for this Project, and its Associates, shall be disqualified from subsequently providing goods or works or services related to the construction and operation of the same Project and any breach of this obligation shall be construed as Conflict of Interest; provided that the restriction herein shall not apply after a period of 5 (five) years from the completion of this assignment or to consulting assignments granted by banks/ lenders at any time; provided further that this restriction shall not apply to consultancy/ advisory services performed for the Authority in continuation of this Consultancy or to any subsequent consultancy/ advisory services performed for the Authority in accordance with the rules of the Authority. For the avoidance of doubt, an entity affiliated with the Consultant shall include a partner in the Consultant’s firm or a person who holds more than 5% (five per cent) of the

subscribed and paid up share capital of the Consultant, as the case may be, and any Associate thereof.

2.4 Number of Proposals

No Applicant or its Associate shall submit more than one Application for the Consultancy. An Applicant applying individually or as an Associate shall not be entitled to submit another application either individually or as a member of any consortium, as the case may be.

2.5 Cost of Proposal

The Applicants shall be responsible for all of the costs associated with the preparation of their Proposals and their participation in the Selection Process including subsequent negotiation, visits to the Authority, Project site etc. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Selection Process.

2.6 Site visit and verification of information

Applicants are encouraged to submit their respective Proposals after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, access to the site, availability of drawings and other data with the Authority, Applicable Laws and regulations or any other matter considered relevant by them. Visits shall be organised for the benefit of prospective Applicants on dates, time and venue as specified in Clause 1.9.

2.7 Acknowledgement by Applicant

2.7.1 It shall be deemed that by submitting the Proposal, the Applicant has:

- (a) made a complete and careful examination of the RFP;
- (b) received all relevant information requested from the Authority;
- (c) acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the RFP or furnished by or on behalf of the Authority or relating to any of the matters referred to in Clause 2.6 above;
- (d) satisfied itself about all matters, things and information, including matters referred to in Clause 2.6 herein above, necessary and required for submitting an informed Application and performance of all of its obligations thereunder;
- (e) acknowledged that it does not have a Conflict of Interest; and
- (f) agreed to be bound by the undertaking provided by it under and in terms hereof.

2.7.2 The Authority shall not be liable for any omission, mistake or error on the part of the Applicant in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP or the Selection Process,

including any error or mistake therein or in any information or data given by the Authority.

2.8 Right to reject any or all Proposals

2.8.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to accept or reject any Proposal and to annul the Selection Process and reject all Proposals, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof.

2.8.2 Without prejudice to the generality of Clause 2.8.1, the Authority reserves the right to reject any Proposal if:

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

Misrepresentation/ improper response by the Applicant may lead to the disqualification of the Applicant. If the Applicant is the Lead Member of a consortium, then the entire consortium may be disqualified / rejected. If such disqualification / rejection occurs after the Proposals have been opened and the highest ranking Applicant gets disqualified / rejected, then the Authority reserves the right to consider the next best Applicant, or take any other measure as may be deemed fit in the sole discretion of the Authority, including annulment of the Selection Process.

B. DOCUMENTS

2.9 Contents of the RFP

This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below and will additionally include any Addendum / Amendment issued in accordance with Clause 2.11:

Request for Proposal

- 1 Introduction
- 2 Instructions to Applicants
- 3 Criteria for Evaluation
- 4 Fraud and corrupt practices
- 5 Pre-Proposal Conference
- 6 Miscellaneous

Schedules

- 1 **Terms of Reference**

2 Form of Agreement

Annex-1: Terms of Reference

Annex-2: Deployment of Personnel

Annex-3: Estimate of Personnel Costs

Annex-4: Approved Sub-Consultant(s)

Annex-5: Cost of Services

Annex-6: Payment Schedule

Annex-7: Bank Guarantee for Performance Security

3 Guidance Note on Conflict of Interest

Appendices

Appendix-I: Technical Proposal

Form-1: Letter of Proposal

Form-2: Particulars of the Applicant

Form-3: Statement of Legal Capacity

Form-4: Power of Attorney

Form-5: Financial Capacity of Applicant

Form-6: Particulars of Key Personnel

Form-7: Proposed Methodology and Work Plan

Form-8: Abstract of Eligible Assignments of Applicant

Form-9: Abstract of Eligible Assignments of Key Personnel

Form-10: Eligible Assignments of Applicant

Form-11: Eligible Assignments of Key Personnel

Form-12: Curriculum Vitae (CV) of Key Personnel

Form-13: Deployment of Personnel

Form-14: Survey and Field Investigations

Form-15: Proposal for Sub-Consultant(s)

Appendix-II: Financial Proposal

Form-1: Covering Letter

Form-2: Financial Proposal

Form-3: Estimate of Personnel Costs

2.10 Clarifications

2.10.1 Applicants requiring any clarification on the RFP may send their queries to the Authority in writing by speed post/ courier/ special messenger or by e-mail so as

to reach before the date mentioned in the Schedule of Selection Process at Clause 1.8. The envelopes shall clearly bear the following identification:

"Queries concerning RFP for (name of Assignment)"

The Authority shall endeavour to respond to the queries within the period specified therein but not later than 7 (seven) days prior to the Proposal Due Date. The responses will be sent by e-mail. The Authority will post the reply to all such queries on the Official Website and copies thereof will also be circulated to all Applicants who have purchased the RFP document without identifying the source of queries.

2.10.2 The Authority reserves the right not to respond to any questions or provide any clarifications, in its sole discretion, and nothing in this Clause 2.10 shall be construed as obliging the Authority to respond to any question or to provide any clarification.

2.11 Amendment of RFP

2.11.1 At any time prior to the deadline for submission of Proposal, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by an Applicant, modify the RFP document by the issuance of Addendum/ Amendment and posting it on the Official Website and by conveying the same to the prospective Applicants (who have purchased the RFP document) by e-mail.

2.11.2 All such amendments will be notified through e-mail to all Applicants who have purchased the RFP document. The amendments will also be posted on the Official Website along with the revised RFP containing the amendments and will be binding on all Applicants.

2.11.3 In order to afford the Applicants a reasonable time for taking an amendment into account, or for any other reason, the Authority may, in its sole discretion, extend the Proposal Due Date[§].

C. PREPARATION AND SUBMISSION OF PROPOSAL

2.12 Language

The Proposal with all accompanying documents (the “**Documents**”) and all communications in relation to or concerning the Selection Process shall be in English language and strictly on the forms provided in this RFP. No supporting document or printed literature shall be submitted with the Proposal unless specifically asked for and in case any of these Documents is in another language, it must be accompanied by an accurate translation of the relevant passages in

[§] While extending the Proposal Due Date on account of an addendum, the Authority shall have due regard for the time required by Applicants to address the amendments specified therein. In the case of significant amendments, at least 15 (fifteen) days shall be provided between the date of amendment and the Proposal Due Date, and in the case of minor amendments, at least 7 (seven) days shall be provided.

English, in which case, for all purposes of interpretation of the Proposal, the translation in English shall prevail.

2.13 Format and signing of Proposal

2.13.1 The Applicant shall provide all the information sought under this RFP. The Authority would evaluate only those Proposals that are received in the specified forms and complete in all respects.

2.13.2 The Applicant shall prepare one original set of the Proposal (together with originals/ copies of Documents required to be submitted along therewith pursuant to this RFP) and clearly marked “ORIGINAL”. In addition, the Applicant shall submit 2 (two) copies of the Proposal, alongwith Documents, marked “COPY”. In the event of any discrepancy between the original and its copies, the original shall prevail.

2.13.3 The Proposal, and its copy, shall be typed or written in indelible ink and signed by the authorised signatory of the Applicant who shall initial each page, in blue ink. In case of printed and published Documents, only the cover shall be initialled. All the alterations, omissions, additions, or any other amendments made to the Proposal shall be initialled by the person(s) signing the Proposal. The Proposals must be properly signed by the authorised representative (the “**Authorised Representative**”) as detailed below:

- (a) by the proprietor, in case of a proprietary firm; or
- (b) by a partner, in case of a partnership firm and/or a limited liability partnership; or
- (c) by a duly authorised person holding the Power of Attorney, in case of a Limited Company or a corporation; or
- (d) by the Authorised Representative of the Lead Member, in case of consortium.

A copy of the Power of Attorney certified under the hands of a partner or director of the Applicant and notarised by a notary public in the form specified in Appendix-I (Form-4) shall accompany the Proposal.

2.13.4 Applicants should note the Proposal Due Date, as specified in Clause 1.8, for submission of Proposals. Except as specifically provided in this RFP, no supplementary material will be entertained by the Authority, and that evaluation will be carried out only on the basis of Documents received by the closing time of Proposal Due Date as specified in Clause 2.17.1. Applicants will ordinarily not be asked to provide additional material information or documents subsequent to the date of submission, and unsolicited material if submitted will be summarily rejected. For the avoidance of doubt, the Authority reserves the right to seek clarifications under and in accordance with the provisions of Clause 2.24.

2.14 Technical Proposal

2.14.1 Applicants shall submit the technical proposal in the formats at Appendix-I (the “**Technical Proposal**”).

2.14.2 While submitting the Technical Proposal, the Applicant shall, in particular, ensure that:

- (a) The Bid Security is provided;
- (b) all forms are submitted in the prescribed formats and signed by the prescribed signatories;
- (c) Power of Attorney, if applicable, is executed as per Applicable Laws;
- (d) CVs of all Professional Personnel have been included;
- (e) Key Personnel have been proposed only if they meet the Conditions of Eligibility laid down at Clause 2.2.2 (D) of the RFP;
- (f) no alternative proposal for any Key Personnel is being made and only one CV for each position has been furnished;
- (g) the CVs have been recently signed and dated in blue ink by the respective Personnel and countersigned by the Applicant. Photocopy or unsigned / countersigned CVs shall be rejected;
- (h) the CVs shall contain an undertaking from the respective Key Personnel about his/her availability for the duration specified in the RFP;
- (i) Professional Personnel proposed have good working knowledge of English language;
- (j) Key Personnel would be available for the period indicated in the TOR;
- (k) no Key Personnel should have attained the age of 75 (seventy five) years at the time of submitting the proposal; and
- (l) the proposal is responsive in terms of Clause 2.22.3.

2.14.3 Failure to comply with the requirements spelt out in this Clause 2.14 shall make the Proposal liable to be rejected.

2.14.4 If an individual Key Personnel makes a false averment regarding his qualification, experience or other particulars, or his commitment regarding availability for the Project is not fulfilled at any stage after signing of the Agreement, he shall be liable to be debarred for any future assignment of the Authority for a period of 5 (five) years. The award of this Consultancy to the Applicant may also be liable to cancellation in such an event.

2.14.5 The Technical Proposal shall not include any financial information relating to the Financial Proposal.

- 2.14.6 The proposed team shall be composed of experts and specialists (the “**Professional Personnel**”) in their respective areas of expertise and managerial/support staff (the “**Support Personnel**”) such that the Consultant should be able to complete the Consultancy within the specified time schedule. The Key Personnel specified in Clause 2.1.4 shall be included in the proposed team of Professional Personnel. Other competent and experienced Professional Personnel in the relevant areas of expertise must be added as required for successful completion of this Consultancy. The CV of each such Professional Personnel, if any, should also be submitted in the format at Form-12 of Appendix-I.
- 2.14.7 An Applicant may, if it considers necessary, propose suitable Sub-Consultants in specific areas of expertise. Credentials of such Sub-Consultants should be submitted in Form-15 of Appendix-I. A Sub-Consultant, however, shall not be a substitute for any Key Personnel.
- 2.14.8 The Authority reserves the right to verify all statements, information and documents, submitted by the Applicant in response to the RFP. Any such verification or the lack of such verification by the Authority to undertake such verification shall not relieve the Applicant of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.
- 2.14.9 In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of subsistence thereof, that one or more of the eligibility conditions have not been met by the Applicant or the Applicant has made material misrepresentation or has given any materially incorrect or false information, the Applicant shall be disqualified forthwith if not yet appointed as the Consultant either by issue of the LOA or entering into of the Agreement, and if the Selected Applicant has already been issued the LOA or has entered into the Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority without the Authority being liable in any manner whatsoever to the Applicant or Consultant, as the case may be.

In such an event, the Authority shall forfeit and appropriate the Bid Security as mutually agreed pre-estimated compensation and damages payable to the Authority for, *inter alia*, time, cost and effort of the Authority, without prejudice to any other right or remedy that may be available to the Authority.

2.15 Financial Proposal

- 2.15.1 Applicants shall submit the financial proposal in the formats at Appendix-II (the “**Financial Proposal**”) clearly indicating the total cost of the Consultancy (Item [G] of Form-2 of Appendix-II) in both figures and words, in Indian Rupees, and signed by the Applicant’s Authorised Representative. In the event of any difference between figures and words, the amount indicated in words shall prevail. In the event of a difference between the arithmetic total and the total shown in the Financial Proposal, the lower of the two shall prevail.

2.15.2 While submitting the Financial Proposal, the Applicant shall ensure the following:

- (i) All the costs associated with the assignment shall be included in the Financial Proposal. These shall normally cover remuneration for all the Personnel (Expatriate and Resident, in the field, office etc.), accommodation, air fare, equipment, printing of documents, surveys, geo-technical investigations etc. The total amount indicated in the Financial Proposal shall be without any condition attached or subject to any assumption, and shall be final and binding. In case any assumption or condition is indicated in the Financial Proposal, it shall be considered non-responsive and liable to be rejected.
- (ii) The Financial Proposal shall take into account all expenses and tax liabilities. For the avoidance of doubt, it is clarified that all taxes shall be deemed to be included in the costs shown under different items of the Financial Proposal. Further, all payments shall be subject to deduction of taxes at source as per Applicable Laws.
- (iii) Costs (including break down of costs) shall be expressed in INR.

2.16 Submission of Proposal

2.16.1 The Applicants shall submit the Proposal in hard bound form with all pages numbered serially and by giving an index of submissions. Each page of the submission shall be initialled by the Authorised Representative of the Applicant as per the terms of the RFP. In case the proposal is submitted on the document downloaded from Official Website, the Applicant shall be responsible for its accuracy and correctness as per the version uploaded by the Authority and shall ensure that there are no changes caused in the content of the downloaded document. In case of any discrepancy between the downloaded or photocopied version of the RFP and the original RFP issued by the Authority, the latter shall prevail.

2.16.2 The Proposal will be sealed in an outer envelope which will bear the address of the Authority, RFP Notice number, Consultancy name as indicated at Clauses 1.11.1 and 1.11.3 and the name and address of the Applicant. It shall bear on top, the following:

“Do not open, except in presence of the Authorised Person of the Authority”

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

2.16.3 The aforesaid outer envelope will contain two separate sealed envelopes, one clearly marked ‘**Technical Proposal**’ and the other clearly marked ‘**Financial Proposal**’. The envelope marked “Technical Proposal” shall contain:

- (i) Application in the prescribed format (Form-1 of Appendix-I) along with Forms 2 to 15 of Appendix-I and supporting documents; and
- (ii) Bid security as specified in Clause 2.20.1

The envelope marked “Financial Proposal” shall contain the Financial Proposal in the prescribed format (Forms 1, 2 & 3 of Appendix-II).

- 2.16.4 The Technical Proposal and Financial Proposal shall be typed or written in indelible ink and signed by the Authorised Representative of the Applicant. All pages of the original Technical Proposal and Financial Proposal must be numbered and initialled by the person or persons signing the Proposal.
- 2.16.5 The completed Proposal must be delivered on or before the specified time on Proposal Due Date. Proposals submitted by fax, telex, telegram or e-mail shall not be entertained.
- 2.16.6 The Proposal shall be made in the Forms specified in this RFP. Any attachment to such Forms must be provided on separate sheets of paper and only information that is directly relevant should be provided. This may include photocopies of the relevant pages of printed documents. No separate documents like printed annual statements, company brochures, copy of contracts etc. will be entertained.
- 2.16.7 The rates quoted shall be firm throughout the period of performance of the assignment upto and including acceptance of the Feasibility Report by the Authority and discharge of all obligations of the Consultant under the Agreement.

2.17 Proposal Due Date

- 2.17.1 Proposal should be submitted at or before 1100 hrs on the Proposal Due Date specified in Clause 1.8 at the address provided in Clause 1.11.1 in the manner and form as detailed in this RFP. A receipt thereof should be obtained from the person specified therein.
- 2.17.2 The Authority may, in its sole discretion, extend the Proposal Due Date by issuing an Addendum in accordance with Clause 2.11 uniformly for all Applicants.

2.18 Late Proposals

Proposals received by the Authority after the specified time on Proposal Due Date shall not be eligible for consideration and shall be summarily rejected.

2.19 Modification/ substitution/ withdrawal of Proposals

- 2.19.1 The Applicant may modify, substitute, or withdraw its Proposal after submission, provided that written notice of the modification, substitution, or withdrawal is received by the Authority prior to Proposal Due Date. No Proposal shall be modified, substituted, or withdrawn by the Applicant on or after the Proposal Due Date.

- 2.19.2 The modification, substitution, or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 2.16, with the envelopes being additionally marked “MODIFICATION”, “SUBSTITUTION” or “WITHDRAWAL”, as appropriate.
- 2.19.3 Any alteration / modification in the Proposal or additional information or material supplied subsequent to the Proposal Due Date, unless the same has been expressly sought for by the Authority, shall be disregarded.

2.20 Bid Security

- 2.20.1 The Applicant shall furnish as part of its Proposal, a bid security of [Rs. 25,000 (twenty five thousand)]⁶ in the form of a Demand Draft issued by one of the Nationalised/ Scheduled Banks in India in favour of the ***** payable at ***** (the “**Bid Security**”), returnable not later than 30 (thirty) days from PDD except in case of the two highest ranked Applicants as required in Clause 2.25.1. In the event that the first ranked Applicant commences the assignment as required in Clause 2.30, the second ranked Applicant, who has been kept in reserve, shall be returned its Bid Security forthwith, but in no case not later than 120 (one hundred and twenty) days from PDD. The Selected Applicant’s Bid Security shall be returned, upon the Applicant signing the Agreement and completing the Deliverables assigned to it for the first 2 (two) months of the Consultancy in accordance with the provisions thereof.
- 2.20.2 Any Bid not accompanied by the Bid Security shall be rejected by the Authority as non-responsive.
- 2.20.3 The Authority shall not be liable to pay any interest on the Bid Security and the same shall be interest free.
- 2.20.4 The Applicant, by submitting its Application pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the Authority’s any other right or remedy hereunder or in law or otherwise, the Bid Security shall be forfeited and appropriated by the Authority as the mutually agreed pre-estimated compensation and damage payable to the Authority for, *inter alia*, the time, cost and effort of the Authority in regard to the RFP including the consideration and evaluation of the Proposal under the following conditions:
- (a) If an Applicant submits a non-responsive Proposal;
 - (b) If an Applicant engages in any of the Prohibited Practices specified in Section 4 of this RFP;
 - (c) 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;

⁶ May be fixed @ Rs. 25,000 (twenty five thousand) for every Rs. 100 (one hundred) crore of the indicative cost of the Project, subject to a minimum of Rs. 25,000 (twenty five thousand) and a maximum of Rs. 2,00,000 (two lakh).

- (d) In the case of the Selected Applicant, if the Applicant fails to reconfirm its commitments during negotiations as required vide Clause 2.25.1;
- (e) In the case of a Selected Applicant, if the Applicant fails to sign the Agreement or commence the assignment as specified in Clauses 2.29 and 2.30 respectively; or
- (f) If the Applicant is found to have a Conflict of Interest as specified in Clause 2.3.

2.21 Performance Security

2.21.1 The Applicant, by submitting its Application pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the Authority's any other right or remedy hereunder or in law or otherwise, its Performance Security shall be forfeited and appropriated by the Authority as the mutually agreed pre-estimated compensation and damages payable to the Authority for, *inter alia*, the time, cost and effort of the Authority in regard to the RFP, including the consideration and evaluation of the Proposal, under the following conditions:

- (a) If an Applicant engages in any of the Prohibited Practices specified in Clause 4.1 of this RFP;
- (b) if the Applicant is found to have a Conflict of Interest as specified in Clause 2.3; and
- (c) if the Selected Applicant commits a breach of the Agreement.

2.21.2 An amount equal to 5% (five per cent) of the Agreement Value shall be deemed to be the Performance Security for the purposes of this Clause 2.21, which may be forfeited and appropriated in accordance with the provisions hereof.

D. EVALUATION PROCESS

2.22 Evaluation of Proposals

2.22.1 The Authority shall open the Proposals at [1130] hours on the Proposal Due Date, at the place specified in Clause 1.11.1 and in the presence of the Applicants who choose to attend. The envelopes marked "Technical Proposal" shall be opened first. The envelopes marked "Financial Proposal" shall be kept sealed for opening at a later date.

2.22.2 Proposals for which a notice of withdrawal has been submitted in accordance with Clause 2.19 shall not be opened.

2.22.3 Prior to evaluation of Proposals, the Authority will determine whether each Proposal is responsive to the requirements of the RFP. The Authority may, in its sole discretion, reject any Proposal that is not responsive hereunder. A Proposal shall be considered responsive only if:

- (a) the Technical Proposal is received in the form specified at Appendix-I;

- (b) it is received by the Proposal Due Date including any extension thereof pursuant to Clause 2.17;
- (c) it is accompanied by the Bid Security as specified in Clause 2.20.1.
- (d) it is signed, sealed, bound together in hard cover and marked as stipulated in Clauses 2.13 and 2.16;
- (e) it is accompanied by the Power of Attorney as specified in Clause 2.2.4;
- (f) it contains all the information (complete in all respects) as requested in the RFP;
- (g) it does not contain any condition or qualification; and
- (h) it is not non-responsive in terms hereof.

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

2.22.5 The Authority shall subsequently examine and evaluate Proposals in accordance with the Selection Process specified at Clause 1.6 and the criteria set out in Section 3 of this RFP.

2.22.6 After the technical evaluation, the Authority shall prepare a list of pre-qualified and shortlisted Applicants in terms of Clause 3.2 for opening of their Financial Proposals. A date, time and venue will be notified to all Applicants for announcing the result of evaluation and opening of Financial Proposals. Before opening of the Financial Proposals, the list of pre-qualified and shortlisted Applicants along with their Technical Score will be read out. The opening of Financial Proposals shall be done in presence of respective representatives of Applicants who choose to be present. The Authority will not entertain any query or clarification from Applicants who fail to qualify at any stage of the Selection Process. The financial evaluation and final ranking of the Proposals shall be carried out in terms of Clauses 3.3 and 3.4.

2.22.7 Applicants are advised that Selection shall be entirely at the discretion of the Authority. Applicants shall be deemed to have understood and agreed that the Authority shall not be required to provide any explanation or justification in respect of any aspect of the Selection Process or Selection.

2.22.8 Any information contained in the Proposal shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Applicant if the Consultancy is subsequently awarded to it.

2.23 Confidentiality

Information relating to the examination, clarification, evaluation, and recommendation for the selection of Applicants shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional adviser advising the Authority in relation to matters arising out of,

or concerning the Selection Process. The Authority shall treat all information, submitted as part of the Proposal, in confidence and shall require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/or the Authority or as may be required by law or in connection with any legal process.

2.24 Clarifications

- 2.24.1 To facilitate evaluation of Proposals, the Authority may, at its sole discretion, seek clarifications from any Applicant regarding its Proposal. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.
- 2.24.2 If an Applicant does not provide clarifications sought under Clause 2.24.1 above within the specified time, its Proposal shall be liable to be rejected. In case the Proposal is not rejected, the Authority may proceed to evaluate the Proposal by construing the particulars requiring clarification to the best of its understanding, and the Applicant shall be barred from subsequently questioning such interpretation of the Authority.

E. APPOINTMENT OF CONSULTANT

2.25 Negotiations

- 2.25.1 The Selected Applicant may, if necessary, be invited for negotiations. The negotiations shall generally not be for reducing the price of the Proposal, but will be for re-confirming the obligations of the Consultant under this RFP. Issues such as deployment of Key Personnel, understanding of the RFP, methodology and quality of the work plan shall be discussed during negotiations. A Key Personnel who did not score 60% (sixty per cent) marks as required under Clause 3.1.2 shall be replaced by the Applicant with a better candidate to the satisfaction of the Authority. In case the Selected Applicant fails to reconfirm its commitment, the Authority reserves the right to designate the next ranked Applicant as the Selected Applicant and invite it for negotiations.
- 2.25.2 The Authority will examine the CVs of all other Professional Personnel and those not found suitable shall be replaced by the Applicant to the satisfaction of the Authority.
- 2.25.3 The Authority will examine the credentials of all Sub-Consultants proposed for this Consultancy and those not found suitable shall be replaced by the Applicant to the satisfaction of the Authority.

2.26 Substitution of Key Personnel

- 2.26.1 The Authority will not normally consider any request of the Selected Applicant for substitution of Key Personnel as the ranking of the Applicant is based on the evaluation of Key Personnel and any change therein may upset the ranking.

Substitution will, however, be permitted if the Key Personnel is not available for reasons of any incapacity or due to health, subject to equally or better qualified and experienced personnel being provided to the satisfaction of the Authority.

- 2.26.2 The Authority expects all the Key Personnel to be available during implementation of the Agreement. The Authority will not consider substitution of Key Personnel except for reasons of any incapacity or due to health. Such substitution shall ordinarily be limited to one Key Personnel subject to equally or better qualified and experienced personnel being provided to the satisfaction of the Authority. As a condition to such substitution, a sum equal to 20% (twenty per cent) of the remuneration specified for the original Key Personnel shall be deducted from the payments due to the Consultant. In the case of a second substitution hereunder, such deduction shall be 50% (fifty per cent) of the remuneration specified for the original Key Personnel. Any further substitution may lead to disqualification of the Applicant or termination of the Agreement.
- 2.26.3 Substitution of the Team Leader will not normally be considered and may lead to disqualification of the Applicant or termination of the Agreement.

2.27 Indemnity

The Consultant shall, subject to the provisions of the Agreement, indemnify the Authority for an amount not exceeding 3 (three) times the value of the Agreement for any direct loss or damage that is caused due to any deficiency in services.

2.28 Award of Consultancy

After selection, a Letter of Award (the “LOA”) shall be issued, in duplicate, by the Authority to the Selected Applicant and the Selected Applicant shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Applicant is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Applicant as mutually agreed genuine pre-estimated loss and damage suffered by the Authority on account of failure of the Selected Applicant to acknowledge the LOA, and the next highest ranking Applicant may be considered.

2.29 Execution of Agreement

After acknowledgement of the LOA as aforesaid by the Selected Applicant, it shall execute the Agreement within the period prescribed in Clause 1.8. The Selected Applicant shall not be entitled to seek any deviation in the Agreement.

2.30 Commencement of assignment

The Consultant shall commence the Services at the Project site within 7 (seven) days of the date of the Agreement, or such other date as may be mutually agreed. If the Consultant fails to either sign the Agreement as specified in Clause 2.29 or commence the assignment as specified herein, the Authority may invite the

second ranked Applicant for negotiations. In such an event, the Bid Security of the first ranked Applicant shall be forfeited and appropriated in accordance with the provisions of Clause 2.20.4.

2.31 Proprietary data

Subject to the provisions of Clause 2.23, all documents and other information provided by the Authority or submitted by an Applicant to the Authority shall remain or become the property of the Authority. Applicants and the Consultant, as the case may be, are to treat all information as strictly confidential. The Authority will not return any Proposal or any information related thereto. All information collected, analysed, processed or in whatever manner provided by the Consultant to the Authority in relation to the Consultancy shall be the property of the Authority.

3. CRITERIA FOR EVALUATION

3.1 Evaluation of Technical Proposals

- 3.1.1 In the first stage, the Technical Proposal will be evaluated on the basis of Applicant's experience, its understanding of TOR, proposed methodology and Work Plan, and the experience of Key Personnel. Only those Applicants whose Technical Proposals get a score of 60 (sixty) marks or more out of 100 (one hundred) shall qualify for further consideration, and shall be ranked from highest to the lowest on the basis of their technical score (S_T).
- 3.1.2 Each Key Personnel must score a minimum of 60% (sixty per cent) marks except as provided herein. A Proposal shall be rejected if the Team Leader scores less than 60% (sixty per cent) marks or any two of the remaining Key Personnel score less than 60% (sixty per cent) marks. In case the Selected Applicant has one Key Personnel, other than the Team Leader, who scores less than 60% marks, he would have to be replaced during negotiations, with a better candidate who, in the opinion of the Authority, would score 60% (sixty per cent) or above.
- 3.1.3 The scoring criteria to be used for evaluation shall be as follows.

Item Code	Parameter	Maximum Marks	Criteria
1.	Relevant Experience of the Applicant	25	30% of the maximum marks shall be awarded for the number of Eligible Assignments undertaken by the Applicant firm. The remaining 70% shall be awarded for: (i) the comparative size and quality of Eligible Assignments; (ii) other relevant assignments or similar work in the infrastructure sectors; and (iii) overall turnover, experience and capacity of the firm.
2.	Proposed Methodology and Work Plan	5	Evaluation will be based on the quality of submissions.

3.	Relevant Experience of the Key Personnel⁷	70	30% of the maximum marks for each Key Personnel shall be awarded for the number of Eligible Assignments the respective Key Personnel has worked on. The remaining 70% shall be awarded for: (i) the comparative size and quality of Eligible Assignments; and (ii) other relevant assignments or similar work in infrastructure sectors.
3(a)	Senior Highway Engineer - cum - Team Leader	20	
3(b)	Bridge Engineer	12.5	
3(c)	Traffic – cum - Safety Expert	12.5	
3(d)	Surveyor	10	
3(e)	Financial Analyst	10	
3(f)	Environmental Expert	5	
Grand Total		100	

While awarding marks for the number of Eligible Projects, the Applicant or Key Personnel, as the case may be, that has undertaken the highest number of Eligible Assignments shall be entitled to the maximum score for the respective category and all other competing Applicants or respective Key Personnel, as the case may be, shall be entitled to a proportionate score. No score will be awarded to an Applicant/ Key Personnel for fulfilling the eligibility criteria of a minimum number of Eligible Assignments and only projects exceeding the eligibility criteria shall qualify for scoring. For the avoidance of doubt and by way of illustration, if the minimum number of Eligible Projects for meeting the eligibility criteria is say, 3 (three), then an equivalent number will be ignored for each Applicant/Key Personnel and only the balance remaining will be considered for awarding scores relating to the number of Eligible Assignments on a proportionate basis. However, for assigning scores in respect of the size and quality of Eligible Assignments, all Eligible Assignments of the Applicant/Key Personnel shall be considered.

⁷ The Key Personnel and their respective maximum marks may be suitably modified to address project-specific requirements.

3.1.4 Eligible Assignments

For the purposes of determining Conditions of Eligibility and for evaluating the Proposals under this RFP, advisory/ consultancy assignments in respect of preparation of feasibility report and/or detailed project report including engineering surveys and social and environmental impact assessment, for the following projects shall be deemed as eligible assignments (the “**Eligible Assignments**”):

- (i) [Four- laning of a national or state highway] having an estimated capital cost (excluding land) of at least [Rs. 200 (two hundred) crore⁸] in case of a project in India, and [US \$ 100 (one hundred) million⁹ for projects elsewhere]; or
- (ii) any project involving construction and having an estimated capital cost (excluding land) of at least [Rs. 500 (five hundred) crore ¹⁰ in case of a project in India, and US \$ 250 (two hundred and fifty) million for projects elsewhere.]

Provided that the Applicant firm claiming credit for an Eligible Assignment shall have, prior to PDD, received professional fees of at least [Rs. 50 (fifty) lakh¹¹] for such assignment, and where credit is being claimed by a Key Personnel, she/he should have completed the relevant assignment prior to PDD.

Provided further that if the Applicant firm is taking credit for an Eligible Assignment which was undertaken for a private sector entity, such assignment shall have been completed prior to PDD and the Applicant shall have received professional fees of at least [Rs. 1 (one) crore ¹²].

3.2 Short-listing of Applicants

Of the Applicants ranked as aforesaid, not more than 5 (five) shall be pre-qualified and short-listed for financial evaluation in the second stage. However, if the number of such pre-qualified Applicants is less than two, the Authority may, in its sole discretion, pre-qualify the Applicant(s) whose technical score is less than 60 (sixty) points even if such Applicant(s) do(es) not qualify in terms of Clause 3.1.2; provided that in such an event, the total number of pre-qualified and short-listed Applicants shall not exceed two.

3.3 Evaluation of Financial Proposal

- 3.3.1 In the second stage, the financial evaluation will be carried out as per this Clause 3.3. Each Financial Proposal will be assigned a financial score (S_F).

⁸ This amount should be at least 40% of the indicative cost of the Project.

⁹ The ratio of Rs. 2 cr. to US\$ 1 million may be maintained in sub-clauses (i) and (ii) of Clause 3.1.4.

¹⁰ This amount should be about equal to the indicative cost of the Project.

¹¹ This amount may be fixed at about 0.1% of the indicative cost of the Project.

¹² This amount may be fixed at about 0.2% of the indicative cost of the Project.

- 3.3.2 For financial evaluation, the total cost indicated in the Financial Proposal, excluding Additional Costs, will be considered. Additional Costs shall include items specified as such in Form-2 of Appendix-II.
- 3.3.3 The Authority will determine whether the Financial Proposals are complete, unqualified and unconditional. The cost indicated in the Financial Proposal shall be deemed as final and reflecting the total cost of services. Omissions, if any, in costing any item shall not entitle the firm to be compensated and the liability to fulfil its obligations as per the TOR within the total quoted price shall be that of the Consultant. The lowest Financial Proposal (F_M) will be given a financial score (S_F) of 100 points. The financial scores of other Proposals will be computed as follows:

$$S_F = 100 \times F_M/F$$

(F = amount of Financial Proposal)

3.4 Combined and final evaluation

- 3.4.1 Proposals will finally be ranked according to their combined technical (S_T) and financial (S_F) scores as follows:

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

Where S is the combined score, and T_w and F_w are weights assigned to Technical Proposal and Financial Proposal, which shall be 0.70 and 0.30 respectively¹³.

- 3.4.2 The Selected Applicant shall be the first ranked Applicant (having the highest combined score). The second ranked Applicant shall be kept in reserve and may be invited for negotiations in case the first ranked Applicant withdraws, or fails to comply with the requirements specified in Clauses 2.25, 2.29 and 2.30, as the case may be.

¹³ This proportion may be modified to 80:20 where the intellectual and design content is comparatively higher such as in the case of architectural design or master plan.

4. FRAUD AND CORRUPT PRACTICES

- 4.1 The Applicants and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Selection Process. Notwithstanding anything to the contrary contained in this RFP, the Authority shall reject a Proposal without being liable in any manner whatsoever to the Applicant, if it determines that the Applicant has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the “**Prohibited Practices**”) in the Selection Process. In such an event, the Authority shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, *inter alia*, time, cost and effort of the Authority, in regard to the RFP, including consideration and evaluation of such Applicant’s Proposal.
- 4.2 Without prejudice to the rights of the Authority under Clause 4.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Agreement, if an Applicant or Consultant, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the LOA or the execution of the Agreement, such Applicant or Consultant shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Applicant or Consultant, as the case may be, is found by the Authority to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.
- 4.3 For the purposes of this Section, the following terms shall have the meaning hereinafter respectively assigned to them:
- (a) “**corrupt practice**” means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly with the Selection Process or the LOA or has dealt with matters concerning the Agreement or arising therefrom, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Selection Process); or (ii) save as provided herein, engaging in any manner whatsoever, whether during the Selection Process or after the issue of the LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or technical

consultant/ adviser of the Authority in relation to any matter concerning the Project;

- (b) “**fraudulent practice**” means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the Selection Process;
- (c) “**coercive practice**” means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person’s participation or action in the Selection Process;
- (d) “**undesirable practice**” means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and
- (e) “**restrictive practice**” means forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Selection Process.

5. PRE-PROPOSAL CONFERENCE

- 5.1 Pre-Proposal Conference of the Applicants shall be convened at the designated date, time and place. Only those Applicants, who have purchased the RFP document or downloaded the same from the Official Website of the Authority, shall be allowed to participate in the Pre-Proposal Conference. A maximum of two representatives of each Applicant shall be allowed to participate on production of an authority letter from the Applicant.
- 5.2 During the course of Pre-Proposal Conference, the Applicants will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Selection Process.

6. MISCELLANEOUS

- 6.1 The Selection Process shall be governed by, and construed in accordance with, the laws of India and the Courts in the State in which the Authority has its headquarters shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the Selection Process.
- 6.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to:
- (a) suspend and/or cancel the Selection Process and/or amend and/or supplement the Selection Process or modify the dates or other terms and conditions relating thereto;
 - (b) consult with any Applicant in order to receive clarification or further information;
 - (c) retain any information and/or evidence submitted to the Authority by, on behalf of and/or in relation to any Applicant; and/or
 - (d) independently verify, disqualify, reject and/or accept any and all submissions or other information and/or evidence submitted by or on behalf of any Applicant.
- 6.3 It shall be deemed that by submitting the Proposal, the Applicant agrees and releases the Authority, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/or performance of any obligations hereunder, pursuant hereto and/or in connection herewith and waives any and all rights and/or claims it may have in this respect, whether actual or contingent, whether present or future.
- 6.4 All documents and other information supplied by the Authority or submitted by an Applicant shall remain or become, as the case may be, the property of the Authority. The Authority will not return any submissions made hereunder. Applicants are required to treat all such documents and information as strictly confidential.
- 6.5 The Authority reserves the right to make inquiries with any of the clients listed by the Applicants in their previous experience record.

SCHEDULES

SCHEDULE-1
(See Clause 1.1.3)

Consultancy for a Feasibility Report for
[Two-laning/ *Four-laning*]
of ***** Highway

Terms of Reference (TOR)¹⁴

for

TECHNICAL CONSULTANT

¹⁴The Terms of Reference (TOR) provided herein are indicative and meant for guidance of the Authority in formulating project-specific TOR. The TOR may, therefore, be modified suitably to address project-specific requirements. A generic list of items that are typically included in a TOR is appended as Illustrative Schedule-I at the end of this volume for guidance of the Authority in drafting a project-specific TOR. Illustrative TORs for PPP in electricity distribution and drinking water supply are appended as Illustrative Schedule-II and Illustrative Schedule-III respectively.

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ATTACHMENTS

Attachment A: Topographic Survey

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PROFORMA

Proforma-1: Road Inventory

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Terms of Reference (TOR)¹⁵

1. GENERAL

- 1.1 The Authority seeks the services of qualified firms for preparing a Feasibility Report for [Two-laning/ Two-laning with Paved Shoulders/ *Four-laning*] of the Project Highway on DBFOT basis. The Feasibility Report shall also include a pre-feasibility study for an option of [Four-laning/ *Six-laning*] in the second phase of the concession. The Project Highway starts from *** km and ends at *** km on NH/ SH ***, and is approximately *** km long. The Terms of Reference (the “**TOR**”) for this assignment are specified below.
- 1.2 [The Consultant shall be guided in its assignment by the Model Concession Agreement and the Manual of Specifications and Standards for Two-laning of Highways through Public Private Partnership published by the Indian Roads Congress (IRC:SP:73-2007) (the “**Manual**”) and the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership published by MoRT&H (the “**Four-Laning Manual**”).

OR

*The Consultant shall be guided in its assignment by the Model Concession Agreement and the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership published by MoRT&H (the “**Manual**”) and the Manual of Specifications and Standards for Six-laning of Highways through Public Private Partnership published by MoRT&H (the “**Six-Laning Manual**”).]*

- 1.3 The Consultant shall be responsible for preparing the Schedules A, B, C, D and H of the Concession Agreement and for bringing out any special feature or requirement of the Project Highway referred to in the Concession Agreement or the Manual. The details and particulars to be specified in the Schedules shall be duly addressed and incorporated therein, in accordance with the provisions of the Manual (Refer to Appendix I of the Manual).
- 1.4 The Consultant shall assist the Authority and its Financial Consultant and the Legal Adviser by furnishing clarifications as required for the financial appraisal and legal scrutiny of the Project Highway and bid documents.
- 1.5 The Consultant shall also participate in the pre-bid conference with the bidders of the Project Highway and assist the Authority in clarifying the technical aspects arising from the bid documents including the Feasibility Report.

¹⁵ This TOR can be used for Two-lane Highway Projects as well as Four-lane Highway Projects. If it is used for Two-lane Projects, the words in italics in Paragraphs 1.1, 1.2, 3.3.2 (g), 4 C (iii) and 5 may be omitted. When it is used for Four-lane Projects, the words in italics may be retained and the alternative formulation, if any, applicable for Two-lane Projects may be omitted.

2. OBJECTIVE

The objective of this Consultancy is to undertake feasibility studies and prepare a Feasibility Report of the Project Highway for the purpose of firming up the Authority's requirements in respect of development and construction of the Project Highway and Project Facilities and enabling the prospective bidders to assess the Authority's requirements in a clear and predictable manner with a view to ensuring:

- (i) enhanced safety and level of service for the road users;
- (ii) superior operation and maintenance enabling enhanced operational efficiency of the Project Highway;
- (iii) minimal adverse impact on the local population and road users due to road construction;
- (iv) minimal adverse impact on environment;
- (v) minimal additional acquisition of land; and
- (vi) phased development of the Project Highway for improving its financial viability consistent with the need to minimise frequent inconvenience to traffic that may be caused if additional works are undertaken within a period of seven years from the commencement of construction of the Project Highway.

3. SCOPE OF SERVICES

3.1 The scope of services shall comprise:

- (i) Traffic surveys and demand assessment
- (ii) Engineering surveys and investigations
- (iii) Location and layout of toll plazas
- (iv) Location and layout of truck laybys
- (v) Location and layout of bus bays and bus shelters
- (vi) Social impact assessment
- (vii) Environment impact assessment
- (viii) Preliminary designs of road, bridges, structures, etc.
- (ix) Preparation of Land Plan Schedules and Utility Relocation Plans
- (x) Preparation of indicative BOQ and rough Cost Estimates
- (xi) Preparation of Schedules A, B, C, D and H of the Concession Agreement.

These services are briefly explained hereunder:

3.2 Traffic surveys and demand assessment

3.2.1 *The types of traffic surveys and the minimum number of survey stations shall be as under:*

S. No.	Description of Activity	Number of Survey Stations
1.	Classified Traffic Volume Count	One station close to the proposed location of each Toll Plaza and one station for every 25 km between and/or beyond the Toll Plazas, to be determined in consultation with the Authority.
2.	Intersection Volume Count	All major intersections (All locations where the Project Highway intersects or meets a NH/SH/MDR).
3.	Pedestrian/Cattle crossing traffic count	At all locations of settlements/habitations along the Project Highway
4.	Axle Load Spectrum	One station each close to the proposed location of each Toll Plaza

The Consultant shall, upon award of the Consultancy, submit its proposal regarding the locations of traffic survey stations for each of the above activities along with an index plan giving the rationale of its proposal. Care shall be taken in proposing the locations in a manner that they capture the traffic in different sections. This proposal shall form part of the Inception Report. The Authority may, within one week of receiving the Inception Report, modify the locations of traffic survey stations in accordance with the provisions of this TOR and the Consultant shall comply with the same.

3.2.2 *Classified traffic volume count*

For conducting the traffic volume count, the Consultant shall comply with the following:

- (a) The classified traffic volume counts shall be carried out twice for 7 continuous days at the selected survey stations as per IRC guidelines on the subject (IRC: 9-1972). The timing for such counts shall be:
 - (i) within five weeks of the commencement of services, and
 - (ii) during the thirteenth week of commencement of services.

The following classes of vehicles shall be captured separately.

	Motorised vehicles		Non-motorised vehicles
1.	Cars (include jeeps, vans)	1.	Bicycles
2.	Light commercial vehicles including mini buses	2.	Cycle Rickshaws
3.	Buses	3.	Animal Drawn Carts
4.	Two axle trucks	4.	Handcarts
5.	Three axle trucks	5.	Any other non-motorised vehicles
6.	Four or more axle trucks		
7.	Tractors		
8.	Ambulance, fire tender, funeral vans		
9.	Three wheelers		
10.	Two wheelers		

- (b) The traffic count data would be analysed to depict hourly and daily variations. The Abstract of traffic data would also be provided for each survey station.
- (c) The traffic count shall be divided into toll-paying traffic and toll-exempt traffic. The total PCUs will thus be divided into toll-paying and toll-exempt PCUs.

3.2.3 *Traffic demand assessment*

- (a) The Consultant shall make an assessment of the traffic demand for the Project Highway for a period of 10 (ten) years, 15 (fifteen) years and 20 (twenty) years respectively based on analysis of traffic counts, trend growth and growth in the influence area of the Project Highway. Normally, an annual growth rate of 5% (five per cent) shall be assumed. Any variation would have to be justified with reasons, including analysis of past trends.
- (b) Based on the assessment of the traffic demand on the various sections of the Project Highway, the Consultant shall provide a broad assessment of the year in which capacity augmentation may be required. The Consultant shall also provide sensitivity analysis due to change in assumption of traffic projections.

3.2.4 *Intersection volume count and design*

- (a) Volume count

For conducting the intersection volume count, the turning movement traffic surveys shall be carried out as per IRC: SP:41-1994 at all locations where the Project Highway intersects/meets the NH, SH or MDR. The turning movement surveys will be undertaken from 08:00 to 12:00 hours in the morning and 16:00 to 20:00 hours in the evening.

(b) Design

- (i) The data at each location shall be presented and analysed to identify suitable treatment viz. at-grade intersection, grade separator without ramps or interchange with ramps in the light of warrants and criteria specified in the Manual. The type and layout proposed by the Consultant for each location shall be furnished along with the analysis supporting the same. Where an interchange with ramp is indicated by the analysis, its type should be determined keeping in view the site conditions.
- (ii) The amount of additional land required, if any, at each of the intersection on the Project Highway shall be clearly stated and brought out.
- (iii) For all cases where grade separators without ramps or interchanges with ramps are proposed, the possibility of their provision on the Project Highway in a phased manner shall be duly examined and a report on the cost-effectiveness of the Consultant's proposal submitted for consideration of the Authority to enable it to specify such requirements in the relevant Schedules of the Concession Agreement.

3.2.5 *Pedestrian/ Cattle crossing demand assessment*

For assessing the requirements of Pedestrian/ Cattle crossings, the traffic counts for two continuous days between 08.00 hours and 20.00 hours shall be carried out at the locations close to all habitations/ settlements along the Project Highway. The data so collected shall be analysed to determine whether any pedestrian/cattle crossing by way of underpass/ overpass is justified. If so, the locations and broad layout shall be proposed.

3.2.6 *Axle load spectrum surveys*

Axle load spectrum surveys shall be carried out at each proposed location of toll plaza on the Project Highway. The axle load survey shall capture buses, trucks and tractors with trailers in the traffic stream. The survey shall be for both directions. Sample size shall not be less than 10% (ten per cent) of the buses, trucks and tractors with trailers in the traffic stream and based on standard statistical techniques. The vehicle damage factor shall be calculated as per the equivalency factors given in IRC: 37.

3.3 Engineering surveys and investigations

3.3.1 *The engineering surveys and investigations shall be divided into the following components:*

- Topographic, alignment and land use survey
- Road inventory survey
- Road condition survey
- Bridge condition survey
- Soil, geo-technical, material, hydrology and drainage surveys

3.3.2 *Topographic, alignment and land use survey*

The activities and Deliverables forming part of the topographic, alignment and land use survey are described below (see also Attachment A to the TOR):

- (a) Divide the Project Highway into various stretches as per terrain classification.
- (b) Identify sections of Project Highway which fall within marine environment (Condition of severe marine environment: alternate wetting and drying due to sea spray; alternate wetting and drying combined with freezing; buried in soil having corrosive effect; members of structures in contact with water where the velocity of flow and the bed material are likely to cause erosion of concrete. Moderate marine environment would be other than severe).
- (c) Identify sections of Project Highway which fall within urban limits and need four laning in accordance with the Manual (see Paragraph 3.5).
- (d) Identify sections of Project Highway which require raising. Such sections will be identified with attention being paid to the previous history of submergence and the extent to which the subgrade is likely to be affected by the capillary action if the section is not raised.
- (e) As far as possible, the existing alignment would be retained subject to the following requirements:
 - (i) Identify stretches which do not meet the criterion of ruling design speed, i.e. where radii of horizontal curves are less than desirable minimum. Prepare realignment plans for improving geometrics in such stretches.
 - (ii) Identify stretches out of (i) above, which meet the criterion of minimum design speed, i.e. where the radii of horizontal curves are more than the absolute minimum (This will enable the Authority to take a view on whether to include such stretches for improving geometrics in the initial stage or these can be

postponed by a few years and in the meantime steps can be taken to acquire the necessary land for the ROW).

- (iii) Identify stretches where stopping sight distance is not available. Work out possible improvement plan to increase the sight distance to provide overtaking sight distance. Also work out option to increase the sight distance to provide at least the intermediate sight distance.
- (iv) Identify stretches, other than those in (iii) above, where intermediate sight distance is not available. Work out possible improvement plan to increase the sight distance to provide overtaking sight distance. Also work out possible improvement plan to increase the sight distance to provide at least the intermediate sight distance.
- (v) Identify stretches where the gradients are steeper than the ruling gradient for the relevant terrain condition. Work out and prepare an improvement plan for the vertical alignment in such stretches.

Divide improvement plans of such stretches into the following two parts:

- Stretches where gradient is more than the limiting gradient
 - Stretches where gradient is more than the ruling gradient but less than the limiting gradient. (The Authority can take a view on whether improvements of stretches in this category shall be taken up or not.)
- (vi) Identify stretches where extra width of roadway and carriageway at curves is required.
 - (f) Identify stretches involving construction of new bridges and other grade separated structures including those requiring reconstruction and their approaches. Work out proposal for location of such structures and alignment of approaches.
 - (g) Based on the improvement plans of horizontal and vertical alignment worked out as a result of tasks in (d), (e) and (f), prepare alignment plans, L-Sections and cross-sections of the entire Project Highway. Scale of drawings shall be as per IRC:SP:19. Proposed improvements shall be marked on the plans. Such improvements will include raising of road, widening of roadway, widening of existing carriageway, [including location of median and the side on which the new two-lane carriageway is to be provided,] provision of shoulders – both paved and granular, new structures, underpasses, grade separators, service roads, additional road signs, road furniture, safety devices, relocation of utilities, removal of trees, etc.

- (h) Also prepare a separate Land Plan of the Project Highway showing the existing ROW (alongwith all the existing assets within the ROW e.g. structures, drains, service roads, trees, utilities and safety devices) and proposed additional land required in various stretches for improvement of geometrics, construction of new structures, provision of intersections, interchanges, service roads, toll plazas, project facilities, etc. The Land Plan should also show encroachments, if any. A list of such encroachments alongwith their brief description shall also be prepared and included in the Feasibility Report.
- (i) For additional land proposed to be acquired as per final alignment plan of the Project Highway, the Land Plans shall be marked on duly certified village maps showing khasra numbers and shall be furnished along with a report which will include detailed schedules in respect of the proposed acquisition of land holdings as per revenue records in a format that would enable the Authority to initiate land acquisition proceedings.
- (j) A set of cross-sections of the existing road including urban sections at one km intervals for each homogeneous section in plain/rolling terrain and at 100 m intervals in mountainous/steep terrain shall be provided by the Consultant. In plain/ rolling terrain, additional cross-sections shall be provided for curves at the start, at the middle and at the end. These cross-sections along with proposed improvement plan and preliminary design shall form the basis of preparation of indicative BOQ for the Project Highway.

3.3.3 Road inventory survey

Deliverables under this component shall include:

- (a) An inventory of road, culverts, bridges and other structures like railway overbridges/underbridges, flyovers (grade separated structures), underpasses and overpasses.

The proformae for road, culverts and bridges or other structures have been provided at Proforma 1, 2 and 3 respectively.

- (b) Identification of stretches of the Project Highway which -
 - (i) are affected by frequent flooding;
 - (ii) are subjected to water logging;
 - (iii) pass through black cotton soil area;
 - (iv) pass through marshy area; or
 - (v) pass through weak soil stratum

- (c) Typical cross-sections of the existing road showing the crust composition of pavement, shoulders and drains (one cross-section for every five km of the road).
- (d) Identification of sections in cutting.
- (e) Identification of culverts requiring:
 - (i) Reconstruction (all culverts which are structurally distressed shall be reconstructed as new structures).
 - (ii) Widening (all existing culverts which are not to be reconstructed shall be widened equal to the roadway width).
 - (iii) Repairs and/or rehabilitation along with preliminary proposals.
 - (iv) New construction

3.3.4 *Road condition survey*

The Consultant shall undertake a survey of the visual condition of the pavement and shoulders of the Project Highway and provide its report as per Proforma-4. The Consultant should also report if distresses are observed in the pavement and shoulders. It will also identify sections requiring reconstruction.

3.3.5 *Bridge condition survey*

The activities and Deliverables forming part of bridge condition survey are specified below:

- (a) The Consultant shall carry out a detailed inspection of every bridge and other structures such as railway over/under bridges, overpasses, underpasses and grade separators including flyovers. (For guidance, see IRC: SP: 35 and IRC: SP: 52).
- (b) For each structure, the Consultant shall indicate the distresses observed, if any, in respect of various components of the structures e.g. bearings, expansion joints, wearing coat, railings/crash-barriers, foundations, substructures (abutments, piers, pier caps), superstructure (Proforma-5). On the basis of the distresses observed, the Consultant shall divide the structures into the following categories:
 - (i) structures requiring reconstruction immediately as part of first stage development (all such structures shall be provided as new structures);
 - (ii) structures where distresses are not so severe and reconstruction can be postponed to a subsequent stage say for a period of 7 to 8 years; if any major repairs are required in the meantime, these shall be so indicated for each such location;

- (iii) structures requiring repairs and/or rehabilitation (for such structures indicate preliminary proposals for repairs and/or rehabilitation);
- (iv) structures requiring widening (for such structures indicate widening methodology); and
- (v) structures that shall be retained.

3.3.6 *Soil, geotechnical, material, hydrology and drainage surveys*

The activities and Deliverables forming part of the soil, geotechnical, material, hydrology and drainage surveys are described below:

- (a) The characteristics of the existing soil, two samples from every five km of the Project Highway or closer where change in soil type is encountered.
- (b) The determination of subgrade CBR (soaked) every three km of the Project Highway or closer where change in soil type is encountered.
- (c) Benkleman Beam Deflection measurements on the Project Highway – one set of ten readings in 250 m for every three km of the Project Highway.
- (d) Investigations of the subsoil strata (one trial bore and/or test pit at embankment and one in river bed at locations where new bridges or other structures are proposed. The depth of trial bore/ test pit shall be as per IRC standards).
- (e) Preliminary hydraulic data for bridges, design discharge, HFL, LWL, etc. with a view to checking adequacy of existing waterway.
- (f) A broad assessment of the drainage condition and requirement of the Project Highway.

3.4 **Capacity of carriageway**

The Consultant shall design the carriageway capacity based on the projected traffic volume at the close of 15 (fifteen) years commencing from the year of the traffic survey. The actual traffic volume determined during such survey shall be increased at a compounded annual growth rate of 5% (five per cent) and the traffic volume so projected at the close of 15 (fifteen) years shall form the basis for designing the width of the carriageway in accordance with the design service volumes (in PCUs per day) specified in IRC: 64-1990. The number of PCUs referred to herein shall include toll paying as well as non-toll paying vehicles.

3.5 **Proposal for Sections passing through urban areas**

The task at 3.3.2(c) would identify the stretches of the Project Highway which pass through the urban areas. For each of these stretches, the Consultant shall

prepare an improvement plan of the stretch to provide a four-lane divided carriageway with footpaths, covered drains, etc. Possibility of providing service roads shall also be explored and indicated. If there is any constraint due to available ROW or additional land to be acquired, the same shall be brought to the attention of the Authority on immediate basis. In such situations, a bypass may be needed to avoid the urban area. [The surveys and investigations for the alignment and other features of the bypass are a part of this Consultancy].¹⁶

3.6 ROBs/RUBs

The Consultant shall identify all locations of the existing railway level crossings on the Project Highway. Data regarding number of closures per day shall be provided. Normally, all level crossings are to be replaced with ROBs/RUBs. However, the Consultant may propose retention of such railway crossings which are on sidings etc. where it would not be cost-effective to replace them with ROBs/RUBs. The Consultant shall prepare and submit indicative GADs of the proposed ROBs/RUBs including viaduct portion in the approaches based on preliminary consultation with the railway authorities concerned. (The GAD of ROBs/RUBs existing or under construction in the vicinity of the Project Highway could also be kept in view).

3.7 Protective works in hill sections, retaining walls, breast walls, etc.

For the stretches passing through hills, the Consultant shall identify the broad requirements of retaining walls, breastwalls, etc. for the purposes of preparing rough cost estimates.

3.8 Road signs, safety devices

- (a) The Consultant shall propose provision of Road Signs, Pavement Markings, Safety Barriers, Railings, Delineators, Chevron Markings, Traffic Attenuators, Road Boundary Stones, Km Stones, 200 m Stones. It shall also include Crash Barriers for existing bridges.
- (b) The Consultant shall propose overhead signs on the Project Highway and provide an outline of the same giving size and location.

3.9 Toll Plazas

The Consultant shall investigate and propose suitable location(s) for the Toll Plaza(s), within a range of 1000 m, keeping in view the requirements laid down in the Toll Rules, Model Concession Agreement and the Manual. It shall provide a typical layout plan for each Toll Plaza and indicate the additional land required keeping in view the requirements laid down in the Manual.

¹⁶ The Authority may specify whether surveys and investigations for any bypass shall form part of the Consultancy. In case the same is required, suitable additions in the TOR may be made, as necessary.

3.10 Truck laybys

The Consultant shall undertake field surveys and identify suitable locations for provision of truck laybys on the Project Highway. Truck laybys shall, in general, be located near check-barriers, interstate borders, places of conventional stops of the truck operators etc. The length of each such truck laybye shall also be indicated.

3.11 Bus bays and bus shelters

The Consultant shall undertake field surveys and identify suitable locations for provision of bus bays and bus shelters on the Project Highway. As far as possible, bus bays shall not be located on horizontal curves, summit of vertical curves and bridges. Good visibility must be ensured. Further, the bus bays should not be too close to major intersections. The length of each such bus bay shall also be indicated.

The Consultant shall also indicate the locations of bus stands/bus stops provided by the concerned State Transport Authorities on the Project Highway.

3.12 Wayside amenities

The Consultant shall identify suitable alternative locations measuring about [5 (five) hectares] each for a cluster of wayside amenities such as rest areas, medical facilities, cafeteria, service station, [shopping area, motel,] etc. for the convenience of commuters and the local population. The Consultant shall suggest two or three alternative locations within a span of about 2 (two) kilometres for selection by the Authority. Such wayside amenities may be located at intervals of 40 (forty) km each.

3.13 Safety

The Consultant shall demonstrate that the design suggested in the Feasibility Report, including the alignment of the Project, is in accordance with the Manual of Specifications and Standards, and will provide a safe environment for users. It will bring out in a separate chapter how the safety of the Project shall be improved as a result of the proposed works.

3.14 Social impact assessment

The Consultant shall undertake social impact assessment due to the improvements proposed on the Project Highway, especially the persons affected due to the Project and requiring resettlement and rehabilitation. The extant policies and guidelines of the government would be kept in view while undertaking the assessment. He shall prepare a plan for involuntary resettlement and land acquisition, which shall include the following:

- (a) Prepare in accordance with guidelines of the Government, a draft Resettlement and Land Acquisition Plan;

- (b) Prepare area specific social assessments to support development of a locally relevant approach to resettlement which provides benefits to people in the Project's area of influence, which include socioeconomic conditions, social service infrastructure, and social institutions and organization, in accordance with the Government policies and guidelines;
- (c) These social assessments should include gender and local ethnic aspects;
- (d) Provide recommendations and action plan for the Concessionaire to undertake, at the detailed design stage, a full census and inventory of lost assets (households, shops and agricultural and other lands, or access to current income-generating activities, including impacts caused by permanent or temporary acquisition) of affected people and a baseline socioeconomic survey of the affected population. Determine the scope and magnitude of likely resettlement and land acquisition effects, and list likely losses of households, agricultural lands, business and income opportunities, as well as affected communal assets and public buildings;
- (e) In consultation with local stakeholders, government and the Authority, develop an entitlement matrix, on the basis of the consultations, socio-economic surveys, and inventories of losses that will determine the amount of compensation in accordance with the guidelines and policies of the Government;
- (f) Prepare the plans with full stakeholder participation, including the Government and the Authority. Consult with affected persons and community-based organizations to ensure that all affected persons have been fully informed of their entitlements through the consultative processes initiated by the Government and the Authority. Ensure that communities and displaced persons understand the project, its impacts, and the responsibilities of the parties; and
- (g) Analyse and confirm the following aspects that will apply to land acquisition and resettlement in the project area: (i) laws and regulations, including local practices; (ii) budgetary processes for involuntary resettlement and land acquisition; (iii) schedules for these activities that are coordinated with the construction schedule; and (iv) administrative arrangements and requirements.

3.15 Environment impact assessment

- (a) The Consultant shall undertake environment impact assessment of the Project Highway as per provisions of the Applicable Laws on environment protection and identify a package of measures to reduce/eliminate the adverse impact identified during the assessment. An environmental impact assessment report and environmental management plan shall be prepared based on such assessment. The management plan shall include project specific mitigation and monitoring measures for identified impacts as well as management and monitoring plans to address them.

- (b) The Consultant shall also assist the Authority in conducting public hearings and addressing the comments and suggestions received during the EIA process with a view to getting environmental clearance from the competent authority.

3.16 Preliminary designs

The Consultant shall arrive at the preliminary designs of various components of the Project Highway keeping in view the requirements of the Manual and the scope of services described in this TOR. It shall be responsible for the accuracy of the physical details such as alignment, right of way, abutting land use, assets within the right of way including safety devices, utilities, trees, service roads, cross drainage structures, etc. The layout and preliminary designs shall be supplemented with explanatory drawings, statements, charts, notes as necessary.

3.17 Project cost

The Consultant shall work out indicative BOQ of various components and prepare rough cost estimates of the Project Highway with a break up of cost for each component separately. To the construction cost so arrived at, the Consultant may add 25% (twenty five per cent) thereof as a lumpsum provision for physical and price contingencies, interest during construction and other financing costs, pre-construction expenses etc.

3.18 Financial analysis and bid process

3.18.1 Detailed financial analysis is not required to be undertaken by the Consultant. However, the Consultant shall provide the estimated construction costs, operation and maintenance costs, traffic forecast, toll revenues etc. as part of its preliminary financial analysis and appraisal of the Project. The Consultant shall, also provide a preliminary assessment of the financial viability of the Project with a view to estimating the likely IRR over a concession period of 15 (fifteen) years, 20 (twenty) years and 25 (twenty five) years respectively. It shall also provide assistance during the Bid Process for selection of the Concessionaire.

3.18.2 While undertaking the financial analysis and projecting the IRR, the following assumptions shall be adopted:

- (a) Capital cost shall be adopted as per estimates of construction cost to which 25% (twenty five per cent) shall be added for physical and price contingencies, interest during construction, other financing costs etc.;
- (b) debt equity ratio may be assumed as 70:30;
- (c) O&M costs may be assumed as per norms of the Authority;
- (d) the concession period may be fixed by reference to the year in which the projected traffic would exceed the design capacity of the Project Highway; and

- (e) growth rate of traffic may be assumed at 5% (five per cent) per annum.

3.18.3 The Consultant shall:

- (a) calculate the NPV and EIRR for the Project. It will undertake sensitivity analysis by identifying the most critical factors and determine their impact on the EIRR, including varying project costs and benefits, implementation period, and combinations of these factors; and
- (b) conduct a risk analysis (using the Monte Carlo method) by considering the possible values for key variables based on records, and their occurrence probability.

3.18.4 If the IRR of the Project, based on the aforesaid calculations is less than 12% (twelve per cent), an effort should be made to reduce the capital costs in consultation with the Authority. This may be done either by omitting/modifying some of the proposed structures or by phasing them after a period of seven years or more, such that the IRR reaches a minimum of 12% (twelve per cent).

4. DELIVERABLES

The Consultant shall deliver the following deliverables (the “**Deliverables**”) during the course of this Consultancy. The Deliverables shall be so drafted that they could be given to the prospective bidders for guidance in preparation of their bids. Twenty hard copies and two soft copies in CDs of all the final reports, drawings, etc. shall be submitted to the Authority. For draft reports only 5 (five) hard copies and 1 (one) soft copy in CD shall be submitted to the Authority. The size of drawings shall be A-3 (maximum).

A. Inception Report

On commencement of the Consultancy, the Consultant shall submit an Inception Report. The Inception Report shall include the Consultant’s submissions towards understanding of the RFP, the methodology to be followed and the Work Plan. The Inception Report shall also include the Consultant’s proposal regarding the proposed locations of toll plazas and traffic survey stations (refer Paragraphs 3.2.1 and 3.9).

Within a period of four weeks of submission of the Inception Report, the Consultant shall submit a Supplementary Inception Report where it must clearly spell out the broad strategy for structuring the project in a manner that would restrict the likely viability gap funding to a level not exceeding 20% (twenty per cent) of the capital cost of the project assuming an IRR of 12% (twelve per cent). In making this assessment, the Consultant shall follow the assumptions specified in Paragraph 3.18 above. In particular, the Consultant must make realistic assumptions about the traffic projections and the resulting revenue streams with a view to making an assessment of the capital cost that can be sustained by such revenues. For this purpose, the Consultant shall undertake a 7 (seven) day classified traffic volume count and a topographic

survey to identify geometric improvements, new bridges etc. The project components should be so formulated as to make the project viable.

In determining its aforesaid strategy, the Consultant shall also seek the advice of the Authority. In the event that a viable project does not seem feasible, the Consultant shall not proceed with the Consultancy and the same shall stand terminated. The Consultant shall be entitled to a payment of 10% (ten per cent) of the Agreement Value upon such termination.

B. Report on Alignment and First Traffic Survey

- (i) The Consultant shall undertake topographic survey of the Project Highway, identify geometric deficiencies and construction of new bridges and other grade separated structures (refer Paragraph 3.3.2) and submit a Report on the alignment together with proposed geometric improvements. The Consultant shall finalise the alignment after taking into account the comments of the Authority on the Report on Alignment. The work of preparing cross-sections and Land Plans, etc. shall be undertaken based on the finalised alignment.
- (ii) The Consultant shall submit a Report on the first 7-day classified traffic volume count giving an analysis of hourly and daily variations. (Refer Paragraph 3.2.2).

C. Land Plan Schedules

- (i) Land Plan schedules for acquisition of additional land where required for widening of road, geometric improvements, new bridges and other grade separated structures, inter-sections, inter-changes, service roads etc. and land required for facilities such as toll plazas, truck laybys, bus bays, etc. (Refer Paragraph 3.3.2(i))
- (ii) Another plan of the Project Highway showing the existing ROW (along with all the existing assets within the ROW) and encroachments, if any, together with a list of such encroachments along with their brief description (Refer Paragraph 3.3.2(h)).
- (iii) Land Plan Schedules shall be provided separately for [Two-laning/ *Four-laning and Four-laning/ Six-laning*] respectively. The alignment for [Four-laning/ *Six-laning*] shall, to the extent possible, follow an eccentric approach to widening of the Project Highway.

D. Utility Relocation Plans

Utility-wise preliminary plans together with approximate costs for shifting/relocation shall be provided for Four-laning. Indicative Plans shall also be provided for Six-laning.

E. Reports on Environment and Social impact assessment

The Consultant shall submit reports on social impact assessment (Refer Paragraph 3.14) and environment impact assessment (Refer Paragraph 3.15).

F. Report on indicative GAD of Structures

The Consultant shall submit report on indicative GAD of bridges, ROBs/RUBs and grade separators (Refer Paragraphs 3.2.4, 3.2.5, 3.3.5 and 3.6).

G. Feasibility Report

The Feasibility Report of the Project shall include the following:

- (i) *Sets of Drawings*
 - (a) An Index Plan of the Project Highway
 - (b) Plans, L-sections, and typical cross-sections showing the existing features within the ROW (e.g. carriageway, structures, drains, crash barriers, service roads, utilities, adjoining land use, intersecting roads/access roads, road side developments etc.) with the proposed improvements marked thereon (e.g. raising of embankment, widening of embankment, location of median, placement of new carriageway, geometric improvements, widening or reconstruction of structures, new subways/underpasses/grade separators, service roads, arrangements for merging/diverging, traffic circulation, relocation of utilities, etc.) (Refer Paragraph 3.3.2).
- (ii) *Investigation Reports*
 - (a) Report on traffic survey and demand assessment (Refer Paragraph 3.2).
 - (b) Inventory survey report (Refer Paragraph 3.3.3).
 - (c) Road and bridge condition survey report (Refer Paragraphs 3.3.4 and 3.3.5).
 - (d) Soil, geotechnical and drainage report (Refer Paragraph 3.3.6).
- (iii) *Preliminary designs*

Preliminary designs of the Project Highway including service roads, consistent with the existing facility and the additional requirements including:

 - (i) Traffic and toll forecasting for 10 (ten), 15 (fifteen), 20 (twenty) and 25 (twenty five) years.
 - (ii) Preliminary pavement design for new carriageway and strengthening of existing carriageway along with typical cross-sections.

- (iii) Options for retention of existing bridges and other structures or their replacement by new structures together with preliminary design. For new bridges, the length from abutment to abutment shall not be less than the length of the existing bridge and foundations need not be above the existing foundations unless soil conditions justify otherwise.
 - (iv) Preliminary drainage assessment.
 - (v) Preliminary layout of inter-sections, grade separators and inter-changes with ramps.
- (iv) *Preliminary costing*
- (a) Indicative BOQ.
 - (b) Preliminary Cost Estimate for construction of Project Highway.
 - (c) Total Project Cost (Refer Paragraphs 3.17 and 3.18).
- (v) *Implementation schedule*
- (a) Construction period.
 - (b) Likely delays, if any, on account of land acquisition.

H. Schedules of Concession Agreement

The Consultant shall separately provide Schedules A, B, C, D and H of the Concession Agreement for the Project Highway with all supporting documentation relating to these Schedules. (See Appendix I of the Manual). Explanation of the specific requirements for the Project Highway is given in Paragraph 5 below.

I. Financial analysis

A preliminary financial assessment of the Project indicating the likely IRR for a 15 (fifteen) year, 20 (twenty) year and 25 (twenty five) year concession period respectively (Refer Paragraph 3.18).

The Consultant shall, based on the assumptions specified in Paragraph 3.18, indicate the likely viability gap funding for the project. In case the viability gap funding projected in the Feasibility Report exceeds the projection in the Inception Report by more than 10% (ten per cent) of the capital costs, a deduction of 10% (ten per cent) of the Agreement Value shall be made from the payment due to the Consultant. Such deduction shall be deemed to be mutually agreed genuine pre-estimated compensation and damages suffered by the Authority on account of inaccurate projections leading to higher costs.

J. Assistance during bid process

The Consultant shall provide the required assistance to the financial consultant and the legal adviser of the Authority in preparation of bid documents. The Consultant shall also participate in Pre-bid Conferences and assist in preparation of answers to the bidders' queries on technical aspects of the Project Highway and bid documents.

5. SPECIFIC REQUIREMENTS FOR THE PROJECT HIGHWAY

For preparing Schedules A, B, C, D and H of the Concession Agreement and other specific requirements (refer Appendix-I of the Manual), the Consultant shall:

- (a) Based on the Consultant's assessment of the time period until which Two-laning with paved shoulders of the Project Highway may not be required, the Consultant shall identify and indicate the list of stretches/sections where Two-laning and Two-laning with paved shoulders need to be provided by the Concessionaire (Refer Paragraph 1.14 of Manual).
- (b) Provide a list of stretches where roadway is proposed to be different from that provided in the Manual (Refer Paragraph 2.6 of Manual).
- (c) Provide a list of stretches of the Project Highway passing through urban limits and indicate the cross-section to be provided for each of these stretches including the requirement of footpaths if any. Also indicate if a bypass is necessary to avoid any specific urban stretch. If the TOR for the consultant obligates him to provide a feasibility report for the bypass, the same shall also be prepared and form part of the Deliverables (Refer Paragraphs 2.1(ii) and 2.5.2 of Manual).
- (d) Provide a linear Plan showing the land width across various stretches of the Project Highway. This should include details of any additional land being acquired or proposed to be acquired for improvement of geometrics, provision of intersections, grade separators, interchanges, service roads, toll plazas and project facilities. (Refer Sections 2, 3, 10 and 13 of Manual). The possibility of undertaking geometric improvements shall be examined and a report on cost-effectiveness of such proposals included.
- (e) Provide a list indicating locations of encroachments on the Project Highway along with a brief description thereof.
- (f) Provide a list of stretches where service roads are proposed together with their merging or otherwise at bridge locations. The Consultant shall also indicate the design traffic for determining the pavement composition of the service road if the forecast design traffic is more than one msa (Refer Paragraph 2.13 of Manual).

- (g) Provide a list of intersections, grade separators, interchanges, cattle and pedestrian under/over passes together with their locations, broad lay out, length of viaduct openings, and traffic circulation plan (Refer Paragraph 2.14 and Section 3 of Manual). The possibility of providing grade separators and interchanges with ramps in the second phase shall be examined and a report on cost-effectiveness of such a proposal included.
- (h) Provide a list of stretches identified for raising of embankment (Refer Paragraph 4.2 of Manual).
- (i) Provide a list of stretches on the Project Highway where:
 - (i) cement concrete pavement is to be provided (Refer Paragraph 5.1.2 of Manual);
 - (ii) reconstruction is proposed. Specify if pavement is proposed to be of cement concrete in such stretches. (Refer Paragraph 5.9.7 of Manual); and
 - (iii) width of paved shoulder proposed is different from 1.5 m (Refer Paragraph 5.9.9 of Manual). Specify width of paved shoulders in such stretches.
- (j) Prepare an addendum to Schedule-K of the Concession Agreement indicating the minimum performance and maintenance requirements for cement concrete pavements if these are proposed (Refer Paragraph 5.1.2 of Manual).
- (k) Specify overall width of structures more than 60 m in length (Refer Paragraph 7.1(ii) of Manual).
- (l) Provide a list of new structures where footpaths need to be provided (Refer Paragraph 7.1(iii) of Manual).
- (m) Provide specific recommendations for low-level bridges. Normally all bridges are required to be high-level bridges. However, there may be situations where an existing bridge is in a sound condition but may not be satisfying the requirement of a high-level bridge. Such structures shall be examined with a view to stipulating whether they need to be upgraded as high level bridges, together with reasons therefor. In such cases, construction of high-level bridges can also be phased out after seven years. (Refer Paragraph 7.1(iv) of Manual).
- (n) Provide a list of utility services which are required to be carried over structures (Refer Paragraph 7.1(viii) of Manual).
- (o) Provide a list of culverts to be reconstructed and/or widened (Refer Paragraph 7.3.1 (i) of Manual).
- (p) Provide a list of bridge structures including existing ROBs/RUBs to be reconstructed and/or widened (Refer Paragraph 7.3.2 (i) of Manual).

The possibility of postponing reconstruction of any bridge for a period of say 7 to 8 years shall be explored and indicated.

- (q) Specifically bring out the requirements of any special structures for any particular bridge on the Project Highway (Refer Paragraph 7.4(iv) of Manual).
- (r) Provide a list of stretches where reinforced earth wall is proposed together with maximum height of earth wall. Where the height of wall proposed is more than 6 m, reasons for the same may also be given. (Refer Paragraph 7.16.1 of Manual).
- (s) Provide a list of existing bridges where railings on them are proposed to be replaced by crash barriers (Refer Paragraph 7.18(iv) of Manual). The Consultant shall check the safety of the structure due to such replacement and provide a report to that effect.
- (t) Provide a list of existing bridges/culverts where parapets/railings are proposed to be repaired or replaced (Refer Paragraph 7.18(v) of Manual).
- (u) Provide a list of railway level crossings which need not be replaced with ROB/RUB (Refer Paragraph 7.1 (vi) of Manual).
- (v) Provide a list of structures under marine environment (Refer Paragraph 7.22 of Manual).
- (w) Provide a list of existing bridges/culverts where repairs/strengthening is proposed together with nature and extent of repairs (Refer Paragraph 7.23(i) of Manual).
- (x) Indicate specifications for reflecting sheeting for road signs whether High Intensity Grade with encapsulated lens or Microprismatic retro-reflective element material (Refer Paragraph 9.3.1. of Manual).
- (y) Indicate proposed location of toll plazas on the Project Highway (Refer Paragraphs 10.2 of Manual).
- (z) Provide a list of locations on the Project Highway where overhead traffic signs are proposed together with proposed size (Refer Paragraph 11.5.5 of Manual).
- (aa) Provide an estimate of the number of trees to be planted as compensatory afforestation (Refer Paragraph 12.1 of Manual).
- (ab) Provide a list of situations/locations where lighting shall be provided and maintained by the Concessionaire on the Project Highway (Refer Paragraph 13.3.3 of Manual).
- (ac) Provide a list of locations where truck laybys are proposed on the Project Highway (Refer Paragraph 13.4 of Manual).

- (ad) Provide a list of locations where bus bays and bus shelters are proposed on the Project Highway (Refer Paragraph 13.5 of Manual).
- (ae) Where the Project Highway passes through hills or ghats, provide a list of stretches where climbing lane is proposed for ease of movement of commercial vehicles (Refer Paragraph 14.5 of Manual).
- (af) Provide a list of sections/locations where tunnels may be required¹⁷ (Refer Paragraph 14.8 of Manual).
- (ag) Provide a list of existing retaining walls requiring repairs, strengthening or reconstruction (Refer Paragraph 14.10 of Manual).
- (ah) Provide a list of drawings that the Authority may require the Concessionaire to provide to the Independent Engineer as per Schedule-H of the Concession Agreement. (Indicative list at Attachment B of the TOR for reference).
- (ai) Provide utility wise indicative plans for shifting of existing utilities and construction of new utilities along or across the Project Highway in the first stage (see Paragraph 4D).

OR

- (a) *Provide utility wise preliminary plans for shifting of existing utilities and construction of new utilities along or across the Project Highway (Refer Paragraph 1.17 of Manual).*
- (b) *Based on the Consultant's assessment of the time period until which six-laning of the Project Highway may not be required, the Consultant shall identify and indicate the list of stretches/sections where six-laning need not be provided by the Concessionaire even when traffic actually exceeds the specified design service volume for a 4-lane highway (Refer Paragraph 2.18 of Manual).*
- (c) *Provide a list of stretches of the Project Highway passing through urban limits and indicate the cross-section to be provided for each of these stretches including the requirement of footpaths if any. Indicate specifically if the requirement of 6-laning within urban limits is dispensed with. Also indicate if a bypass is necessary to avoid any specific urban stretch. If the TOR for the Consultant obligates it to provide a feasibility report for the bypass, the same shall also be prepared and form part of the Deliverables (Refer Paragraphs 2.1(ii) and 2.6.2 of Manual).*
- (d) *Provide a linear Plan showing the land width across various stretches of the Project Highway. This should include details of any additional land being acquired or proposed to be acquired for improvement of*

¹⁷ The Authority may specify whether feasibility study of tunnel(s) shall form part of the Consultancy. In case the same is required, suitable addition in the TOR may be made, as necessary.

- geometrics, provision of intersections, grade separators, interchanges, service roads, toll plazas and project facilities. (Refer Sections 2, 3, 10 and 12 of Manual). The possibility of undertaking geometric improvements shall be examined and a report on cost-effectiveness of such proposals included.*
- (e) *Provide a list indicating locations of encroachments on the Project Highway along with a brief description thereof.*
 - (f) *Provide a list of stretches where flush or depressed median cannot be provided and indicate the width of raised portion of the median in such cases (Refer Paragraph 2.5.1 of Manual).*
 - (g) *Provide a list of stretches where service roads are proposed together with their merging or otherwise at bridge locations. The Consultant shall also indicate the design traffic for determining the pavement composition of the service road if the forecast design traffic is more than 2 (two) msa (Refer Paragraph 2.12.2 of Manual).*
 - (h) *Provide a list of intersections, grade separators, interchanges, cattle and pedestrian under/over passes together with their locations, broad lay out, length of viaduct openings, and traffic circulation plan (Refer Paragraph 2.13 and Section 3 of Manual). The possibility of providing grade separators and interchanges with ramps in second phase shall be examined and a report on cost-effectiveness of such a proposal included.*
 - (i) *Provide a list of stretches identified for raising of embankment (Refer Paragraph 4.2 of Manual).*
 - (j) *Provide a list of stretches on the Project Highway where:*
 - (i) *existing road portions are proposed to be strengthened with cement concrete pavement (Refer Paragraph 5.2.2 of Manual);*
 - (ii) *new construction on the widened portions is proposed to be provided with cement concrete pavement (Refer Paragraph 5.2.3 of Manual); and*
 - (iii) *reconstruction is proposed. Specify if pavement is proposed to be of cement concrete in such stretches (Refer Paragraph 5.9.4 of Manual).*
 - (k) *Prepare an addendum to Schedule-K of the Concession Agreement indicating the minimum performance and maintenance requirements for cement concrete pavements (Refer Paragraph 5.2.3 of Manual).*
 - (l) *Provide specific recommendations for low-level bridges. Normally all bridges are required to be high-level bridges. However, there may be situations where an existing bridge is in a sound condition but may not be satisfying the requirement of a high-level bridge. Such structures shall be examined with a view to stipulating whether they need to be*

upgraded as high level bridges, together with reasons therefor. In such cases, construction of high-level bridges can also be phased out after seven years (Refer Paragraph 7.1(iii) of Manual).

- (m) Provide a list of utility services which are required to be carried over structures (Refer Paragraph 7.1(viii) of Manual).*
- (n) Provide a list of culverts to be reconstructed and/or widened (Refer Paragraph 7.3(iii) (d) of Manual).*
- (o) Provide a list of bridge structures including existing ROBs/RUBs to be reconstructed and/or widened (Refer paragraph 7.3(iii) (f) of Manual). The possibility of postponing reconstruction of any bridge for a period of say 7 to 8 years shall be explored and indicated.*
- (p) Specifically bring out the requirements of any special structures like cable stayed or special super structure for any particular bridge on the Project Highway (Refer Paragraph 7.4(v) of Manual).*
- (q) Provide a list of stretches where reinforced earth wall is proposed together with maximum height of earth wall. Where the height of wall proposed is more than 6 m, reasons for the same may also be given (Refer Paragraph 7.15.1 of Manual).*
- (r) Provide a list of existing bridges where railings on them are proposed to be replaced by crash barriers (Refer Paragraph 7.17(iv) of Manual).*
- (s) Provide a list of existing bridges/culverts where parapets/railings are proposed to be repaired or replaced (Refer Paragraph 7.17(v) of Manual).*
- (t) Provide a list of railway level crossings which need not be replaced with ROB/RUB (Refer Paragraph 7.18.1 of Manual).*
- (u) Provide a list of structures under marine environment (Refer Paragraph 7.2.1 of Manual).*
- (v) Provide a list of existing bridges/culverts where repairs/strengthening is proposed together with nature and extent of repairs (Refer Paragraph 7.22(i) of Manual).*
- (w) Indicate specifications for reflecting sheeting for road signs whether High Intensity Grade with encapsulated lens or Microprismatic retro-reflective element material (Refer Paragraph 9.2.5 of Manual).*
- (x) Indicate proposed location of toll plazas on the Project Highway (Refer Paragraphs 10.2 of Manual).*
- (y) Provide a list of locations on the Project Highway where overhead traffic signs are proposed together with proposed size (Refer Paragraph 9.2.7 of Manual).*

- (z) *Provide an estimate of the number of trees to be planted as compensatory afforestation (Refer Paragraph 11.1 of Manual).*
- (aa) *Provide a list of situations/locations where lighting shall be provided and maintained by the Concessionaire on the Project Highway (Refer Paragraph 12.3.3 of Manual).*
- (ab) *Provide a list of locations where truck laybys are proposed on the Project Highway (Refer Paragraph 12.4 of Manual).*
- (ac) *Provide a list of locations where bus bays and bus shelters are proposed on the Project Highway (Refer Paragraph 12.5 of Manual).*
- (ad) *Where the Project Highway passes through hills or ghats, provide a list of stretches where climbing lane is proposed for ease of movement of commercial vehicles (Refer Paragraph 13.5 of Manual).*
- (ae) *Provide a list of sections/locations where tunnels may be required¹⁸ (Refer Paragraph 13.8 of Manual).*
- (af) *Provide a list of existing retaining walls requiring repairs, strengthening or reconstruction (Refer Paragraph 13.10 of Manual).*
- (ag) *Provide a list of drawings that the Authority may require the Concessionaire to provide to the Independent Engineer as per Schedule-H of the Concession Agreement (Indicative list at Attachment B of the TOR for reference).*
- (ah) *Provide utility wise indicative plans for shifting of existing utilities and construction of new utilities along or across the Project Highway in the first stage (see Paragraph 4D).*

6. TIME AND PAYMENT SCHEDULE

- 6.1 The total duration for preparation of the Feasibility Report and Schedules to the Concession Agreement shall be 18 (eighteen) weeks, excluding the time taken by the Authority in providing the requisite documents or in conveying its comments on the Draft Feasibility Report. The Consultant shall deploy its Key Personnel as per the Deployment of Personnel proposed. Intermittent services will be required beyond the 18th (eighteenth) week and until the end of 52 (fifty two) weeks or 2 (two) months after the signing of the Concession Agreement, whichever is earlier. The man-days required for the intermittent services shall be provided by the Consultant as per the Agreement.
- 6.2 Time schedule for important Deliverables (the “**Key Dates**”) of the Consultancy and the payment schedule linked to the specified Deliverables is given below:

¹⁸ The Authority may specify whether feasibility study of tunnel(s) shall form part of the Consultancy. In case the same is required, suitable addition in the TOR may be made, as necessary.

Key Date No.	Description of Deliverables	Week No.¹⁹	Payment
KD1	Inception Report	2	Nil
KD2	Report on Alignment (including proposed geometric improvements) and first traffic survey	8	15%
KD3	Report on Land Plan Schedules and Utility Relocation	12	10%
KD4	Report on Indicative GAD of structures (bridges, grade separators, ROB/RUBs)	13	10%
KD5	Report on Environment and Social Impact Assessment	14	10%
KD6	Draft Feasibility Report and Schedules to the Concession Agreement	16	25%
KD7	Final Feasibility Report	18 ^s	20%
KD8	Completion of Services including assistance during Bid Process	52	10%
	Total		100

^s Excludes the time taken by the Authority in providing its comments on the Draft Feasibility Report. The Consultant shall get one week for submission of the Final Feasibility Report after comments of the Authority are provided.

- 6.3 The TOR for the Consultant envisages assistance in the process of public hearings, etc. in respect of the Environment Impact Assessment (EIA) of the Project Highway specified in Paragraph 3.15. In the event that the process cannot be completed within the period specified herein for completion of Final Feasibility Report, the EIA Report may be completed and submitted to the Authority within an extended period of 6 (six) weeks after submission of the Feasibility Report. A sum equal to 5% (five per cent) of the total payment due shall be withheld and paid to the Consultant upon submission of the EIA Report and environment management plan.
- 6.4 Mobilization Advance upto 10% (ten per cent) of the total Agreement Value shall be paid on request against Bank Guarantee of a Scheduled Bank. This shall attract 10% (ten per cent) simple interest per annum and shall be adjusted against the first four bills in four equal instalments and the accrued interest shall be recovered from the fifth bill.
- 6.5 10% of the Agreement Value has been earmarked as Final Payment to be made to the Consultant upon execution of the Concession Agreement. In the event the Concession Agreement does not get executed within one year of the

¹⁹The time and payment schedules are indicative and may be suitably extended/ modified for highways exceeding 100 (one hundred) km in length.

Effective Date, the Final Payment shall not become due to the Consultant, save and except the costs incurred for meeting its reimbursable expenses during the period after expiry of 18 weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates.

7. MEETINGS

The Authority may review with the Consultant, any or all of the documents and advice forming part of the Consultancy, in meetings and conferences which will be held at the Authority's office. Further, the Consultant may be required to attend meetings and conferences with pre-qualified bidders or the selected bidder. The expenses towards attending such meetings during the period of Consultancy, including travel costs and *per diem*, shall be reimbursed in accordance with the Financial Proposal contained in Form-2 of Appendix-II of the RFP. The days required to be spent at the office of the Authority shall be computed at the rate of 8 (eight) man hours a day in case of an outstation Consultant. For a Consultant having its office within or near the city where the Authority's office is situated, the time spent during meetings at the Authority's office shall be calculated as per actuals. No travel time shall be payable except in case of an expatriate Consultant who will be entitled to claim actual travel time, subject to a maximum of 10 (ten) man hours for a return journey.

8. CONSULTANCY TEAM

- 8.1 The Consultant shall form a multi-disciplinary team (the "**Consultancy Team**") for undertaking this assignment. The following Key Personnel whose experience and responsibilities are briefly described herein would be considered for evaluation of the Technical Proposal. Other expertise such as that required for financial analysis, pavement design, material investigation characterisation, quantity survey, social impact assessment etc. for the Project Highway shall be included in the Team either through the Key Personnel specified below or through other Professional Personnel, as necessary.

(a) Senior Highway Engineer-cum-Team Leader

Educational Qualifications	Graduate in Civil Engineering
Essential Experience	10 (ten) years in planning, project preparation and design of highway projects.
Job responsibilities	He will lead, coordinate and supervise the multi-disciplinary team. It will be his responsibility to guide the team in arriving at solutions within the constraints specified in the TOR.
Minimum time required on site	[30 (thirty) days]

(b) Bridge Engineer

Educational Qualifications	Graduate in Civil Engineering
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Essential Experience	7 (seven) years in analysis of condition of existing bridges and design of major highway bridges, flyovers, road over bridges
Job responsibilities	He will be responsible for suggesting options for retention of existing bridges or their replacement and propose preliminary design solutions under the constraints described in the TOR.
Minimum time required at site	[20 (twenty) days]

(c) **Traffic-cum-Safety Expert**

Educational Qualifications	Post Graduate in Traffic and/or Transportation Engineering or Planning
Essential Experience	7 (seven) years' experience in traffic surveys and studies, traffic safety facilities, etc. on highway projects.
Job responsibilities	He will be responsible for suggesting the broad layout of intersections, interchanges, grade separators and assessment of traffic forecast on the Project Highway, road safety devices etc.
Minimum time required at site	[20 (twenty) days]

(d) **Surveyor**

Educational Qualifications	Graduate in Civil Engineering or Diploma in Civil Engineering or Diploma in Surveying
Essential Experience	7 (seven) years' experience in surveying on highway projects
Job responsibilities	He will be responsible for quick traverse survey of the alignment, cross section, l-section, strip plan, land-use, etc. of the Project Highway.
Minimum time required at site	[40 (forty) days]

(e) **Financial Analyst**

Educational Qualifications	Post Graduate in Commerce/ Chartered Accountant or equivalent.
Essential Experience	7 (seven) years' experience in financial analysis and modelling of infrastructure projects.
Job responsibilities	He will be responsible for financial analysis and modelling of the Project.
Minimum time required at site	[2 (two) days]

(f) **Environmental Expert**

Educational Qualifications	Masters/Bachelor in Environmental Science or equivalent
Essential Experience	7 (seven) years' experience in environmental

	studies
Job responsibilities	He will conduct the environmental impact assessment of the Project
Minimum time required at site	[7 (seven) days]

- 8.2 The Consultant shall establish a Project Office at a suitable location in or near the city where the Authority's office or the Project is situated, for efficient and coordinated performance of its Services. All the Key Personnel shall be deployed at this office during the first 16 (sixteen) weeks as specified in the Manning Schedule forming part of the Agreement. The authorised officials of the Authority may visit the Consultant's Project Office any time during office hours for inspection and interaction with the Consultant's Personnel. It is not expected of the Consultant to carry out the operations from the Head/Home Office. However, he may do so for the remaining consultancy services beyond the first 16 (sixteen) weeks.⁵
- 8.3 The Consultant shall mobilise and demobilise its Professional Personnel and Support Personnel with the concurrence of the Authority and shall maintain the time sheet/ attendance sheet of the working of all Personnel in the Project Office. These time sheets/ attendance sheets shall be made available to the Authority as and when asked for and a copy of such record shall be submitted to the Authority at the end of each calendar month.

9. REPORTING

- 9.1 The Consultant will work closely with the Authority. The Authority has established a Working Group (the "WG") to enable conduct of this assignment. A designated Project Director of the Authority will be responsible for the overall coordination and project development. He will play a coordinating role in dissemination of the Consultant's outputs, facilitating discussions, and ensuring required reactions and responses to the Consultant.
- 9.2 The Consultant may prepare Issue Papers highlighting issues that could become critical for the timely completion of the Project and that require attention from the Authority.
- 9.3 The Consultant will make a presentation on the Inception Report for discussion with the WG at a meeting. This will be a working document. The Consultant is required to prepare and submit a monthly report that includes and describes, *inter alia*, general progress to date; data and reports obtained and reviewed, conclusions to date, if any; concerns about availability of, or access to, data, analyses, reports; questions regarding the TOR or any other matters regarding work scope and related issues; and so on. The Consultants' work on the TOR tasks should continue while the report is under consideration and is being discussed.

⁵This Paragraph 8.2 shall not apply if the Agreement Value is less than Rs. 50 (fifty) lakh for the Consultancy.

- 9.4 Regular communication with the WG and the Project Director is required in addition to all key communications. This may take the form of telephone/teleconferencing, emails, faxes, and occasional meetings.
- 9.5 The Deliverables will be submitted as per schedule provided in this RFP.

10. DATA AND SOFTWARE TO BE MADE AVAILABLE BY THE AUTHORITY

The Authority shall provide to the Consultant the following:

- (a) A copy of the Manual of Specifications and Standards for Four-laning of highways.
- (b) A copy of the Manual of Specifications and Standards for Six-laning of highways.
- (c) A copy of the Model Concession Agreement.
- (d) A copy of the Toll Rules.

Available data as may be required by the Consultant will be provided by the Authority on request. The Nodal Officer designated by the Authority shall facilitate handing over of such information to the Consultant.

11. COMPLETION OF SERVICES

- 11.1 All the study outputs including primary data shall be compiled, classified and submitted by the Consultant to the Authority in soft form apart from the reports indicated in the Deliverables (Paragraph 4). The study outputs shall remain the property of the Authority and shall not be used for any purpose other than that intended under these Terms of Reference without the permission of the Authority. The Consultancy shall stand completed on acceptance by the Authority of all the Deliverables of the Consultant and execution of the Concession Agreement or 52 (fifty two) weeks from the Effective Date, whichever is earlier. The Authority shall issue a certificate to that effect. The Consultancy shall in any case be deemed to be completed upon expiry of [1 (one)] year from the Effective Date, unless extended by mutual consent of the Authority and the Consultant.
- 11.2 10% (ten per cent) of the Agreement Value has been earmarked as lump sum payment to be made to the Consultant upon execution of the Concession Agreement (the “**Lump Sum Payment**”). In consideration of the Lump Sum Payment, the Consultant shall provide such services as may be required by the Authority for concluding the Bid Process and execution of the Concession Agreement. In the event the Concession Agreement does not get executed within one year of the Effective Date, the Consultancy shall stand completed as specified in Paragraph 11.1 above, but no Lump Sum Payment shall be due to the Consultant, save and except the costs incurred for meeting its expenses during the period after expiry of 18 (eighteen) weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates specified in

Annex-3 of the Agreement, which shall be reimbursed to the Consultant as per actuals. For the avoidance of doubt, it is agreed that reimbursement of such costs on travel and personnel shall be due to the Consultant as aforesaid, even if the Concession Agreement is not executed.

Topographic Survey

1. The field surveys would be sufficiently detailed to meet the following objectives:
 - (i) Finalising the alignment and location of the proposed carriageway including location of new bridges and other grade separated structures.
 - (ii) Preliminary layout of intersections and grade separators.
 - (iii) Preparation of Land Plans for acquisition of additional land where necessary.
 - (iv) Plans for shifting and relocation of utilities.

2. The field surveys shall be carried out using high precision instruments, i.e. total stations and would cover the following activities:
 - (i) Running a continuous open traverse along the existing road and realignments, wherever required to improve geometrics.
 - (ii) Collection of details for all features such as structures (bridges, culverts, etc.) utilities, existing roads, electric and telephone installations (both O/H as well as underground), huts, buildings, fencing, trees, oil and gas lines, etc. falling within the extent of survey.

3. The width of survey corridor shall be as under:
 - (i) The topographic surveys shall cover sufficient width beyond the centre line of the proposed carriageway, considering the height of the embankment. The width of the survey corridor shall take into account the existing land width, realignments, service roads, if any, layout of intersections, extent of embankment and cut slopes and the general ground profile.
 - (ii) In case need for bypassing the congested locations is felt and the feasibility study for the bypass is included in the TOR, preliminary survey would be carried out along the possible alignments in order to identify and select the most suitable alignment for the bypass. The final alignment shall be got approved by the Authority. Further surveys shall be carried out along the final alignment.
 - (iii) Where existing roads cross the alignment, the survey shall extend to a minimum of 100 (one hundred) m on either side of the road centre line and shall be for sufficient width to allow improvements, including at grade intersection.

4. The important features of the survey conducted and the reference points taken in consideration like GPS bench mark, temporary and permanent bench marks, etc. shall be listed in appropriate formats.

Indicative List of Drawings for Schedule-H of the Concession Agreement

1. Drawings of horizontal alignment, vertical profile and cross-sections.
2. Drawings of cross drainage works.
3. Drawings of major intersections, interchanges, grade separators, underpasses and ROBs/RUBs.
4. Drawings of toll plaza layout, toll collection systems and roadway approaching and exiting toll plaza.
5. Drawings of Traffic Control Centre (if envisaged) and HTMS.
6. Drawings of bus-bays and bus shelters with furniture and drainage system.
7. Drawings of truck lay byes with furniture and drainage system.
8. Drawings of road furniture items including traffic signs, pavement markings, safety barriers, etc.
9. Drawings of traffic diversion plans and traffic control measures in construction zones.
10. Drawings of road drainage measures.
11. Drawings of typical details for slope protection measures.
12. Drawings of landscaping and horticulture.
13. Drawings of pedestrian and cattle crossings.
14. Drawings of street lighting.
15. General arrangement of Base camp and Administrative Block.

**Proforma-1
ROAD INVENTORY**

Date of Survey :

Section: km to km.....

Chainage	Type of Terrain	Land Use ^s	Right of Way (m)	Roadway Width (m)	Carriageway		Shoulder		Average height of Embankment or depth of cutting (m)	Road side drain		Service Roads, if any	Remarks
					Type ^{\$\$}	Width (m)	Type ^{\$\$}	Width (m)		Exists (F/NF) [£]	Does not exist ^{££}		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
km to km													

^s Land use, indicate built-up, agriculture, barren, industrial, forest etc.

^{\$\$} For type of carriageway/shoulder, indicate CC/BT/Metalled/Gravel/Earth

[£] F= Functional; NF = Non-functional

^{££} If side drain does not exist, put a X mark.

Remarks: Indicate history of submergence or any other information of significance.

Indicate sections in built up area, sections requiring raising.

Proforma-2

INVENTORY AND CONDITION SURVEY FOR CULVERTS

Date of Survey :

Section: kmto km.....

S.No.	Location (chainage)	Type of structure (RCC Box/ Slab/Pipe/ Masonry Arch)	Length (m)	Span arrangement		Width of culvert		Height above Bed level		Condition Assessment [§]			
				Number of Spans	Width of span (m)	Total (m)	Carriageway (m)	u/s side (m)	d/s side (m)	Box, slab, pipe, arch	Head wall	Wing wall	Return wall
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Condition Assessment		Whether waterway adequate (Yes/No)	Remarks
Parapet/ Handrail	Recommendation on widening / reconstruction etc		
15	16	17	18

[§] Distressed requiring reconstruction

[§] Not distressed, only widening required

[§] No widening or reconstruction required

Remarks: Indicate presence of protection works, scour etc. A detailed note should be furnished separately for each culvert proposed for reconstruction, and/or addition of span (waterway).

Proforma-3

**INVENTORY OF STRUCTURES
(Bridges and other Structures)**

Date of Survey :

Section: kmto km.....

Location (Chainage)	Year of Construction	Type of Structure			Type of Bearing	Type of Expansion Joint	Type of Wearing Coat	Whether High level Yes/No	Length (m) [§]	Span or viaduct arrangement		Average vertical clearance ^{§§} (m)	Width of carriageway between kerbs (m)
		Super structure	Sub structure	Foundation						Number of Spans	Length of span (m)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Width of Footpath (m)	Whether water way adequate (Yes/No)	High flood level (HFL)	Low Water Level (LWL)	Design Discharge (cusecs)	Maximum Design velocity (m/sec)	Protection work		Remarks
						Bed	Approaches	
15	16	17	18	19	20	21	22	23

[§] face to face of dirt wall

^{§§} Below bottom of girder/soffit

Remarks: Indicate any other feature considered important

**Proforma-4
ROAD CONDITION SURVEY**

Date of Survey :

Section: kmto km

Chainage	Visual condition of pavement (Good/Fair/ Poor)	Visual condition of shoulders (Good/Fair/ Poor)	Visual condition of roadside drains (Good/Fair/ Poor)	Visual condition of side slopes and embankment (Good/Fair/ Poor)	Length affected with shoulder drop more than 50 mm		Remarks
					LHS (m)	RHS (m)	
1	2	3	4	5	6	7	8
km 0.000 to km 1.000 km 1.000 to km 2.000							

Notes: (1) Information will be given in block of one km each, i.e. from km 0.000 to 1.000 km, 1.000 to 2.000, etc.
 (2) Shoulder drop will be counted when it is more than 50 mm in depth.

**Proforma-5
BRIDGE CONDITION SURVEY
(Bridges and other Structures)**

Date of Survey :

Section: kmto km

Location (chainage)	Type of structure	Flooding history	Condition of											Remarks [§]	
			Bearings	Expansion joints	Wearing coat	Parapets/ Railings/crash barriers	Foundations	Abutments	Piers	Super Structure	Approach slabs	Guide bunds	Other protective works		Other items (specify)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

[§]Indicate whether the structure requires widening, reconstruction, repairs and/or rehabilitation, addition of span (waterway)

[§]A detailed report should be furnished for each structure proposed for reconstruction and /or addition of span (increase in length).

SCHEDULE-2
(See Clause 2.1.3)

AGREEMENT

FOR

PREPARATION OF FEASIBILITY REPORT FOR

..... Project

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AGREEMENT

Preparation of Feasibility Report for Project

This AGREEMENT (hereinafter called the “**Agreement**”) is made on the day of the month of 20..., between, on the one hand, the [President of India acting through] (hereinafter called the “**Authority**” which expression shall include their respective successors and permitted assigns, unless the context otherwise requires) and, on the other hand, (hereinafter called the “**Consultant**” which expression shall include their respective successors and permitted assigns).

WHEREAS

- (A) The Authority vide its Request for Proposal for Preparation of Feasibility Report (hereinafter called the “**Consultancy**”) for the Project (hereinafter called the “**Project**”);
- (B) the Consultant submitted its proposals for the aforesaid work, whereby the Consultant represented to the Authority that it had the required professional skills, and in the said proposals the Consultant also agreed to provide the Services to the Authority on the terms and conditions as set forth in the RFP and this Agreement; and
- (C) the Authority, on acceptance of the aforesaid proposals of the Consultant, awarded the Consultancy to the Consultant vide its Letter of Award dated (the “**LOA**”); and
- (D) in pursuance of the LOA, the parties have agreed to enter into this Agreement.

NOW, THEREFORE, the parties hereto hereby agree as follows:

1. GENERAL

1.1 Definitions and Interpretation

1.1.1 The words and expressions beginning with capital letters and defined in this Agreement shall, unless the context otherwise requires, have the meaning hereinafter respectively assigned to them:

- (a) “**Additional Costs**” shall have the meaning set forth in Clause 6.1.2;
- (b) “**Agreement**” means this Agreement, together with all the Annexes;
- (c) “**Agreement Value**” shall have the meaning set forth in Clause 6.1.2;
- (d) “**Applicable Laws**” means the laws and any other instruments having the force of law in India as they may be issued and in force from time to time;

- (e) “**Confidential Information**” shall have the meaning set forth in Clause 3.3;
- (f) “**Conflict of Interest**” shall have the meaning set forth in Clause 3.2 read with the provisions of RFP;
- (g) “**Dispute**” shall have the meaning set forth in Clause 9.2.1;
- (h) “**Effective Date**” means the date on which this Agreement comes into force and effect pursuant to Clause 2.1;
- (i) “**Expatriate Personnel**” means such persons who at the time of being so hired had their domicile outside India;
- (j) “**Government**” means the Government of
- (k) “**INR, Re. or Rs.**” means Indian Rupees;
- (l) “**Member**”, in case the Consultant consists of a joint venture or consortium of more than one entity, means any of these entities, and “**Members**” means all of these entities;
- (m) “**Party**” means the Authority or the Consultant, as the case may be, and Parties means both of them;
- (n) “**Personnel**” means persons hired by the Consultant or by any Sub-Consultant as employees and assigned to the performance of the Services or any part thereof;
- (o) “**Resident Personnel**” means such persons who at the time of being so hired had their domicile inside India;
- (p) “**RFP**” means the Request for Proposal document in response to which the Consultant’s proposal for providing Services was accepted;
- (q) “**Services**” means the work to be performed by the Consultant pursuant to this Agreement, as described in the Terms of Reference hereto;
- (r) “**Sub-Consultant**” means any entity to which the Consultant subcontracts any part of the Services in accordance with the provisions of Clause 4.7; and
- (s) “**Third Party**” means any person or entity other than the Government, the Authority, the Consultant or a Sub-Consultant.

All terms and words not defined herein shall, unless the context otherwise requires, have the meaning assigned to them in the RFP.

- 1.1.2 The following documents along with all addenda issued thereto shall be deemed to form and be read and construed as integral parts of this Agreement and in case of any contradiction between or among them the priority in which

a document would prevail over another would be as laid down below beginning from the highest priority to the lowest priority:

- (a) Agreement;
- (b) Annexes of Agreement;
- (c) RFP; and
- (d) Letter of Award.

1.2 Relation between the Parties

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

1.3 Rights and obligations

The mutual rights and obligations of the Authority and the Consultant shall be as set forth in the Agreement, in particular:

- (a) the Consultant shall carry out the Services in accordance with the provisions of the Agreement; and
- (b) the Authority shall make payments to the Consultant in accordance with the provisions of the Agreement.

1.4 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts in the State in which the Authority has its headquarters shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

1.5 Language

All notices required to be given by one Party to the other Party and all other communications, documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

1.6 Table of contents and headings

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

1.7 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

- (a) in the case of the Consultant, be given by e-mail and by letter delivered by hand to the address given and marked for attention of the Consultant's Representative set out below in Clause 1.10 or to such other person as the Consultant may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside the city specified in Sub-clause (b) below may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by e-mail to the number as the Consultant may from time to time specify by notice to the Authority;
- (b) in the case of the Authority, be given by e-mail and by letter delivered by hand and be addressed to the Authority with a copy delivered to the Authority Representative set out below in Clause 1.10 or to such other person as the Authority may from time to time designate by notice to the Consultant; provided that if the Consultant does not have an office in the same city as the Authority's office, it may send such notice by e-mail and by registered acknowledgement due, air mail or by courier; and
- (c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of e-mail, it shall be deemed to have been delivered on the working days following the date of its delivery.

1.8 Location

The Services shall be performed at the site of the Project in accordance with the provisions of RFP and at such locations as are incidental thereto, including the offices of the Consultant.

1.9 Authority of Member-in-charge

In case the Consultant consists of a consortium of more than one entity, the Parties agree that the Lead Member shall act on behalf of the Members in exercising all the Consultant's rights and obligations towards the Authority under this Agreement, including without limitation the receiving of instructions and payments from the Authority.

1.10 Authorised Representatives

- 1.10.1 Any action required or permitted to be taken, and any document required or permitted to be executed, under this Agreement by the Authority or the

Consultant, as the case may be, may be taken or executed by the officials specified in this Clause 1.10.

1.10.2 The Authority may, from time to time, designate one of its officials as the Authority Representative. Unless otherwise notified, the Authority Representative shall be:

.....

.....

Tel:

Mobile:

Email:

1.10.3 The Consultant may designate one of its employees as Consultant's Representative. Unless otherwise notified, the Consultant's Representative shall be:

.....

.....

Tel:

Mobile:

Email:

1.11 Taxes and duties

Unless otherwise specified in the Agreement, the Consultant shall pay all such taxes, duties, fees and other impositions as may be levied under the Applicable Laws and the Authority shall perform such duties in regard to the deduction of such taxes as may be lawfully imposed on it.

2. COMMENCEMENT, COMPLETION AND TERMINATION OF AGREEMENT

2.1 Effectiveness of Agreement

This Agreement shall come into force and effect on the date of this Agreement (the "**Effective Date**").

2.2 Commencement of Services

The Consultant shall commence the Services within a period of 7 (seven) days from the Effective Date, unless otherwise agreed by the Parties.

2.3 Termination of Agreement for failure to commence Services

If the Consultant does not commence the Services within the period specified in Clause 2.2 above, the Authority may, by not less than 2 (two) weeks' notice to the Consultant, declare this Agreement to be null and void, and in the event of such a declaration, the Bid Security of the Consultant shall stand forfeited.

2.4 Expiry of Agreement

Unless terminated earlier pursuant to Clauses 2.3 or 2.9 hereof, this Agreement shall, unless extended by the Parties by mutual consent, expire upon the earlier of (i) expiry of a period of 90 (ninety) days after the delivery of the final deliverable to the Authority; and (ii) the expiry of [1 (one) year] from the Effective Date. Upon Termination, the Authority shall make payments of all amounts due to the Consultant hereunder.

2.5 Entire Agreement

2.5.1 This Agreement and the Annexes together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn; provided, however, that the obligations of the Consultant arising out of the provisions of the RFP shall continue to subsist and shall be deemed to form part of this Agreement.

2.5.2 Without prejudice to the generality of the provisions of Clause 2.5.1, on matters not covered by this Agreement, the provisions of RFP shall apply.

2.6 Modification of Agreement

Modification of the terms and conditions of this Agreement, including any modification of the scope of the Services, may only be made by written agreement between the Parties. Pursuant to Clauses 4.2.3 and 6.1.3 hereof, however, each Party shall give due consideration to any proposals for modification made by the other Party.

2.7 Force Majeure

2.7.1 Definition

(a) For the purposes of this Agreement, "**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-Consultant or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both (A) take into account at the time of the conclusion of this Agreement, and (B) avoid or overcome in the carrying out of its obligations hereunder.
- (c) Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

2.7.2 No breach of Agreement

The failure of a Party to fulfil any of its obligations hereunder shall not be considered to be a breach of, or default under, this Agreement 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 Agreement.

2.7.3 Measures to be taken

- (a) A Party affected by an event of Force Majeure shall take all reasonable measures to remove such Party's inability to fulfil 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 14 (fourteen) 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 minimise the consequences of any event of Force Majeure.

2.7.4 Extension of time

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

2.7.5 Payments

During the period of its inability to perform the Services as a result of an event of Force Majeure, the Consultant shall be entitled to be reimbursed for Additional Costs reasonably and necessarily incurred by it during such period for the purposes of the Services and in reactivating the Services after the end of such period.

2.7.6 Consultation

Not later than 30 (thirty) days after the Consultant has, as the result of an event of Force Majeure, 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 of Agreement

The Authority may, by written notice of suspension to the Consultant, suspend all payments to the Consultant hereunder if the Consultant shall be in breach of this Agreement or shall fail to perform any of its obligations under this Agreement, including the carrying out of the Services; provided that such notice of suspension (i) shall specify the nature of the breach or failure, and (ii) shall provide an opportunity to the Consultant to remedy such breach or failure within a period not exceeding 30 (thirty) days after receipt by the Consultant of such notice of suspension.

2.9 Termination of Agreement

2.9.1 By the Authority

The Authority may, by not less than 30 (thirty) days' written notice of termination to the Consultant, such notice to be given after the occurrence of any of the events specified in this Clause 2.9.1, terminate this Agreement if:

- (a) the Consultant fails to remedy any breach hereof or any failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause 2.8 hereinabove, within 30 (thirty) days of receipt of such notice of suspension or within such further period as the Authority may have subsequently granted in writing;
- (b) the Consultant becomes insolvent or bankrupt or enters into any agreement with its creditors for relief of debt or take advantage of any law for the benefit of debtors or goes into liquidation or receivership whether compulsory or voluntary;
- (c) the Consultant fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 9 hereof;
- (d) the Consultant submits to the Authority a statement which has a material effect on the rights, obligations or interests of the Authority and which the Consultant knows to be false;
- (e) any document, information, data or statement submitted by the Consultant in its Proposals, based on which the Consultant was considered eligible or successful, is found to be false, incorrect or misleading;
- (f) as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than 60 (sixty) days; or

- (g) the Authority, in its sole discretion and for any reason whatsoever, decides to terminate this Agreement.

2.9.2 By the Consultant

The Consultant may, by not less than 30 (thirty) days' written notice to the Authority, such notice to be given after the occurrence of any of the events specified in this Clause 2.9.2, terminate this Agreement if:

- (a) the Authority fails to pay any money due to the Consultant pursuant to this Agreement and not subject to dispute pursuant to Clause 9 hereof within 45 (forty five) days after receiving written notice from the Consultant that such payment is overdue;
- (b) the Authority is in material breach of its obligations pursuant to this Agreement and has not remedied the same within 45 (forty five) days (or such longer period as the Consultant may have subsequently granted in writing) following the receipt by the Authority of the Consultant's notice specifying such breach;
- (c) as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than 60 (sixty) days; or
- (d) the Authority fails to comply with any final decision reached as a result of arbitration pursuant to Clause 9 hereof.

2.9.3 Cessation of rights and obligations

Upon termination of this Agreement pursuant to Clauses 2.3 or 2.9 hereof, or upon expiration of this Agreement pursuant to Clause 2.4 hereof, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, or which expressly survive such Termination; (ii) the obligation of confidentiality set forth in Clause 3.3 hereof; (iii) the Consultant's obligation to permit inspection, copying and auditing of such of its accounts and records set forth in Clause 3.6, as relate to the Consultant's Services provided under this Agreement; and (iv) any right or remedy which a Party may have under this Agreement or the Applicable Law.

2.9.4 Cessation of Services

Upon termination of this Agreement by notice of either Party to the other pursuant to Clauses 2.9.1 or 2.9.2 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 Consultant and equipment and materials furnished by the Authority, the Consultant shall proceed as provided respectively by Clauses 3.9 or 3.10 hereof.

2.9.5 Payment upon Termination

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

- (i) remuneration pursuant to Clause 6 hereof for Services satisfactorily performed prior to the date of termination;
- (ii) reimbursable expenditures pursuant to Clause 6 hereof for expenditures actually incurred prior to the date of termination; and
- (iii) except in the case of termination pursuant to sub-clauses (a) through (e) of Clause 2.9.1 hereof, reimbursement of any reasonable cost incidental to the prompt and orderly termination of the Agreement including the cost of the return travel of the Consultant's personnel.

2.9.6 Disputes about Events of Termination

If either Party disputes whether an event specified in Clause 2.9.1 or in Clause 2.9.2 hereof has occurred, such Party may, within 30 (thirty) days after receipt of notice of termination from the other Party, refer the matter to arbitration pursuant to Clause 9 hereof, and this Agreement shall not be terminated on account of such event except in accordance with the terms of any resulting arbitral award.

3. OBLIGATIONS OF THE CONSULTANT

3.1 General

3.1.1 Standards of Performance

The Consultant shall perform the Services and carry out its 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 Consultant shall always act, in respect of any matter relating to this Agreement or to the Services, as a faithful adviser to the Authority, and shall at all times support and safeguard the Authority's legitimate interests in any dealings with Sub-Consultants or Third Parties.

3.1.2 Terms of Reference

The scope of services to be performed by the Consultant is specified in the Terms of Reference (the "**TOR**") at Annex-1 of this Agreement. The Consultant shall provide the Deliverables specified therein in conformity with the time schedule stated therein.

3.1.3 Applicable Laws

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

3.2 Conflict of Interest

3.2.1 The Consultant shall not have a Conflict of Interest and any breach hereof shall constitute a breach of the Agreement.

3.2.2 Consultant and Affiliates not to be otherwise interested in the Project

The Consultant agrees that, during the term of this Agreement and after its termination, the Consultant or any Associate thereof and any entity affiliated with the Consultant, as well as any Sub-Consultant and any entity affiliated with such Sub-Consultant, shall be disqualified from providing goods, works, services, loans or equity for any project resulting from or closely related to the Services and any breach of this obligation shall amount to a Conflict of Interest; provided that the restriction herein shall not apply after a period of five years from the completion of this assignment or to consulting assignments granted by banks/ lenders at any time; provided further that this restriction shall not apply to consultancy/ advisory services provided to the Authority in continuation of this Consultancy or to any subsequent consultancy/ advisory services provided to the Authority in accordance with the rules of the Authority. For the avoidance of doubt, an entity affiliated with the Consultant shall include a partner in the Consultant's firm or a person who holds more than 5% (five per cent) of the subscribed and paid up share capital of the Consultant, as the case may be, and any Associate thereof.

3.2.3 Prohibition of conflicting activities

Neither the Consultant nor its Sub-Consultant nor the Personnel of either of them shall engage, either directly or indirectly, in any of the following activities:

- (a) during the term of this Agreement, any business or professional activities which would conflict with the activities assigned to them under this Agreement;
- (b) after the termination of this Agreement, such other activities as may be specified in the Agreement; or
- (c) at any time, such other activities as have been specified in the RFP as Conflict of Interest.

3.2.4 Consultant not to benefit from commissions, discounts, etc.

The remuneration of the Consultant pursuant to Clause 6 hereof shall constitute the Consultant's sole remuneration in connection with this Agreement or the Services and the Consultant shall not accept for its own

benefit any trade commission, discount or similar payment in connection with activities pursuant to this Agreement or to the Services or in the discharge of its obligations hereunder, and the Consultant shall use its best efforts to ensure that any Sub-Consultant, as well as the Personnel and agents of either of them, similarly shall not receive any such additional remuneration.

- 3.2.5 The Consultant and its Personnel shall observe the highest standards of ethics and shall not have engaged in and shall not hereafter engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the “**Prohibited Practices**”). Notwithstanding anything to the contrary contained in this Agreement, the Authority shall be entitled to terminate this Agreement forthwith by a communication in writing to the Consultant, without being liable in any manner whatsoever to the Consultant, if it determines that the Consultant has, directly or indirectly or through an agent, engaged in any Prohibited Practices in the Selection Process or before or after entering into of this Agreement. In such an event, the Authority shall forfeit and appropriate the performance security, if any, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority towards, *inter alia*, the time, cost and effort of the Authority, without prejudice to the Authority’s any other rights or remedy hereunder or in law.
- 3.2.6 Without prejudice to the rights of the Authority under Clause 3.2.5 above and the other rights and remedies which the Authority may have under this Agreement, if the Consultant is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any Prohibited Practices, during the Selection Process or before or after the execution of this Agreement, the Consultant shall not be eligible to participate in any tender or RFP issued during a period of 2 (two) years from the date the Consultant is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any Prohibited Practices.
- 3.2.7 For the purposes of Clauses 3.2.5 and 3.2.6, the following terms shall have the meaning hereinafter respectively assigned to them:
- (a) “**corrupt practice**” means (i) the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Selection Process (for removal of doubt, offering of employment or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly with Selection Process or LOA or dealing with matters concerning the Agreement before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Selection Process); or (ii) engaging in any manner whatsoever, whether during the Selection Process or after the issue of LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or

technical adviser the Authority in relation to any matter concerning the Project;

- (b) “**fraudulent practice**” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Selection Process;
- (c) “**coercive practice**” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Selection Process or the exercise of its rights or performance of its obligations by the Authority under this Agreement;
- (d) “**undesirable practice**” means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and
- (e) “**restrictive practice**” means forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Selection Process.

3.3 Confidentiality

The Consultant, its Sub-Consultants and the Personnel of either of them shall not, either during the term or within two years after the expiration or termination of this Agreement disclose any proprietary information, including information relating to reports, data, drawings, design software or other material, whether written or oral, in electronic or magnetic format, and the contents thereof; and any reports, digests or summaries created or derived from any of the foregoing that is provided by the Authority to the Consultant, its Sub-Consultants and the Personnel; any information provided by or relating to the Authority, its technology, technical processes, business affairs or finances or any information relating to the Authority’s employees, officers or other professionals or suppliers, customers, or contractors of the Authority; and any other information which the Consultant is under an obligation to keep confidential in relation to the Project, the Services or this Agreement (“**Confidential Information**”), without the prior written consent of the Authority.

Notwithstanding the aforesaid, the Consultant, its Sub-Consultants and the Personnel of either of them may disclose Confidential Information to the extent that such Confidential Information:

- (i) was in the public domain prior to its delivery to the Consultant, its Sub-Consultants and the Personnel of either of them or becomes a part of the public knowledge from a source other than the Consultant, its Sub-Consultants and the Personnel of either of them;

- (ii) was obtained from a third party with no known duty to maintain its confidentiality;
- (iii) is required to be disclosed by Applicable Laws or judicial or administrative or arbitral process or by any governmental instrumentalities, provided that for any such disclosure, the Consultant, its Sub-Consultants and the Personnel of either of them shall give the Authority, prompt written notice, and use reasonable efforts to ensure that such disclosure is accorded confidential treatment; and
- (iv) is provided to the professional advisers, agents, auditors or representatives of the Consultant or its Sub-Consultants or Personnel of either of them, as is reasonable under the circumstances; provided, however, that the Consultant or its Sub-Consultants or Personnel of either of them, as the case may be, shall require their professional advisers, agents, auditors or its representatives, to undertake in writing to keep such Confidential Information, confidential and shall use its best efforts to ensure compliance with such undertaking.

3.4 Liability of the Consultant

- 3.4.1 The Consultant's liability under this Agreement shall be determined by the Applicable Laws and the provisions hereof.
- 3.4.2 The Consultant shall, subject to the limitation specified in Clause 3.4.3, be liable to the Authority for any direct loss or damage accrued or likely to accrue due to deficiency in Services rendered by it.
- 3.4.3 The Parties hereto agree that in case of negligence or wilful misconduct on the part of the Consultant or on the part of any person or firm acting on behalf of the Consultant in carrying out the Services, the Consultant, with respect to damage caused to the Authority's property, shall not be liable to the Authority:
 - (i) for any indirect or consequential loss or damage; and
 - (ii) for any direct loss or damage that exceeds (a) the Agreement Value set forth in Clause 6.1.2 of this Agreement, or (b) the proceeds the Consultant may be entitled to receive from any insurance maintained by the Consultant to cover such a liability in accordance with Clause 3.5.2, whichever of (a) or (b) is higher.
- 3.4.4 This limitation of liability specified in Clause 3.4.3 shall not affect the Consultant's liability, if any, for damage to Third Parties caused by the Consultant or any person or firm acting on behalf of the Consultant in carrying out the Services subject, however, to a limit equal to 3 (three) times the Agreement Value.

3.5 Insurance to be taken out by the Consultant

- 3.5.1 (a) The Consultant shall, for the duration of this Agreement, take out and maintain, and shall cause any Sub-Consultant to take out and maintain, at

its (or the Sub-Consultant's, as the case may be) own cost, but on terms and conditions approved by the Authority, insurance against the risks, and for the coverages, as specified in the Agreement and in accordance with good industry practice.

- (b) Within 15 (fifteen) days of receiving any insurance policy certificate in respect of insurances required to be obtained and maintained under this clause, the Consultant shall furnish to the Authority, copies of such policy certificates, copies of the insurance policies and evidence that the insurance premia have been paid in respect of such insurance. No insurance shall be cancelled, modified or allowed to expire or lapse during the term of this Agreement.
- (c) If the Consultant fails to effect and keep in force the aforesaid insurances for which it is responsible pursuant hereto, the Authority shall, apart from having other recourse available under this Agreement, have the option, without prejudice to the obligations of the Consultant, to take out the aforesaid insurance, to keep in force any such insurances, and pay such premia and recover the costs thereof from the Consultant, and the Consultant shall be liable to pay such amounts on demand by the Authority.
- (d) Except in case of Third Party liabilities, the insurance policies so procured shall mention the Authority as the beneficiary of the Consultant and the Consultant shall procure an undertaking from the insurance company to this effect; provided that in the event the Consultant has a general insurance policy that covers the risks specified in this Agreement and the amount of insurance cover is equivalent to 3 (three) times the cover required hereunder, such insurance policy may not mention the Authority as the sole beneficiary of the Consultant or require an undertaking to that effect.

3.5.2 The Parties agree that the risks and coverages shall include but not be limited to the following:

- (a) Third Party liability insurance as required under Applicable Laws, with a minimum coverage of [Rs. 1 (one) crore]²⁰;
- (b) employer's liability and workers' compensation insurance in respect of the Personnel of the Consultant and of any Sub-Consultant, in accordance with Applicable Laws; and
- (c) professional liability insurance for an amount no less than the Agreement Value.

The indemnity limit in terms of "Any One Accident" (AOA) and "Aggregate limit on the policy period" (AOP) should not be less than the amount stated in Clause 6.1.2 of the Agreement. In case of consortium, the policy should be in

²⁰ This amount may be fixed at 1% (one per cent) of the indicative capital cost of the Project, but subject to a maximum of Rs. 20 (twenty) crore.

the name of Lead Member and not in the name of individual Members of the consortium.

3.6 Accounting, inspection and auditing

The Consultant shall:

- (a) keep accurate and systematic accounts and records in respect of the Services provided under this Agreement, 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 basis thereof (including the basis of the Consultant's costs and charges); and
- (b) permit the Authority or its designated representative periodically, and up to one year from the expiration or termination of this Agreement, to inspect the same and make copies thereof as well as to have them audited by auditors appointed by the Authority.

3.7 Consultant's actions requiring the Authority's prior approval

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

- (a) appointing such members of the Professional Personnel as are not listed in Annex-2.
- (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 Authority prior to the execution of the subcontract, and (ii) that the Consultant shall remain fully liable for the performance of the Services by the Sub-Consultant and its Personnel pursuant to this Agreement; or
- (c) any other action that is specified in this Agreement.

3.8 Reporting obligations

The Consultant shall submit to the Authority the reports and documents specified in the Agreement, in the form, in the numbers and within the time periods set forth therein.

3.9 Documents prepared by the Consultant to be property of the Authority

- 3.9.1 All plans, drawings, specifications, designs, reports and other documents (collectively referred to as "**Consultancy Documents**") prepared by the Consultant (or by the Sub-Consultants or any Third Party) in performing the Services shall become and remain the property of the Authority, and all intellectual property rights in such Consultancy Documents shall vest with the Authority. Any Consultancy Document, of which the ownership or the intellectual property rights do not vest with the Authority under law, shall

automatically stand assigned to the Authority as and when such Consultancy Document is created and the Consultant agrees to execute all papers and to perform such other acts as the Authority may deem necessary to secure its rights herein assigned by the Consultant.

3.9.2 The Consultant shall, not later than termination or expiration of this Agreement, deliver all Consultancy Documents to the Authority, together with a detailed inventory thereof. The Consultant may retain a copy of such Consultancy Documents. The Consultant, its Sub-Consultants or a Third Party shall not use these Consultancy Documents for purposes unrelated to this Agreement without the prior written approval of the Authority.

3.9.3 The Consultant shall hold the Authority harmless and indemnified for any losses, claims, damages, expenses (including all legal expenses), awards, penalties or injuries (collectively referred to as 'Claims') which may arise from or due to any unauthorised use of such Consultancy Documents, or due to any breach or failure on part of the Consultant or its Sub-Consultants or a Third Party to perform any of its duties or obligations in relation to securing the aforementioned rights of the Authority.

3.10 Equipment and materials furnished by the Authority

Equipment and materials made available to the Consultant by the Authority shall be the property of the Authority and shall be marked accordingly. Upon termination or expiration of this Agreement, the Consultant shall furnish forthwith to the Authority, an inventory of such equipment and materials and shall dispose of such equipment and materials in accordance with the instructions of the Authority. While in possession of such equipment and materials, the Consultant shall, unless otherwise instructed by the Authority in writing, insure them in an amount equal to their full replacement value.

3.11 Providing access to Project Office and Personnel

The Consultant shall ensure that the Authority, and officials of the Authority having authority from the Authority, are provided unrestricted access to the Project Office and to all Personnel during office hours. The Authority's official, who has been authorised by the Authority in this behalf, shall have the right to inspect the Services in progress, interact with Personnel of the Consultant and verify the records relating to the Services for his satisfaction.

3.12. Accuracy of Documents

The Consultant shall be responsible for accuracy of the data collected by it directly or procured from other agencies/authorities, the designs, drawings, estimates and all other details prepared by it as part of these services. Subject to the provisions of Clause 3.4, it shall indemnify the Authority against any inaccuracy in its work which might surface during implementation of the Project, if such inaccuracy is the result of any negligence or inadequate due diligence on part of the Consultant or arises out of its failure to conform to good industry practice. The Consultant shall also be responsible for promptly

correcting, at its own cost and risk, the drawings including any re-survey / investigations.

4. CONSULTANT'S PERSONNEL AND SUB-CONSULTANTS

4.1 General

The Consultant shall employ and provide such qualified and experienced Personnel as may be required to carry out the Services.

4.2 Deployment of Personnel

4.2.1 The designations, names and the estimated periods of engagement in carrying out the Services by each of the Consultant's Personnel are described in Annex-2 of this Agreement. The estimate of Personnel costs and man day rates are specified in Annex-3 of this Agreement.

4.2.2 Adjustments with respect to the estimated periods of engagement of Personnel set forth in the aforementioned Annex-3 may be made by the Consultant by written notice to the Authority, provided that: (i) such adjustments shall not alter the originally estimated period of engagement of any individual by more than 20% (twenty per cent) or one week, whichever is greater, and (ii) the aggregate of such adjustments shall not cause payments under the Agreement to exceed the Agreement Value set forth in Clause 6.1.2 of this Agreement. Any other adjustments shall only be made with the written approval of the Authority.

4.2.3 If additional work is required beyond the scope of the Services specified in the Terms of Reference, the estimated periods of engagement of Personnel, set forth in the Annexes of the Agreement may be increased by agreement in writing between the Authority and the Consultant, provided that any such increase shall not, except as otherwise agreed, cause payments under this Agreement to exceed the Agreement Value set forth in Clause 6.1.2.

4.3 Approval of Personnel

4.3.1 The Professional Personnel listed in Annex-2 of the Agreement are hereby approved by the Authority. No other Professional Personnel shall be engaged without prior approval of the Authority.

4.3.2 If the Consultant hereafter proposes to engage any person as Professional Personnel, it shall submit to the Authority its proposal along with a CV of such person in the form provided at Appendix-I (Form-12) of the RFP. The Authority may approve or reject such proposal within 14 (fourteen) days of receipt thereof. In case the proposal is rejected, the Consultant may propose an alternative person for the Authority's consideration. In the event the Authority does not reject a proposal within 14 (fourteen) days of the date of receipt thereof under this Clause 4.3, it shall be deemed to have been approved by the Authority.

4.4 Substitution of Key Personnel

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 substitution shall be limited to not more than two Key Personnel subject to equally or better qualified and experienced personnel being provided to the satisfaction of the Authority. Without prejudice to the foregoing, substitution of one Key Personnel shall be permitted subject to reduction of remuneration equal to 20% (twenty per cent) of the total remuneration specified for the Key Personnel who is proposed to be substituted. In case of a second substitution, such reduction shall be equal to 50% (fifty per cent) of the total remuneration specified for the Key Personnel who is proposed to be substituted.

4.5 Working hours, overtime, leave, etc.

The Personnel shall not be entitled to be paid for overtime nor to take paid sick leave or vacation leave except as specified in the Agreement, and the Consultant's remuneration shall be deemed to cover these items. All leave to be allowed to the Personnel is excluded from the man days of service set forth in Annex-2. Any taking of leave by any Personnel for a period exceeding 7 (seven) days shall be subject to the prior approval of the Authority, and the Consultant shall ensure that any absence on leave will not delay the progress and quality of the Services.

4.6 Resident Team Leader and Project Manager

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 as Project Manager (the "**Project Manager**") who shall be responsible for day to day performance of the Services.

4.7 Sub-Consultants

Sub-Consultants listed in Annex-4 of this Agreement are hereby approved by the Authority. The Consultant may, with prior written approval of the Authority, engage additional Sub-Consultants or substitute an existing Sub-Consultant. The hiring of Personnel by the Sub-Consultants shall be subject to the same conditions as applicable to Personnel of the Consultant under this Clause 4.

5. OBLIGATIONS OF THE AUTHORITY

5.1 Assistance in clearances etc.

Unless otherwise specified in the Agreement, the Authority shall make best efforts to ensure that the Government shall:

- (a) provide the Consultant, its Sub-Consultants and Personnel with work permits and such other documents as may be necessary to enable the Consultant, its Sub-Consultants or Personnel to perform the Services;
- (b) facilitate prompt clearance through customs of any property required for the Services; and
- (c) issue to officials, agents and representatives of the Government all such instructions as may be necessary or appropriate for the prompt and effective implementation of the Services.

5.2 Access to land and property

The Authority warrants that the Consultant shall have, free of charge, unimpeded access to the site of the project in respect of which access is required for the performance of Services; provided that if such access shall not be made available to the Consultant as and when so required, the Parties shall agree on (i) the time extension, as may be appropriate, for the performance of Services, and (ii) the additional payments, if any, to be made to the Consultant as a result thereof pursuant to Clause 6.1.3.

5.3 Change in Applicable Law

If, after the date of this Agreement, there is any change in the Applicable Laws with respect to taxes and duties which increases or decreases the cost or reimbursable expenses incurred by the Consultant in performing the Services, by an amount exceeding 2% (two per cent) of the Agreement Value specified in Clause 6.1.2, then the remuneration and reimbursable expenses otherwise payable to the Consultant under this Agreement shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the aforesaid Agreement Value.

5.4 Payment

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

6. PAYMENT TO THE CONSULTANT

6.1 Cost estimates and Agreement Value

- 6.1.1 An abstract of the cost of the Services payable to the Consultant is set forth in Annex-5 of the Agreement.
- 6.1.2 Except as may be otherwise agreed under Clause 2.6 and subject to Clause 6.1.3, the payments under this Agreement shall not exceed the agreement value specified herein (the “**Agreement Value**”). The Parties agree that the Agreement Value is Rs. (Rupees.), which does not include the Additional Costs specified in Annex-5 (the “**Additional Costs**”).

6.1.3 Notwithstanding anything to the contrary contained in Clause 6.1.2, if pursuant to the provisions of Clauses 2.6 and 2.7, the Parties agree that additional payments shall be made to the Consultant in order to cover any additional expenditures not envisaged in the cost estimates referred to in Clause 6.1.1 above, the Agreement Value set forth in Clause 6.1.2 above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

6.2 Currency of payment

All payments shall be made in Indian Rupees. The Consultant shall be free to convert Rupees into any foreign currency as per Applicable Laws.

6.3 Mode of billing and payment

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

- (a) A Mobilisation Advance for an amount upto 10% (ten per cent) of the Agreement Value shall be paid to the Consultant on request and against a Bank Guarantee from a Scheduled Bank in India in an amount equal to such advance, such Bank Guarantee to remain effective until the advance payment has been fully set off as provided herein. The advance outstanding shall attract simple interest @ 10% (ten per cent) per annum and shall be adjusted in four equal instalments from the first four stage payments due and payable to the Consultant, and the accrued interest shall be recovered from the fifth instalment due and payable thereafter.
- (b) The Consultant shall be paid for its services as per the Payment Schedule at Annex-6 of this Agreement, subject to the Consultant fulfilling the following conditions:
 - (i) No payment shall be due for the next stage till the Consultant completes, to the satisfaction of the Authority, the work pertaining to the preceding stage.
 - (ii) The Authority shall pay to the Consultant, only the undisputed amount.
- (c) The Authority shall cause the payment due to the Consultant to be made within 30 (thirty) days after the receipt by the Authority of duly completed bills with necessary particulars (the “**Due Date**”). Interest at the rate of 10% (ten per cent) per annum shall become payable as from the Due Date on any amount due by, but not paid on or before, 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 Consultant and approved as satisfactory by the Authority. The Services shall be deemed completed and finally accepted by the Authority and the final deliverable shall be deemed approved by the Authority as satisfactory upon expiry of 90 (ninety)

days after receipt of the final deliverable by the Authority unless the Authority, within such 90 (ninety) day period, gives written notice to the Consultant specifying in detail, the deficiencies in the Services. The Consultant shall thereupon promptly make any necessary corrections and/or additions, and upon completion of such corrections or additions, the foregoing process shall be repeated. The Authority shall make the final payment upon acceptance or deemed acceptance of the final deliverable by the Authority.

- (e) Any amount which the Authority has paid or caused to be paid in excess of the amounts actually payable in accordance with the provisions of this Agreement shall be reimbursed by the Consultant to the Authority within 30 (thirty) days after receipt by the Consultant of notice thereof. Any such claim by the Authority for reimbursement must be made within 1 (one) year after receipt by the Authority of a final report in accordance with Clause 6.3 (d). Any delay by the Consultant in reimbursement by the due date shall attract simple interest @ 10% (ten per cent) per annum.
- (f) 10% (ten per cent) of the Agreement Value has been earmarked as Final Payment to be made to the Consultant upon execution of the Concession Agreement. In the event the Concession Agreement does not get executed within 1 (one) year of the Effective Date the Final Payment shall not become due to the Consultant, save and except the costs incurred for meeting its reimbursable expenses during the period after expiry of 18 (eighteen) weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates.
- (g) All payments under this Agreement shall be made to the account of the Consultant as may be notified to the Authority by the Consultant.

7. LIQUIDATED DAMAGES AND PENALTIES

7.1 Performance Security

- 7.1.1 The Authority shall retain by way of performance security (the “**Performance Security**”), 5% (five per cent) of all the amounts due and payable to the Consultant, to be appropriated against breach of this Agreement or for recovery of liquidated damages as specified in Clause 7.2. The balance remaining out of the Performance Security shall be returned to the Consultant at the end of 3 (three) months after the expiry of this Agreement pursuant to Clause 2.4 hereof. For the avoidance of doubt, the parties hereto expressly agree that in addition to appropriation of the amounts withheld hereunder, in the event of any default requiring the appropriation of further amounts comprising the Performance Security, the Authority may make deductions from any subsequent payments due and payable to the Consultant hereunder, as if it is appropriating the Performance Security in accordance with the provisions of this Agreement.

7.1.2 The Consultant may, in lieu of retention of the amounts as referred to in Clause 7.1.1 above, furnish a Bank Guarantee substantially in the form specified at Annex-7 of this Agreement.

7.2 Liquidated Damages

7.2.1 Liquidated Damages for error/variation

In case any error or variation is detected in the reports submitted by the Consultant and such error or variation is the result of negligence or lack of due diligence on the part of the Consultant, the consequential damages thereof shall be quantified by the Authority in a reasonable manner and recovered from the Consultant by way of deemed liquidated damages, subject to a maximum of 50% (fifty per cent) of the Agreement Value.

7.2.2 Liquidated Damages for delay

In case of delay in completion of Services, liquidated damages not exceeding an amount equal to 0.2% (zero point two per cent) of the Agreement Value per day, subject to a maximum of 10% (ten per cent) of the Agreement Value will be imposed and shall be recovered by appropriation from the Performance Security or otherwise. However, in case of delay due to reasons beyond the control of the Consultant, suitable extension of time shall be granted.

7.2.3 Encashment and appropriation of Performance Security

The Authority shall have the right to invoke and appropriate the proceeds of the Performance Security, in whole or in part, without notice to the Consultant in the event of breach of this Agreement or for recovery of liquidated damages specified in this Clause 7.2.

7.3 Penalty for deficiency in Services

In addition to the liquidated damages not amounting to penalty, as specified in Clause 7.2, warning may be issued to the Consultant for minor deficiencies on its part. In the case of significant deficiencies in Services causing adverse effect on the Project or on the reputation of the Authority, other penal action including debarring for a specified period may also be initiated as per policy of the Authority.

8. FAIRNESS AND GOOD FAITH

8.1 Good Faith

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

8.2 Operation of the Agreement

The Parties recognise that it is impractical in this Agreement to provide for every contingency which may arise during the life of the Agreement, and the

Parties hereby agree that it is their intention that this Agreement shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Agreement either Party believes that this Agreement 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 failure to agree on any action pursuant to this Clause shall not give rise to a dispute subject to arbitration in accordance with Clause 9 hereof.

9. SETTLEMENT OF DISPUTES

9.1 Amicable settlement

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

9.2 Dispute resolution

9.2.1 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 9.3.

9.2.2 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.

9.3 Conciliation

In the event of any Dispute between the Parties, either Party may call upon [Secretary, Department] 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 9.2.1 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 9.4.

9.4 Arbitration

9.4.1 Any Dispute which is not resolved amicably by conciliation, as provided in Clause 9.3, shall be finally decided by reference to arbitration by an Arbitral Tribunal appointed in accordance with Clause 9.4.2. 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. The place of such arbitration shall be the capital of the State where the Authority has its headquarters and the language of arbitration proceedings shall be English.

- 9.4.2 There shall be [a sole arbitrator whose appointment] / [an Arbitral Tribunal of three arbitrators, of whom each Party shall select one, and the third arbitrator shall be appointed by the two arbitrators so selected, and in the event of disagreement between the two arbitrators, the appointment]²¹ shall be made in accordance with the Rules.
- 9.4.3 The arbitrators shall make a reasoned award (the “**Award**”). Any Award made in any arbitration held pursuant to this Clause 9 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.
- 9.4.4 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.
- 9.4.5 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.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of
Consultant:

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of
Authority

(Signature)
(Name)
(Designation)
(Address)

In the presence of:

1. 2.

²¹ Where the Agreement Value specified in Clause 6.1.2 of this Agreement is expected to be less than Rs. 2 crore, the provision for a sole arbitrator shall be retained and where the Agreement Value is likely to be more than Rs. 2 crore, the provision for a Board shall be retained. Depending upon the Agreement Value, one of the two square parentheses shall be deleted from Clause 9.4.2 prior to issuance of the RFP.

Annex-1

Terms of Reference

(Refer Clause 3.1.2)

(Reproduce Schedule-1 of RFP)

Annex-2

Deployment of Personnel

(Refer Clause 4.2)

(Reproduce as per Form-13 of Appendix-I)

Annex-3

Estimate of Personnel Costs

(Refer Clause 4.2)

(Reproduce as per Form-3 of Appendix-II)

Annex-4

Approved Sub-Consultant(s)

(Refer Clause 4.7)

(Reproduce as per Form-15 of Appendix-I)

Annex-5

Cost of Services

(Refer Clause 6.1)

(Reproduce as per Form-2 of Appendix-II)

Annex-6

Payment Schedule²² (Refer Clause 6.3)

Key Date No.	Description of Deliverables	Week No.	Payment
KD1	Inception Report	2	--
KD2	Report on Alignment (including proposed geometric improvements) and first Traffic Survey	8	15%
KD3	Report on Land Plan Schedules and Utility Relocation	12	10%
KD4	Report on Indicative GAD of structures (bridges, grade separators, ROB's and RUB's)	13	10%
KD5	Report on Environment and Social Impact Assessment	14	10%
KD6	Draft Feasibility Report including Schedules to the Concession Agreement	16	25%
KD7	Final Feasibility Report	18 ^s	20%
KD8	Completion of Services including assistance during Bid Process	52	10%
	Total		100%

^s Excludes the time taken by the Authority in providing its comments on the Draft Feasibility Report. The Consultant shall get one week for submission of the Final Feasibility Report after comments of the Authority are provided.

Notes:

1. *The above payments shall be made to the Consultant provided that the payments to be made at any time shall not exceed the amount certified by the Consultant in its Statement of Expenses.*
2. *All Reports shall first be submitted as draft reports for comments of the Authority. The Authority shall provide its comments no later than 3 (three) weeks from the date of receiving a draft report and in case no comments are provided within such 3 (three) weeks, the Consultant shall finalise its report. Provided, however, that the Authority may take upto 4 (four) weeks in providing its comments on the Draft Feasibility Report.*

²² The Payment Schedule is indicative and may be suitably modified to meet project-specific requirements, which should be in conformity with the Schedule provided in the TOR at Schedule-1.

3. *Feasibility Report shall be completed in 18 (eighteen) weeks excluding the time taken by the Authority in providing its comments on the Draft Feasibility Report. The Consultant may take 1 (one) week for submitting its Final Feasibility Report after receipt of comments from the Authority.*
4. *Final payment of 10% (ten per cent) shall be released upon completion of Services in their entirety, including submission of the Environmental Impact Assessment Report.*
5. *Mobilisation Advance upto 10% (ten per cent) of the total Agreement Value shall be paid on request against Bank Guarantee of a Scheduled Bank. This shall attract 10% (ten per cent) simple interest per annum and shall be adjusted against the first 4 (four) bills in four equal instalments and the accrued interest will be recovered from the 5th (fifth) bill.*

Annex- 7

Bank Guarantee for Performance Security

(Refer Clause 7.1.2)

To

[The President of India /Governor of]
acting through

.....
.....
.....

In consideration of acting on behalf of the [President of India/Governor of] (hereinafter referred as the “**Authority**”, which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) awarding to, having its office at (hereinafter referred as the “**Consultant**” which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), vide the Authority’s Agreement no. dated valued at Rs. (Rupees), (hereinafter referred to as the “**Agreement**”) the assignment for consultancy services in respect of the Project, and the Consultant having agreed to furnish a Bank Guarantee amounting to Rs. (Rupees) to the Authority for performance of the said Agreement.

We, (hereinafter referred to as the “**Bank**”) at the request of the Consultant do hereby undertake to pay to the Authority an amount not exceeding Rs. (Rupees) against any loss or damage caused to or suffered or would be caused to or suffered by the Authority by reason of any breach by the said Consultant of any of the terms or conditions contained in the said Agreement.

2. We, (indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the Authority stating that the amount/claimed is due by way of loss or damage caused to or would be caused to or suffered by the Authority by reason of breach by the said Consultant of any of the terms or conditions contained in the said Agreement or by reason of the Consultant’s failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. (Rupees).

3. We, (indicate the name of the Bank) do hereby undertake to pay to the Authority any money so demanded notwithstanding any dispute or disputes raised by the Consultant in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Consultant shall have no claim against us for making such payment.

4. We, (indicate the name of Bank) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be required for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Authority under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the Authority certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Consultant and accordingly discharges this Guarantee. Unless a demand or claim under this Guarantee is made on us in writing on or before a period of one year from the date of this Guarantee, we shall be discharged from all liability under this Guarantee thereafter.

5. We, (indicate the name of Bank) further agree with the Authority that the Authority shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Consultant from time to time or to postpone for any time or from time to time any of the powers exercisable by the Authority against the said Consultant and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Consultant or for any forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Consultant or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of so relieving us.

6. This Guarantee will not be discharged due to the change in the constitution of the Bank or the Consultant(s).

7. We, (indicate the name of Bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Authority in writing.

8. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to Rs. crore (Rupees crore) only. The Bank shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Bank in accordance with Paragraph 2 hereof, on or before [..... (indicate the date falling 365 days after the date of this Guarantee)].

For

Name of Bank:

Seal of the Bank:

Dated, theday of, 20.....

(Signature, name and designation of the authorised signatory)

NOTES:

- (i) The Bank Guarantee should contain the name, designation and code number of the officer(s) signing the Guarantee.
- (ii) The address, telephone no. and other details of the Head Office of the Bank as well as of issuing Branch should be mentioned on the covering letter of issuing Branch.

SCHEDULE-3

(See Clause 2.3.3)

Guidance Note on Conflict of Interest

1. This Note further explains and illustrates the provisions of Clause 2.3 of the RFP and shall be read together therewith in dealing with specific cases.
2. Consultants should be deemed to be in a conflict of interest situation if it can be reasonably concluded that their position in a business or their personal interest could improperly influence their judgment in the exercise of their duties. The process for selection of consultants should avoid both actual and perceived conflict of interest.
3. Conflict of interest may arise between the Authority and a consultant or between consultants and present or future concessionaries/ contractors. Some of the situations that would involve conflict of interest are identified below:
 - (a) Authority and consultants:
 - (i) Potential consultant should not be privy to information from the Authority which is not available to others;
 - (ii) potential consultant should not have defined the project when earlier working for the Authority;
 - (iii) potential consultant should not have recently worked for the Authority overseeing the project.
 - (b) Consultants and concessionaires/contractors:
 - (i) No consultant should have an ownership interest or a continuing business interest or an on-going relationship with a potential concessionaire/ contractor save and except relationships restricted to project-specific and short-term assignments; or
 - (ii) no consultant should be involved in owning or operating entities resulting from the project; or
 - (iii) no consultant should bid for works arising from the project.

The participation of companies that may be involved as investors or consumers and officials of the Authority who have current or recent connections to the companies involved, therefore, needs to be avoided.
4. The normal way to identify conflicts of interest is through self-declaration by consultants. Where a conflict exists, which has not been declared, competing companies are likely to bring this to the notice of the Authority.

All conflicts must be declared as and when the consultants become aware of them.

5. Another approach towards avoiding a conflict of interest is through the use of “Chinese walls” to avoid the flow of commercially sensitive information from one part of the consultant’s company to another. This could help overcome the problem of availability of limited numbers of experts for the project. However, in reality effective operation of “Chinese walls” may be a difficult proposition. As a general rule, larger companies will be more capable of adopting Chinese walls approach than smaller companies. Although, “Chinese walls” have been relatively common for many years, they are an increasingly discredited means of avoiding conflicts of interest and should be considered with caution. As a rule, “Chinese walls” should be considered as unacceptable and may be accepted only in exceptional cases upon full disclosure by a consultant coupled with provision of safeguards to the satisfaction of the Authority.
6. Another way to avoid conflicts of interest is through the appropriate grouping of tasks. For example, conflicts may arise if consultants drawing up the terms of reference or the proposed documentation are also eligible for the consequent assignment or project.
7. Another form of conflict of interest called “scope–creep” arises when consultants advocate either an unnecessary broadening of the terms of reference or make recommendations which are not in the best interests of the Authority but which will generate further work for the consultants. Some forms of contractual arrangements are more likely to lead to scope-creep. For example, lump-sum contracts provide fewer incentives for this, while time and material contracts provide built in incentives for consultants to extend the length of their assignment.
8. Every project contains potential conflicts of interest. Consultants should not only avoid any conflict of interest, they should report any present/potential conflict of interest to the Authority at the earliest. Officials of the Authority involved in development of a project shall be responsible for identifying and resolving any conflicts of interest. It should be ensured that safeguards are in place to preserve fair and open competition and measures should be taken to eliminate any conflict of interest arising at any stage in the process.

APPENDICES

APPENDIX-I
(See Clause 2.1.3)

TECHNICAL PROPOSAL

Form-1

Letter of Proposal
(On Applicant’s letter head)

(Date and Reference)

To,

.....
.....
.....

Sub: Appointment of Consultant for preparation of Feasibility Report for the Project

Dear Sir,

With reference to your RFP Document dated, I/we, having examined all relevant documents and understood their contents, hereby submit our Proposal for selection as Consultant for the Project. The proposal is unconditional and unqualified.

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

- (a) I/We have examined and have no reservations to the RFP Documents, including any Addendum issued by the Authority;
 - (b) I/We do not have any Conflict of Interest in accordance with Clause 2.3 of the RFP Document;
 - (c) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 4.3 of the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
 - (d) I/We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFP, no person acting for us or on our behalf will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
8. I/We understand that you may cancel the Selection Process at any time and that you are neither bound to accept any Proposal that you may receive nor to select the Consultant, without incurring any liability to the Applicants in accordance with Clause 2.8 of the RFP document.
 9. I/We declare that we/any member of the consortium, are/is not a Member of a/any other Consortium applying for Selection as a Consultant.
 10. I/We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which would cast a doubt on our ability to undertake the Consultancy for the Project or which relates to a grave offence that outrages the moral sense of the community.
 11. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.
 12. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/Managers/employees.[§]

[§] In case the Applicant is unable to provide the certification specified in Paragraph 12, it may precede the Paragraph by the words viz. "Except as specified in Schedule hereto". The exceptions to the certification or any disclosures relating thereto may be clearly stated in a Schedule to be attached to the Application. The Authority will consider the contents of such Schedule and determine whether or not the exceptions/disclosures are material to the suitability of the Applicant for pre-qualification hereunder.

13. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority [and/ or the Government of India] in connection with the selection of Consultant or in connection with the Selection Process itself in respect of the above mentioned Project.
14. The Bid Security of Rs. (Rupees) in the form of a Demand Draft is attached, in accordance with the RFP document.
15. I/We agree and understand that the proposal is subject to the provisions of the RFP document. In no case, shall I/we have any claim or right of whatsoever nature if the Consultancy for the Project is not awarded to me/us or our proposal is not opened or rejected.
16. I/We agree to keep this offer valid for 90 (ninety) days from the Proposal Due Date specified in the RFP.
17. A Power of Attorney in favour of the authorised signatory to sign and submit this Proposal and documents is attached herewith in Form-4.
18. In the event of my/our firm/ consortium being selected as the Consultant, I/we agree to enter into an Agreement in accordance with the form at Schedule-2 of the RFP. We agree not to seek any changes in the aforesaid form and agree to abide by the same.
19. I/We have studied RFP and all other documents carefully and also surveyed the Project site. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or concerning or relating to the Selection Process including the award of Consultancy.
20. The Financial Proposal is being submitted in a separate cover. This Technical Proposal read with the Financial Proposal shall constitute the Application which shall be binding on us.
21. I/We agree and undertake to abide by all the terms and conditions of the RFP Document. In witness thereof, I/we submit this Proposal under and in accordance with the terms of the RFP Document.

Yours faithfully,

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

APPENDIX-I

Form-2

Particulars of the Applicant

1.1	Title of Consultancy: PREPARATION OF FEASIBILITY REPORT
1.2	Title of Project: Project
1.3	State whether applying as Sole Firm or Lead Member of a consortium: Sole Firm or Lead Member of a consortium
1.4	State the following: Name of Company or Firm: Legal status (e.g. incorporated private company, unincorporated business, partnership etc.): Country of incorporation: Registered address: Year of Incorporation: Year of commencement of business: Principal place of business: Brief description of the Company including details of its main lines of business Name, designation, address and phone numbers of authorised signatory of the Applicant: Name: Designation: Company: Address: Phone No.: E-mail address:
1.5	If the Applicant is Lead Member of a consortium, state the following for each of the other Member Firms:

	<p>(i) Name of Firm:</p> <p>(ii) Legal Status and country of incorporation</p> <p>(iii) Registered address and principal place of business.</p>
1.6	<p>For the Applicant, (in case of a consortium, for each Member), state the following information:</p> <p>(i) In case of non Indian Firm, does the Firm have business presence in India?</p> <p style="text-align: right;">Yes/No</p> <p>If so, provide the office address(es) in India.</p> <p>(ii) Has the Applicant or any of the Members in case of a consortium been penalized by any organization for poor quality of work or breach of contract in the last five years?</p> <p style="text-align: right;">Yes/No</p> <p>(iii) Has the Applicant/ Member ever failed to complete any work awarded to it by any public authority/ entity in last five years?</p> <p style="text-align: right;">Yes/No</p> <p>(iv) Has the Applicant or any member of the consortium been blacklisted by any Government department/Public Sector Undertaking in the last five years?</p> <p style="text-align: right;">Yes/No</p> <p>(v) Has the Applicant or any of the Members, in case of a consortium, suffered bankruptcy/insolvency in the last five years?</p> <p style="text-align: right;">Yes/No</p> <p>Note: If answer to any of the questions at (ii) to (v) is yes, the Applicant is not eligible for this consultancy assignment.</p>
1.7	<p>Does the Applicant's firm/company (or any member of the consortium) combine functions as a consultant or adviser along with the functions as a contractor and/or a manufacturer?</p> <p style="text-align: right;">Yes/No</p> <p>If yes, does the Applicant (and other Member of the Applicant's consortium) agree to limit the Applicant's role only to that of a consultant/ adviser to the Authority and to disqualify themselves, their Associates/ affiliates, subsidiaries and/or parent organization subsequently from work on this Project in any other capacity?</p> <p style="text-align: right;">Yes/No</p>
1.8	<p>Does the Applicant intend to borrow or hire temporarily, personnel from contractors, manufacturers or suppliers for performance of the Consulting Services?</p>

	<p style="text-align: right;">Yes/No</p> <p>If yes, does the Applicant agree that it will only be acceptable as Consultant, if those contractors, manufacturers and suppliers disqualify themselves from subsequent execution of work on this Project (including tendering relating to any goods or services for any other part of the Project) other than that of the Consultant?</p> <p style="text-align: right;">Yes/No</p> <p>If yes, have any undertakings been obtained (and annexed) from such contractors, manufacturers, etc. that they agree to disqualify themselves from subsequent execution of work on this Project and they agree to limit their role to that of consultant/ adviser for the Authority only?</p> <p style="text-align: right;">Yes/No</p> <p style="text-align: center;">(Signature, name and designation of the authorised signatory)</p> <p style="text-align: center;">For and on behalf of</p>
--	--

APPENDIX-I

Form-3

Statement of Legal Capacity

(To be forwarded on the letter head of the Applicant)

Ref. Date:

To,

.....
.....
.....

Dear Sir,

Sub: RFP for Consultant: Project

I/We hereby confirm that we, the Applicant (along with other members in case of consortium, the constitution of which has been described in the Proposal^s), satisfy the terms and conditions laid down in the RFP document.

I/We have agreed that (insert Applicant's name) will act as the Lead Member of our consortium.

I/We have agreed that (insert individual's name) will act as our Authorised Representative/ will act as the Authorised Representative of the consortium on our behalf and has been duly authorized to submit our Proposal. Further, the authorised signatory is vested with requisite powers to furnish such proposal and all other documents, information or communication and authenticate the same.

Yours faithfully,

(Signature, name and designation of the authorised signatory)
For and on behalf of

^s Please strike out whichever is not applicable

APPENDIX-I

Form-4

Power of Attorney

Know all men by these presents, we, (name of Firm and address of the registered office) do hereby constitute, nominate, appoint and authorise Mr / Ms..... son/daughter/wife and presently residing at, who is presently employed with us and holding the position of as our true and lawful attorney (hereinafter referred to as the “**Authorised Representative**”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Proposal for and selection as the Consultant for Preparation of Feasibility Report for the Project, proposed to be developed by the (the “**Authority**”) including but not limited to signing and submission of all applications, proposals and other documents and writings, participating in pre-bid and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with the Authority in all matters in connection with or relating to or arising out of our Proposal for the said Project and/or upon award thereof to us till the entering into of the Agreement with the Authority.

AND, we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Authorised Representative pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Authorised Representative in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF, 20.....

For

(Signature, name, designation and address)

Witnesses:

- 1.
- 2.

Notarised

Accepted

.....
(Signature, name, designation and address of the Attorney)

Notes:

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure. The Power of Attorney should be executed on a non-judicial stamp paper of Rs. 100 (hundred) and duly notarised by a notary public.*
- *Wherever required, the Applicant should submit for verification the extract of the charter documents and other documents such as a resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Applicant.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, Applicants from countries that have signed the Hague Legislation Convention 1961 need not get their Power of Attorney legalised by the Indian Embassy if it carries a conforming Apostille certificate.*

APPENDIX-I

Form-5

Financial Capacity of the Applicant
(Refer Clause 2.2.2 (B))

S. No.	Financial Year	Annual Revenue (Rs./US \$ in million)
1.		
2.		
3.		

Certificate from the Statutory Auditor[§]

This is to certify that (name of the Applicant) has received the payments shown above against the respective years on account of professional fees.

Name of the audit firm:

Seal of the audit firm

Date:

(Signature, name and designation of the authorised signatory)

[§] In case the Applicant does not have a statutory auditor, it shall provide the certificate from its chartered accountant that ordinarily audits the annual accounts of the Applicant.

Note: Please do not attach any printed Annual Financial Statement.

APPENDIX-I

Form-6

Particulars of Key Personnel

S. No.	Designation of Key Personnel	Name	Educational Qualification	Length of Professional Experience	Present Employment		No. of Eligible Assignments ^{\$}
					Name of Firm	Employed Since	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	[Senior Highway Engineer] – cum - Team Leader						
2.	[Bridge Engineer]						
3.	[Traffic – cum - Safety Expert]						
4.	[Surveyor]						
5.	Financial Analyst						
6.	Environmental Expert						

^{\$}Refer Form 9 of Appendix I Experience of Key Personnel

APPENDIX-I

Form-7

Proposed Methodology and Work Plan

The proposed methodology and work plan shall be described as follows:

1. Understanding of TOR (not more than two pages)

The Applicant shall clearly state its understanding of the TOR and also highlight its important aspects. The Applicant may supplement various requirements of the TOR and also make precise suggestions if it considers this would bring more clarity and assist in achieving the Objectives laid down in the TOR.

2. Methodology and Work Plan (not more than three pages)

The Applicant will submit its methodology for carrying out this assignment, outlining its approach toward achieving the Objectives laid down in the TOR. The Applicant will submit a brief write up on its proposed team and organisation of personnel explaining how different areas of expertise needed for this assignment have been fully covered by its proposal. In case the Applicant is a consortium, it should specify how the expertise of each firm is proposed to be utilised for this assignment. The Applicant should specify the sequence and locations of important activities, and provide a quality assurance plan for carrying out the Consultancy Services.

Note: Marks will be deducted for writing lengthy and out of context responses.

APPENDIX-I

Form-8**Abstract of Eligible Assignments of the Applicant[§]**

(Refer Clause 3.1.4)

S.No	Name of Project	Name of Client	Estimated capital cost of Project (in Rs. crore/ US\$ million)	Payment ^{\$\$} of professional fees received by the Applicant (in Rs. crore)
(1) [£]	(2)	(3)	(4)	(5)
1				
2				
3				
4				

[§] The Applicant should provide details of only those projects that have been undertaken by it under its own name.

^{\$\$} Exchange rate for conversion of US \$ shall be as per Clause 1.7.1.

[£] The names and chronology of Eligible Projects included here should conform to the project-wise details submitted in Form-10 of Appendix-I.

Certificate from the Statutory Auditor[§]

This is to certify that the information contained in Column 5 above is correct as per the accounts of the Applicant and/ or the clients.

Name of the audit firm:

Seal of the audit firm

Date:

(Signature, name and designation of the authorised signatory)

[§] In case the Applicant does not have a statutory auditor, it shall provide the certificate from its chartered accountant that ordinarily audits the annual accounts of the Applicant.

Note: The Applicant may attach separate sheets to provide brief particulars of other relevant experience of the Applicant.

APPENDIX-I

Form-9

Abstract of Eligible Assignments of Key Personnel[§]

(Refer Clause 3.1.4)

Name of Key Personnel:

Designation:

S.No	Name of Project [§]	Name of Client	Estimated capital cost of project (in Rs. cr./ US\$ million)	Name of firm for which the Key Personnel worked	Designation of the Key Personnel on the assignment	Date of completion of the assignment	Man days spent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

[§] Use separate Form for each Key Personnel.

^{§§} The names and chronology of projects included here should conform to the project-wise details submitted in Form-11 of Appendix-I.

Note: The Applicant may attach separate sheets to provide brief particulars of other relevant experience of the Key Personnel.

APPENDIX-I

Form-10

Eligible Assignments of Applicant

(Refer Clause 3.1.4)

1.	Name of Applicant:	
2.	Name of the Project:	
3.	Length in km or other particulars	
4.	Description of services performed by the Applicant Firm:	
5.	Name of client and Address: (indicate whether public or private)	
6.	Name and telephone no. of client's representative:	
7.	Estimated capital cost of the Project (in Rs crore or US\$ million):	
8.	Payment received by the Applicant (in Rs. crore):	
9.	Start date of the services (month/year):	
10.	Finish date of the services (month/year):	
11.	Brief description of the Project:	
<p>It is certified that the aforesaid information is true and correct to the best of my knowledge and belief.</p> <p style="text-align: right;">(Signature and name of Key Personnel)</p>		

Notes:

1. Use separate sheet for each Eligible Project.
2. The Applicant may attach separate sheets to provide brief particulars of other relevant experience of the Applicant.
3. Exchange rate for conversion of US \$ shall be as per Clause 1.7.1.

APPENDIX-I

Form-11**Eligible Assignments of Key Personnel**

(Refer Clause 3.1.4)

1.	Name of Key Personnel:	
2.	Designation of Key Personnel:	
3.	Name of the Project:	
4.	Length in km or other particulars	
5.	Name of Consulting Firm where employed:	
6.	Description of services performed by the Key Personnel (including designation):	
7.	Name of client and Address: (indicate whether public or private)	
8.	Name and telephone no. of client's representative:	
9.	Estimated capital cost of the Project (in Rs crore or US\$ million):	
10.	Start date of the services (month/year):	
11.	Finish date of the services (month/year):	
12.	Brief description of the Project:	
It is certified that the aforesaid information is true and correct to the best of my knowledge and belief.		
(Signature and name of Key Personnel)		

Notes:

1. Use separate sheet for each Eligible Project.
2. The Applicant may attach separate sheets to provide brief particulars of other relevant experience of the Key Personnel.
3. Exchange rate for conversion of US \$ shall be as per Clause 1.7.1.

APPENDIX-I

Form-12

Curriculum Vitae (CV) of Key Personnel

1. Proposed Position:
2. Name of Personnel:
3. Date of Birth:
4. Nationality:
5. Educational Qualifications:
6. Employment Record:
(Starting with present position, list in reverse order every employment held.)
7. List of projects on which the Personnel has worked

Name of project	Description of responsibilities
-----------------	---------------------------------

8. Details of the current assignment and the time duration for which services are required for the current assignment.

Certification:

- 1 I am willing to work on the Project and I will be available for entire duration of the Project assignment as required.
- 2 I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications and my experience.

(Signature and name of the Key Personnel)

Place.....

(Signature and name of the authorised signatory of the Applicant)

Notes:

1. Use separate form for each Key Personnel
2. The names and chronology of assignments included here should conform to the project-wise details submitted in Form-8 of Appendix-I.

3. Each page of the CV shall be signed in ink and dated by both the Personnel concerned and by the Authorised Representative of the Applicant firm along with the seal of the firm. Photocopies will not be considered for evaluation.

APPENDIX-I

Form-14

Survey and Field Investigations

Item of Work/ Activity	To be carried out/ prepared by		Week																		
	Name	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

APPENDIX-I

Form-15

Proposal for Sub-Consultant(s)

1. Details of the Firm				
Firm's Name, Address and Telephone				
Name and Telephone No. of the Contact Person				
Fields of Expertise				
No. of Years in business in the above Fields				
2. Services that are proposed to be sub contracted:				
3. Person who will lead the Sub- Consultant Name: Designation: Telephone No: Email:				
4. Details of Firm's previous experience				
Name of Work	Name, address and telephone no. of Client	Total Value of Services Performed	Duration of Services	Date of Completion of Services
1.				
2.				
3.				

(Signature and name of the authorised signatory)

Note:

1. The Proposal for Sub-Consultant(s) shall be accompanied by the details specified in Forms 12 and 13 of Appendix –I.
2. Use separate form for each Sub-Consultant

APPENDIX-II

FINANCIAL PROPOSAL

Form-1

Covering Letter

(On Applicant's letter head)

(Date and Reference)

To,

.....

.....

.....

Dear Sir,

Subject: Appointment of Consultant for Preparation of Feasibility Report for the
..... Project

I/We, (Applicant's name) herewith enclose the Financial Proposal
for selection of my/our firm as Consultant for above.

I/We agree that this offer shall remain valid for a period of 90 (ninety) days from the
Proposal Due Date or such further period as may be mutually agreed upon.

Yours faithfully,

(Signature, name and designation of the authorised signatory)

Note: The Financial Proposal is to be submitted strictly as per forms given in the RFP.

APPENDIX-II
(See Clause 2.1.3)

Form-2

Financial Proposal

Item No.	Description	Amount (Rs.)
A.	RESIDENT PERSONNEL AND LOCAL COSTS	
I	Remuneration for Resident Professional Personnel (inclusive of all personal allowances)	
II	Remuneration for Resident Support Personnel (inclusive of all personal allowances)	
III	Office Rent	
IV	Office Consumables like stationery, communication etc.	
V	Office Furniture and Equipment (Rental)	
VI	Reports and Document Printing	
VII	Surveys & Investigations	
VIII	Miscellaneous Expenses	
	Sub-total Resident Personnel and Local Costs (A):	
B.	EXPATRIATE PERSONNEL	
I	Remuneration for Expatriate Personnel (inclusive of all personal allowances)	
	Subtotal Expatriate Personnel (B):	
	Total of Personnel and Local Costs (A+B):	
C.	POST REPORT CONSULTATIONS	
	2 man days each of:	
I	Senior Highway Engineer –cum-Team Leader	
II	Bridge Engineer	
III	Traffic - cum-Safety Expert	
IV	Surveyor	
V	Financial Analyst	
VI	Environmental Expert	
	Subtotal Post Report Consultations (C):	
D	SUBTOTAL OF A+B+C	
E	OVERHEAD EXPENSES @.....% of (D)	

F	SERVICE TAX	
G	TOTAL (including taxes) (D+E+F) (in Rs.) In Indian Rupees(in figures) (in words)	
H	ADDITIONAL COSTS (not included in evaluation)	
I	Domestic travel from firm's office to the Project Office (restricted to three return economy class air fares for each Personnel)	
II	International travel from firm's office to the Project Office (restricted to two return full fare economy class air fares for each Expatriate Personnel)	
III	Return journeys from Project Office to Authority's office to attend meetings held by the Authority (provide indicative amount for three return fares)	
	Total of Additional Costs (H)	
I	TOTAL COST OF THE CONSULTANCY (G+H) In Indian Rupees (in figures) (in words)	

Note:

1. The financial evaluation shall be based on the above Financial Proposal, excluding Additional Costs. The total in Item G shall, therefore, be the amount for purposes of evaluation. Additional Costs in Item H shall not be reckoned for purposes of financial evaluation.
2. Estimate of Costs for Item A I, A II and B I shall be as per Form-3.
3. Miscellaneous Expenses in Item A VIII shall not exceed 15% (fifteen per cent) of the total amount in Item D.
4. Domestic Air Fare in Item H I shall not be payable to the Consultant's Personnel who are normally stationed in
5. All costs shall be reimbursed on production of a Statement of Expenses, duly certified by the Authorised Representative. However, no details of expenditures would be sought for overhead expenses, which will be reimbursed in proportion to the total expenses under Item D.
6. The reimbursement of expenses shall be limited to the amounts indicated above.
7. Savings of upto 20% (twenty per cent) under any head of expenditure specified in the summary of Financial Proposal may be reappropriated by the Consultant and added to any other head of expenditure, subject to a ceiling of 10% (ten per cent) in respect of the recipient head of expenditure. Upon Notification of

such reappropriation to the Authority, the Financial Proposal shall be deemed to be amended, and payment shall be made accordingly.

8. No escalation on any account will be payable on the above amounts.
9. All other charges not shown here and all insurance premia are considered included in the man day rate/ overhead/ miscellaneous expenses.
10. The Authority may require the Key Personnel to visit the Project/ the Authority's offices for further consultations after their Report has been accepted. The cost (remuneration including personal allowances) of 2 (two) man days of each Key Personnel is included in the Financial Proposal. The Authority may require upto 12 (twelve) extra days of consultation with any or all Key Personnel on payment of additional charges. For any increase as compared to the aforesaid 2 (two) days, payment shall be computed solely on the basis of relevant man day rates specified in the Financial Proposal. In all cases, return full fare economy class airfare shall be reimbursed in addition, as per actuals.
11. The Authority may require Professional Personnel to visit the Project/the Authority's offices for further consultations or undertake desk work after the report has been accepted. The Additional Costs on this account shall be paid to the Consultant as per agreed man day rates and economy return airfare as per actuals shall also be reimbursed. However, the total number of additional man days requisitioned hereunder shall not exceed 120 (one hundred and twenty).
12. All payments shall be made in Indian Rupees and shall be subject to applicable Indian laws withholding taxes if any.
13. For the purposes hereof "**Statement of Expenses**" means a statement of the expenses incurred on each of the heads indicated in the Financial Proposal; provided that in relation to expenses on Personnel, the Statement of Expenses shall be accompanied by the particulars of Personnel and the man days spent on the Consultancy.
14. Lump Sum Payment shall be made only upon execution of the Concession Agreement with the Concessionaire selected through the Bid Process. No Lump Sum Payment shall be due or payable if the Concession Agreement is not executed within one year from the Effective Date; provided, however, that personnel and travel costs already incurred or due shall be payable.

APPENDIX-II

Form-3

Estimate of Personnel Costs

ID No.	Position	Name	Man day Rate (Rs.)	Total Man Days	Amount (Rs.)
A I. Remuneration for Resident Professional Personnel (including all personal allowances)					
Total					
A II. Remuneration for Resident Support Personnel (including all personal allowances)					
Total					
B I. Remuneration for Expatriate Personnel (including all personal allowances)					
Total:					

APPENDIX - III
LIST OF BID-SPECIFIC PROVISIONS[§]

A. Clauses with currency-based footnotes

1. Introduction.
2. Clause 2.2.3: Conditions of Eligibility of Applicants.
3. Clause 2.11.3: Amendment of RFP.

Note: The above footnotes marked “\$” shall be retained in the RFP for guidance of the Applicants while submitting their respective Proposals.

B. Schedules with non-numeric footnotes

All non-numeric footnotes marked “\$” in the Schedules shall be retained in the respective Schedules for guidance of the Applicants while submitting their respective Proposals.

C. Appendices with non-numeric footnotes

All non-numeric footnotes in the Appendices shall be retained in the respective Appendices for guidance of the Applicants. These shall be omitted by the Applicants while submitting their respective Proposals.

D. Schedules and Appendices with blank spaces

All blank spaces in the Schedules and Appendices shall be retained in the RFP. These shall be filled up when the format of the respective Schedule or Appendix is used.

[§] This Appendix-III contains a list of Clauses, Schedules and Appendices that would need to be suitably modified for reflecting bid-specific provisions. This Appendix-III may, therefore, be included in the RFP document to be issued to prospective Applicants

APPENDIX - IV

LIST OF PROJECT-SPECIFIC PROVISIONS²³

A. Clauses with serially numbered Footnotes (Fn)

1. Clause 1.1: Background (Fn. 1).
2. Clause 2.1.4: Scope of Proposal (Fn. 2)*.
3. Clause 2.2.2 (B) and (D): Conditions of Eligibility of Applicants (Fn. 3, 4 and 5)*.
4. Clause 2.20.1: Bid Security (Fn. 6)*.
5. Clause 3.1.3: Evaluation of Technical Proposals (Fn. 7).
6. Clause 3.1.4: Evaluation of Technical Proposals (Fn. 8, 9, 10, 11 and 12)*.
7. Clause 3.4.1: Combined and final evaluation (Fn. 13).

***Note:** The Clauses to which these Footnotes relate also include square parenthesis or asterisks which may be addressed simultaneously. Such square parenthesis or asterisks have not been listed in (B) or (C) below.

B. Clauses with square parenthesis

1. Glossary: Definitions of Consultancy Team, Feasibility Report, Inception Report and Key Date.
2. Clause 1.1.1: Background.
3. Clause 1.2: Request for Proposal.
4. Clause 1.7.1: Currency conversion rate and payment.
5. Clause 1.8: Schedule of Selection Process.
6. Clause 2.2.2 (A): Conditions of Eligibility of Applicants.
7. Clause 2.15.1: Financial Proposal.
8. Clause 2.22.1: Evaluation of Proposals.

C. Clauses with asterisks

1. Clauses 1.1.1 and 1.1.3: Background.
2. Clause 1.4: Sale of RFP Document.
3. Clause 1.9: Pre-Proposal visit to the Site and inspection of data.
4. Clause 1.10: Pre-Proposal Conference.
5. Clause 1.11: Communications.

D. Schedules and Appendices with serially numbered Footnotes (Fn)

1. Schedule-1: Terms of Reference (Fn. 14, 15, 16, 17, 18 and 19).
2. Schedule-2: Form of Agreement (Fn. 20 and 21).
3. Schedule-2 (Annex-6): Form of Agreement (Fn. 22).
4. Appendix-IV: List of Project-specific provisions (Fn. 23).

²³ This Appendix-IV contains a list of Clauses, Schedules and Appendices that would need to be suitably modified, prior to issue of the RFP document, for reflecting project-specific provisions. This Appendix-IV should be omitted before issuing the RFP document to prospective Applicants.

E. Schedules and Appendices with square parenthesis

1. Schedule-1: Terms of Reference: Paragraphs 1.1, 1.2, 3.3.2 (g), 3.5, 3.12, 4 (C) (iii), 8.1 and 11.1.
2. Schedule-2: Form of Agreement: First Paragraph, Clauses 2.4, 3.5.2, 9.3 and 9.4.2.
3. Schedule-2 (Annex-7): Form of Agreement: Address, Recital and Paragraph 8.
4. Appendix-I: Technical Proposal: Forms 1 and 6.

F. Schedules with asterisks

1. Schedule-1: Paragraph 1.1.

ILLUSTRATIVE SCHEDULES

ILLUSTRATIVE SCHEDULE - I

Items to be included in the Terms of Reference

1. General

[Provide background and context of the project and the Consultancy assignment.]

2. Objective

[Briefly define the objectives of Consultancy and the Project.]

3. Scope of Services

[Define the scope of services that the Consultant is expected to deliver. These may *inter alia* include:

Demand assessment and surveys

Engineering surveys and investigations

Social impact assessment

Environment impact assessment

Preliminary designs

Output specifications and performance standards

Estimated project cost

Financial analysis.]

4. Deliverables

[Briefly describe the deliverables that the Consultant is expected to deliver. These may *inter alia* include:

Inception Report

Topographic Surveys and Investigation Reports

Land Plan Schedules and Utility Relocation Plans

Reports on Environment and Social Impact Assessment

Technical Schedules of Concession Agreement

Preliminary Drawings

Output specifications

Preliminary Costing

Performance Standards

Implementation Schedule

Financial assessment of the Project

Feasibility Report of the Project which will include the above.]

5. Time and Payment Schedule

[Indicate time schedule and key dates for delivery of services and reports along with the schedule of payments.]

6. Meetings

[Indicate the nature and extent of meetings, conferences, pre-bid meetings etc. to be attended by the Consultant.]

7. Consultancy Team

[Indicate the required composition, expertise and experience of the Consultancy team.]

8. Reporting

[Indicate reporting requirements.]

9. Data and Software to be made available by the Authority

[Indicate the data, information and documents that would be provided by the Authority to the Consultant.]

10. Completion of Services

[Indicate the events and services that would constitute completion of services.]

ILLUSTRATIVE SCHEDULE – II

Consultancy for a Feasibility Report for
Development
of a
Distribution System in *****

Terms of Reference (TOR)
for
TECHNICAL CONSULTANT

CONTENTS

1. General
2. Objective
3. Scope of Services
4. Deliverables
 - A. Inception Report
 - B. Reports on Environmental and Social Impact Assessment
 - C. Feasibility Report
 - D. Schedules of the Concession Agreement
 - E. Financial Analysis
 - F. Assistance during Bid Process
5. Time and Payment Schedule
6. Meetings
7. Consultancy Team
8. Reporting
9. Data and software to be made available by the Authority
10. Completion of Services
 - Attachment A: Information to be provided by the Authority

Terms of Reference (TOR)

1. General

- 1.1 The Authority seeks the services of qualified firms for preparing a Feasibility Report for renovation, upgradation, modernisation and strengthening of the distribution system and sub transmission system of the ***** urban area (the “**Project**”) through Public Private Partnership (the “**PPP**”) on Design, Build, Finance, Operate and Transfer (the “**DBFOT**”) basis. The Terms of Reference (the “**TOR**”) for this assignment are specified below:
- 1.2 The urban area of ***** is spread over *** square km (the “**Project Area**”), served from a local distribution system comprising of a network of about *** route km 33kV lines, *** 33kV/11kV substations with *** MVA transformation capacity, *** route km 11kV lines, *** 11/0.433 kV DTs with *** KVA transformation capacity and *** route km MV/LV lines, and which has about *** lakh consumers, with a total connected load of over *** MW (the “**Distribution System**”), revenues of about Rs. *** crore (*** year) and AT&C losses of about ** per cent.
- 1.3 The Authority seeks the services of qualified firms for conducting feasibility studies and preparing a Feasibility Report (the “**Feasibility Report**” or “**FR**”) for development of baseline data and IT applications for the **Project**. The feasibility study will validate the data provided by the Authority and establish the techno-economic justification for the Project.

2. Objective

- 2.1 The objective of this consultancy is to prepare a Feasibility Report (FR) for renovation, upgradation, modernisation and strengthening of the Distribution System, and enable the prospective bidders to assess the Authority’s requirements in a clear and predictable manner.
- 2.2 The primary objectives of the FR would be to achieve the following:
- (a) Provide information on the ‘existing–state’ of the Distribution System with its baseline data and IT applications system;
 - (b) Describe the ‘desired-state’ of the Distribution System with its baseline data and IT applications system;
 - (c) Provide information on the ‘existing–state’ of the Distribution System in terms of system characteristics, existing at the time of carrying out the Feasibility Study;
 - (d) Describe the ‘desired-state’ of the Distribution System at the end of a defined timeframe (say one, three and five years) in terms of system characteristics, which would be expected to be achieved after making the assessed investments;

- (e) Define important 'improvement/ up-gradation' schemes identified and an overview of internationally accepted standards and practices of network construction followed in modern urban areas for implementation by the Concessionaire;
- (f) Provide a time phased estimate of the investment required to bring about the desired changes /improvements in the defined timeframe;
- (g) Identify and quantify improvements/ trajectories for identified key performance indicators such as AT&C loss reduction, quality of supply (voltage at the point of supply to consumer and its stability), reliability indices, power factor improvement, safety performance and coverage of supply etc.;
- (h) Identify methods, ways and means, both technical and financial, for ensuring identified key performance indicators of supply as required by the State Electricity Supply Code, Indian Electricity Rules-1956 and prevalent norms including revisiting the Applicable Rules & Norms (viz; inclusion of 66 kV as distribution voltage and 33/0.433 kV as transformation voltage etc.) to achieve sustained and long term compliance of the identified key performance indicators in urban areas with growing load density and RoW constraints; and
- (i) Identify the ways and means for optimizing the costs of power distribution.

2.3 The Feasibility Report would be expected to provide, on the basis of available information and the information to be collected as required, including assets, consumer/ meter indices and schematic diagram(s) of network on topographical map(s) of the urban area on e-format , a detailed, and verifiable description of the distribution system, either through an extensive database, if available, or/and on the basis of data collected/ GPS based survey carried out for smaller but representative areas covering about 6% (six per cent)²⁴ of the Project Area, which can be reasonably gathered while preparing the FR. The survey will be subdivided into at least 10 (ten) pockets representing different segments of consumers, which shall be selected in consultation with the Authority.

3. Scope of Services

3.1 The scope of services shall comprise collection of the necessary data and information relating to techno-economic feasibility and financial viability of the Project and to carry out the required assessments, analyses, evaluations and studies, and to prepare the required preliminary designs, preliminary specifications, estimated bill of quantities, cost estimation and other necessary information for preparation of the Feasibility Report to facilitate award of the Project on PPP basis through a competitive bidding process. To the extent possible, the selected Consultant would rely on existing data and facts, studies and analyses provided by the Authority and where such data is not available in a ready form, the Consultant and the Authority shall, on a best effort basis, compile the

²⁴ In cities with a population of less than 10 lakhs, 6% (six per cent) may be substituted by 10% (ten per cent).

same from existing and available sources so as to complete the FR in a period of 18 weeks from award of contract. Such information to be provided by the Authority to the Consultant is listed in Attachment A of this TOR.

3.2 The scope of services is briefly explained below:

3.2.1 **Task 1: Describe the ‘existing-state’**

The information on the existing system would include the following:

- (a) Details of baseline data and IT applications system; such as, Single Line Diagram(s) of network on topographical map(s) on e-format of the Urban Area, assets mapping, consumer/ meter data indexing, meter reading, billing, bill collection, GIS, MIS, energy audit, new connections, disconnections, connected load, customer care service, web self-service etc. to get verified baseline AT&C losses.
- (b) Details of performance indices, such as, AT&C losses, reliability indices (CAIFI/CAIDI/SAIFI/ SAIDI/ ASAI), quality of supply (voltage levels, stability and fluctuations at consumer supply point), power factor levels, safety performance (Accidents & incidents profile), coverage of supply in terms of geographical area as well as population/ households/ new connections, and performance of consumer services such as, transformer failure rate, supply restoration time, meter connection and energization time, billing and commercial complaint handling time, etc.
- (c) Details of system configuration, including network characteristics; such as, 33 & 11 kV substations, transformers and transformation capacity at various voltage levels, voltage-wise feeders and switching stations, control centers, public complaints centers etc.
- (d) Extent of coverage through regular and/ or temporary extended network in the Project Area (geographically as well as in terms of population). Reasons for areas covered through temporary extended network not covered currently within the Project Area (technical, commercial, etc).
- (e) To the extent readily available and collected as required, a detailed inventory of various classes of assets; physical condition of the existing assets, their aging profile, etc. (if comprehensive details are not available, provide details of representative area).
- (f) Details of ongoing capital schemes (e.g., through R APDRP).
- (g) Typical Load profile of feeders up to 33 kV level.
- (h) Details of distribution transformers, rating, capacity, loading pattern, vintage, maintenance records etc.
- (i) Metering capabilities, both at the system level as well as retail consumer level, extent and type of consumer metering (viz. single phase/ poly-phase/ EM/ Electronic with or without AMR) (if comprehensive details are not available, provide details of a representative area).

- (j) Details along with the hourly and seasonal variation in the daily load profiles of various 33 and 11 kV feeders.
- (k) Details of consumer and connected load mix and their approximate load factors for the last 5 (five) years.
- (l) Category-wise consumer details and number of high voltage and high value consumers above (a) 0.100 MW, (b) 0.500 MW and (c) 1 MW for the last 5 (five) years.
- (m) Consumer category-wise revenue details (numbers, load, units billed, amount billed, amount realized) for last 5 (five) years along with ageing analysis of arrear payments.
- (n) Detailed commercial data of the system, including sources, rates and quantum of power being currently provided to the different areas for the last 3 to 5 years.
- (o) Energy audit: practice being followed for measurement of supply to the different areas, feeder, DT and voltage-wise details of T&D and collection losses (i.e. AT&C losses) for the last 3 (three) years and as collected for the representative areas as required.
- (p) Existing unmet demand and the load shedding profile of different areas for the last 3 (three) years.
- (q) Details of current employees existing under different modes of employment at various levels along with organisational structure.
- (r) Safety performance: fatal/ nonfatal accident to human/ animal, near miss, unsafe act, unsafe condition, hazard and risk reported for last 5 (five) years.
- (s) Level-wise compensation structures including contributions towards superannuation benefits.
- (t) Actuarial valuation of terminal benefit liabilities and details of actual funding against the same.
- (u) Details of technical boundary of the licensed area and also the arrangement for measurement of power inflows/ status of boundary meters.
- (v) Details of billing systems, collection practices and receivables management, along with accounting practices for recognising bad and doubtful debts.
- (w) Expenditure details for last three years, viz. establishment costs, repair and maintenance costs, administration and general expenses.
- (x) Summary of existing agreements to be assigned to the Concessionaire including existing PPAs that would be transferred to the Concessionaire. Plan for sourcing power for the next 5 years.
- (y) Summary of existing vendors and contractors.

- (z) Latest audited accounts or accounts for the last 3 years, for the relevant region.
- (aa) Details of security and other deposits with the Authority in respect of the Project Area.
- (bb) Details of ongoing legal cases with significant implications.
- (cc) Brief particulars of the agreements that would continue beyond a period of 1 (one) year from the date of award of this Consultancy.

3.2.2 Task 2: Describe the 'Desired - State'

The Feasibility Report would need to clearly define the expected establishment of baseline data and IT applications within the broad framework provided in the System Requirement Specification document finalised by the Steering Committee of Ministry of Power; and state of the Distribution System in a time phased manner, at the end of 1, 3 and 5 years from commencement of the concession and consequent upon implementation of the identified schemes including the estimated investment. This may involve the following:

- (a) Metering capabilities, both at the system level as well as retail consumer level.
- (b) Expectations on key operational parameters at the end of 1, 3 and 5 years; such as, AT&C losses, reliability indices (CAIFI/CAIDI/SAIFI/SAIDI/ASAI), quality of supply (voltage levels, stability and fluctuation at consumer supply point), power factor levels, safety performance, coverage of supply in terms of geographical area as well as population/ households/ new connections and performance of consumer services; such as, transformer failure rate, supply restoration time, meter connection and energization time, billing, collection and receivables management and commercial complaint handling time, etc.
- (c) Description of the state of the distribution system at the end of 1, 3 and 5 years, broadly giving details of system configuration, including network characteristics; such as, 33 & 11 kV substations, transformers and transformation capacity at various voltage levels, voltage-wise feeders and switching stations, control centers, public complaints centers etc.
- (d) Analysis of regulatory performance standards, their state of compliance and improvement measures.
- (e) Details of capacity augmentation and system improvement plan for implementation during the 1, 3 and 5 year period, including the specifications and the quantum of changes envisaged; such as, 33 and 11 kV substations, transformers, renovation, augmentation and upgradation of 33 kV and below lines, reactive load compensation, load bifurcation, feeder segregation, Aerial Bunched Cabling and HVDS in thickly populated and high load density areas, Load balancing, maximum feeder load optimization and power factor improvement etc. to bring key operational parameters to desired levels.

- (f) Estimate of time phased investment required during the first 1, 3 and 5 years of the concession period based on estimated BOQs and prevailing rates of materials and works at current prices.

3.2.3 **Task 3: Future Projections**

- (a) Demand projections, including consumer mix, as submitted to and approved by the Electricity Regulatory Commission (the “**Commission**”).
- (b) Tentative Business Plan for the next 5 years with system, network and practice improvements.
- (c) Details of loss reduction trajectory envisaged during the next 5 years.
- (d) Computation of Wheeling Charge and Fixed Charge and financial projections for at least five years based on projected capital investments, loss reduction trajectory, demand growth, etc.

3.2.4 **Task 4:** Evolve a timeline for activities from award of the concession to the complete takeover of the Project by the Concessionaire.

3.2.5 **Task 5:** Assessment of possible technical, social and commercial risks together with suggested mitigation options.

3.2.6 **Task 6:** Listing of all the relevant regulations, codes, standards, rules, statutory requirements, provisions of law and other such relevant references that would provide a ready reference to the prospective bidders for obtaining necessary clearances and for undertaking the operation and maintenance of the Project.

3.2.7 **Task 7:** Environmental and social impact assessment in compliance with the Applicable Laws, policies, regulations and guidelines of the government and suggest a strategy to address the underlying issues, including measures to mitigate the negative impacts so as to facilitate the development of the Project.

3.3 **Techno-economic justification**

The Feasibility Report shall include evaluation and assessment of the technical feasibility and economic justification and financial viability of the Project, including identification of the possible technical and commercial risks together with suggested mitigation options.

3.4 **Schedules of Concession Agreement**

The Consultant shall also be responsible for preparing the specified technical Schedules [including Schedules A, B, C, D and H] of the proposed Concession Agreement for the Project and for bringing out any special feature or requirement of the Project referred to in the Concession Agreement or the technical standards applicable for the Project under the Electricity Act, 2003 and the Indian Electricity Rules, 1956, as amended, or the Regulations on Metering as notified by the Central Electricity Authority. The details and particulars to be specified in the

Schedules shall be in accordance with the provisions of the relevant codes or regulations. Such provisions may be included in the Schedules by reference to the relevant provisions of the said codes/ regulations and need not be reproduced.

3.5 System operation requirements

3.5.1 The Consultant shall assess the technical standards applicable for the distribution system under the Electricity Act, 2003 and the rules made thereunder, as amended, and Regulations on Connectivity, Inter utility and Consumer Metering, Construction of Electric Lines, and Safety as notified by the Central Electricity Authority. It is assumed that a project of this scope would normally follow international standards. ISO recommendations shall govern the quality of project components, including design, engineering, equipment fabrication, and construction, testing and commissioning. It will be necessary to take into account the need for compatibility of the Distribution System with the transmission system.

3.5.2 The Consultant shall address the following aspects while defining the Project:

- (a) condition based preventive and restorative maintenance of the distribution lines;
- (b) requirement of spares;
- (c) emergency restoration system for the Distribution System and outage and trouble call management practices;
- (d) ancillary services requirements;
- (e) methodology for maximizing the quality of supply and reliability of the Distribution System; and
- (f) method for minimizing AT&C losses.

3.6 Operation and Maintenance Plan

The Consultant shall suggest the principal elements of an Operation and Maintenance (the “O&M”) plan for the Project. This may include facilities such as protection, communication, measurement, telemetry and interface equipment, probes and sensors required for connecting to other parts of the distribution grid as well as supervisory control and data acquisition (the “SCADA”) systems at the State, Regional and National levels to allow for the remote monitoring of equipment, to perform reliable and timely maintenance and to ensure safe, secure, stable, reliable and coordinated operation and maintenance of all the components of the Project. The Consultant is required to suggest periodic maintenance schedules for the Distribution System, including an indicative list of the diagnostic tools and testing equipments, etc.

3.7 Design, Technical Specifications and Construction standards

The Consultant will be responsible for preparing the preliminary design, technical specifications and construction standards of the Project, sufficient for awarding the Project on PPP basis. The detailed design is expected to be prepared by the selected Concessionaire.

Based on the extant specifications and standards, the Consultant shall prepare the main characteristics and guaranteed technical particulars of the new equipment, including a description of the basic components of the Project – general layout, cross-section drawings, single line diagrams etc.

3.8 Cost Estimates

The Consultant will be required to prepare preliminary civil and electrical layout plans in sufficient detail to form the basis for the cost estimate(s). The Consultant shall prepare the cost estimates for the Project, including identification of the costs of the various system elements (such as cables, conductors, transformers, switchgears, capacitors, lightning arrestors and insulators, the control and communication system, engineering and project management, supervision and contingencies). The Project costs comprising the construction costs should be disaggregated by functional elements (sub-transmission, distribution lines, substations and distribution transformers etc.). To the total construction cost so arrived at, the Consultant may add 25% (twenty five per cent) thereof as a lump sum provision for physical and price contingencies, interest during construction and other financing costs, pre-construction expenses etc.

3.9 Project Implementation

The Consultant shall propose an overall implementation plan and schedule for the Project taking into account, system constraints and other relevant factors.

3.10 Financial Analysis

3.10.1 The financial analysis would be carried out by the Consultant assuming private participation, based on the inputs such as project costs, phasing of expenditures etc. The financial analysis would focus on (a) project level financial analysis, i.e., assessing the financial internal rate of return on the investment based on the benefits; and (b) the pricing of services. The relevant tariff determination orders of the appropriate Commission shall be used by the Consultant for his analysis. The financial analysis would deal separately with the energy charges and the wheeling charges. The Consultant shall also provide a preliminary assessment of the financial viability of the Project with a view to estimating the likely Internal Rate of Return (the “**IRR**”) over a concession period of 25 years.

3.10.2 The Consultant shall:

- (a) Calculate the IRR for the Project. It will undertake sensitivity analysis by identifying the most critical factors and determine their impact on the IRR, including varying project costs and benefits, implementation period, power demand, and combination of these factors; and
- (b) conduct a risk analysis, using the Monte Carlo method, by considering the possible values for key variables based on records, and their occurrence probability.

3.10.3 While undertaking the economic analysis and projecting the IRR, the following assumptions shall be adopted:

- (a) Capital cost shall be adopted as per estimates, to which 25% shall be added for physical and price contingencies, interest during construction, other financing costs etc.;
- (b) debt-equity ratio may be assumed as 70:30;
- (c) O&M costs may be assumed as per norms notified by the Authority/ State Electricity Regulatory Commission; and
- (d) the return may be calculated assuming the projected retail tariffs across consumer categories, separately for energy and wheeling charges. An important consideration in determining the projected tariffs would be the relevant tariff orders of the appropriate Commission.

3.10.4 If the IRR of the Project, based on the aforesaid calculations is less than 12% (twelve per cent), an effort should be made to reduce the capital costs in consultation with the Authority. This may be done either by omitting/ modifying some of the proposed investment schemes or by phasing them after a period of 5 (five) years or more, such that the IRR reaches a minimum of 12% (twelve per cent).

3.11 Stakeholder Consultations

Stakeholder consultations by the State Government and the Authority are an integral part of the project process. At a minimum, the Consultant will review the stakeholder consultations held by them and recommend administrative arrangements and requirements to ensure that the affected persons and communities understand the Project, its impact and the respective responsibilities of the various parties. Stakeholders should be allowed to participate in the formulation of development interventions by the Concessionaire to ensure that development plans adequately deal with their needs, priorities, and preferences. The Consultant will be required to:

- (a) Identify relevant stakeholders through a stakeholder analysis (existing employees would be important stakeholders);
- (b) assist the Authority and the State Government in organising consultations, during the pendency of the consultancy, with the stakeholders that shall be preceded by information dissemination, including in local languages;
- (c) document the discussions from consultative meetings and interviews; and
- (d) incorporate the relevant inputs from the stakeholder consultations in project development.

4. Deliverables

4.1 The Consultant shall deliver the following deliverables (the “**Deliverables**”) during the course of this Consultancy. The Deliverables shall be so drafted that they could be given to the prospective bidders for guidance in preparation of their bids. Twenty hard copies and two soft copies in CDs of all the final reports, drawings, etc. shall be submitted to the Authority. For draft reports, only five hard copies and one soft copy in CD shall be submitted to the Authority. The size of drawings shall be A-3 (maximum). For both the Draft and Final reports, the submission should be accompanied / preceded by making a PPT (Power Point Presentation) before the Authority explaining the detailed process and the outcomes etc.

A. *Inception Report*

Within a period of two weeks of commencement of the Consultancy, the Consultant shall submit an Inception Report. The Inception Report shall include the Consultant’s submissions towards understanding of the RFP and the Work Plan.

Within a period of six weeks of submission of the Inception Report, the Consultant shall submit a Supplementary Inception Report where it must clearly spell out the broad strategy for structuring the Project in a manner that would ensure its economic viability and justification. In this regard, the Consultant must make realistic assumptions about costs and revenues. The project components should be so formulated as to make the project viable. In determining its aforesaid strategy, the Consultant shall also seek the advice of the Authority. In the event that a viable project does not seem feasible for cogent reasons given to the Authority, the Consultant shall not proceed with the Consultancy and the same shall stand terminated. The Consultant shall be entitled to a payment of 10% (ten per cent) of the Agreement Value upon such termination.

B. *Reports on Environmental and Social Impact Assessment*

The Consultant shall submit reports on social impact assessment and environment impact assessment, including the plan for involuntary resettlement, if any, associated with land acquisition.

C. *Feasibility Report*

The Feasibility Report of the Project shall include, *inter alia*, all needed details collected, analyzed, estimated, and compiled in respect of the scope of work specified in paragraph 3 above, including the following:

- (a) *Investigation Reports*: Reports on the site survey of the Distribution System and GPS based route survey of distribution lines and substations including a schematic diagram showing the layout of the network on a

topographical map of the Project Area and field investigations in about 6% (six per cent)²⁵ areas representing the Project Area.

- (b) *Technical design*: Preliminary design, drawings and preliminary engineering.
- (c) *Technical and commercial risks*: Report on technical, social, commercial and law & order risks together with suggested mitigation options.
- (d) *Relevant statutes*: Report on all the relevant regulations, codes, standards, rules, statutory requirements, provisions of law and other such relevant references.
- (e) *Preliminary costing*: Report on preliminary costing of the Project including investment and its phasing for provision of electricity 24X7, including estimated BOQs;
- (f) *Open access*: Phasing of open access for all consumers above 0.1 MW and all commercial consumers.
- (g) *System operation requirements and O&M Plan*: Report on the system operation requirements and O&M plan.
- (h) *Billing and collection*: Report on current billing, collections and receivables management practices, gap analysis and corrective measures.
- (i) *Report on Assessment of AT&C Losses*: This would contain information on AT&C losses, both existing and proposed, for the next five years.
- (j) *Implementation plan and schedule* including likely delays, if any, on account of land acquisition and/or other factors.

D. Schedules of the Concession Agreement

The Consultant shall separately provide the Technical Schedules [including Schedules A, B, C, D and H] of the Concession Agreement for the Project with supporting documentation relating to these Schedules.

E. Financial Analysis

The Consultant shall provide a preliminary financial assessment of the Project.

F. Assistance during Bid Process

The Consultant shall provide the required assistance to the Authority and its financial consultant and the legal adviser in preparation of bid documents. The

²⁵ In cities with a population of less than 10 lakhs, 6% (six per cent) may be substituted by 10% (ten per cent).

Consultant shall also participate in Pre-bid Conferences and assist the Authority in clarifying the technical aspects of the Project and the bid documents, including the Feasibility Report.

5. Time and Payment Schedule

- 5.1 The total duration for preparation of the Feasibility Report and specified Schedules to the Concession Agreement shall be 18 weeks, excluding the time taken by the Authority in providing the requisite documents or in conveying its comments on the Draft Feasibility Report. The Consultant shall deploy its Key Personnel as per the Deployment of Personnel proposed. Intermittent services will be required beyond the 18th week and until the end of 52 weeks or two months after the signing of the Concession Agreement, whichever is earlier. The man-days required for the intermittent services shall be provided by the Consultant as per the Agreement.
- 5.2 Time schedule for important Deliverables (the “Key Dates”) of the Consultancy and the payment schedule linked to the specified Deliverables are given below:

Key Date No.	Description of Deliverables	Week No	Payment
KD1	Inception Report	2	Nil
KD2	Preliminary cost estimates	11	20%
KD3	Report on Environmental and Social Impact Assessment	12	20%
KD4	Draft Feasibility Report and Schedules [including Schedules A, B, C, D and H] to the Concession Agreement	16	30%
KD5	Final Feasibility Report	18 ^s	20%
KD6	Completion of Services including assistance during Bid Process	52	10%
	Total		100%

^sExcludes the time taken by the Authority in providing its comments on Draft Reports. The Consultant shall get two weeks for submission of the Final Feasibility Report after comments of the Authority are provided.

- 5.3 Mobilization Advance equal to 10% (ten per cent) of the total Agreement Value shall be paid on request against Bank Guarantee of a Scheduled Bank. This shall attract 8% (eight per cent) simple interest per annum and shall be adjusted against the first four bills in four equal instalments and the accrued interest shall be recovered from the fourth bill.
- 5.4 10% (ten per cent) of the Agreement Value has been earmarked as Final Payment to be made to the Consultant upon execution of the Concession Agreement.

6. Meetings

- 6.1 The Authority may review with the Consultant, any or all of the documents and advice forming part of the Consultancy, in meetings and conferences which will be held at the Authority’s office. Further, the Consultant may be required to

attend meetings and conferences with pre-qualified Bidders or the Selected Bidder. The expenses towards attending such meetings during the period of Consultancy, including travel costs and per diem shall be reimbursed in accordance with the Financial Proposal. The days required to be spent at the office of the Authority shall be computed at the rate of 8 (eight) man hours a day in case of an outstation Consultant. For a Consultant having its office within or near the city where the Authority’s office is situate, the time spent during meetings shall be calculated as per actual. No travel time shall be payable except in case of an expatriate Consultant who will be entitled to claim actual travel time, subject to a maximum of 10 (ten) man hours for a return journey.

7. Consultancy Team

7.1 The Consultant shall form a multi-disciplinary team (the “**Consultancy Team**”) for undertaking this assignment. The following Key Personnel whose experience and responsibilities are briefly described herein would be considered for evaluation of the Technical Proposal. Other expertise such as that required for financial analysis, social impact assessment etc. for the Project shall be included in the Team either through the Key Personnel specified below or through other Professional Personnel, as necessary.

(a) Senior System Engineer-cum-Team Leader

Educational Qualifications	Graduate in Electrical Engineering
Essential Experience	15 (fifteen) years in planning, project preparation and design of distribution system projects.
Job responsibilities	He will lead, coordinate and supervise the multi-disciplinary team. It will be his responsibility to guide the team in arriving at solutions within the constraints specified in the TOR.
Minimum time required at site	40 (forty) days

(b) Distribution Expert

Educational Qualifications	Graduate in Electrical / Electronics / Mechanical Engineering
Essential Experience	7 (seven) years in analysis of condition of existing distribution systems and design of major distribution line systems.
Job responsibilities	He will be responsible for collecting all distribution system connected data relating to current operations, analysis thereof and suggesting improvements under the constraints described in the TOR and generally firming up the techno-commercial requirements of the Project.
Minimum time required	30 (thirty) days

at site	
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(c) **SCADA & Automation Expert**

Educational Qualifications	Graduate in Electrical / Electronics/ Communication Engineering
Essential Experience	7 (seven) years in planning of SCADA project preparation and design of automation in transmission / distribution system projects.
Job responsibilities	He will be responsible for planning and assessing cost of SCADA & Automation in the Project.
Minimum time required at site	20 (twenty) days

(d) **Surveyor**

Educational Qualifications	Graduate in Civil/ Electrical Engineering or Diploma in Civil Engineering or Diploma in Surveying
Essential Experience	7 (seven) years in surveying, asset mapping and consumer indexing on Distribution system projects.
Job responsibilities	He will be responsible for carrying out the survey, and the works of asset mapping & consumer indexing of the Project.
Minimum time required at site	60 (sixty) days

(e) **Financial Analyst**

Educational Qualifications	Post Graduate in Commerce/ Chartered Accountant or equivalent.
Essential Experience	7 (seven) years in financial analysis and modelling of infrastructure projects.
Job responsibilities	He will be responsible for financial analysis and modelling of the Project.
Minimum time required at site	10 (ten) days

(f) **Environmental and Social Impact Assessment Expert**

Educational Qualifications	Masters/Bachelor in Environmental Science or equivalent
Essential Experience	7 (seven) years in environmental studies
Job responsibilities	He will conduct the environmental and social impact assessment of the Project
Minimum time required at site	10 (ten) days

7.2 The Consultant shall establish a Project Office managed by a Site Manager and other support staff at a suitable location in or near the city where the Authority's office or the Project is situate, for efficient and coordinated performance of its

Services. Key Personnel as required from time to time shall be deployed, for the duration as necessary, at this office as specified in the Manning Schedule forming part of the Agreement. The authorized officials of the Authority may visit the Consultant's Project Office any time during office hours for inspection and interaction with the Consultant's Personnel. It is expected of the Consultant that it will carry out all the operations from the Project office during the first 18 weeks. However, it may operate from his Head/ Home office for the field data analysis and preparatory works and remaining consultancy services beyond the first 18 weeks.[§]

- 7.3 The Consultant shall mobilize and demobilize its Professional Personnel and Support Personnel with the concurrence of the Authority and shall maintain the time sheet/ attendance sheet of the working of all Personnel in the Project Office. These time sheets/ attendance sheets shall be made available to the Authority as and when asked for and a copy of such record shall be submitted to the Authority at the end of each calendar month.

8. Reporting

- 8.1 The Consultant will work closely with the Authority. The Authority has established a Working Group (the “WG”) to enable conduct of this assignment. A designated Project Director of the Authority will be responsible for the overall coordination and project development. He will play a coordinating role in dissemination of the Consultant's outputs, facilitating discussions, and ensuring required reactions and responses to the Consultant.
- 8.2 The Consultant may prepare Issue Papers highlighting issues that could become critical for the timely completion of the Project and that require attention from the Authority.
- 8.3 The Consultant will make a presentation on the Inception Report for discussion with the WG at a meeting. This will be a working document. The Consultant is required to prepare and submit a monthly report that includes and describes, *inter alia*, general progress to date; data and reports obtained and reviewed, conclusions to date, if any; concerns about availability of, or access to, data, analyses, reports; questions regarding the TOR or any other matters regarding work scope and related issues; and so on. The Consultants' work on the TOR tasks should continue while the report is under consideration and is being discussed.
- 8.4 Regular communication with the WG and the Project Director is required in addition to all key communications. This may take the form of telephone/ teleconferencing, emails, faxes, and occasional meetings.
- 8.5 The Deliverables will be submitted as per schedule provided in this RFP.

9. Data and Software to be made available by the Authority

[§] This Paragraph 7.2 shall not apply if the Agreement Value is less than Rs. 50 (fifty) lakh for the Consultancy.

Available data as may be required by the Consultant will be provided by the Authority on request. The Nodal Officer designated by the Authority shall facilitate handing over of such information as described in Attachment-A to the Consultant at the time of signing of Contract for Consultancy. Any other relevant data/ information that the Consultant may request within 2 weeks after signing of the Contract and as is readily available with the Authority will also be provided within 7 days of such request.

10. Completion of Services

- 10.1 All the study outputs including primary data shall be compiled, classified and submitted by the Consultant to the Authority in soft form apart from the reports indicated in the Deliverables. The study outputs shall remain the property of the Authority and shall not be used for any purpose other than that intended under these Terms of Reference without the permission of the Authority. The Consultancy shall stand completed on acceptance by the Authority of all the Deliverables of the Consultant and execution of the Concession Agreement or 52 weeks from the Effective Date, whichever is earlier. The Authority shall issue a certificate to that effect. The Consultancy shall in any case be deemed to be completed upon expiry of 1 (one) year from the Effective Date, unless extended by mutual consent of the Authority and the Consultant.
- 10.2 10% (ten per cent) of the Agreement Value has been earmarked as lump sum payment to be made to the Consultant upon execution of the Concession Agreement (the “**Lump Sum Payment**”). In consideration of the Lump Sum Payment, the Consultant shall provide such services to the Authority as may be necessary for concluding the Bid Process and execution of the Concession Agreement. In the event the Concession Agreement does not get executed within one year of the Effective Date, the Consultancy shall stand completed as specified in Clause 10.1 above, but no Lump Sum Payment shall be due to the Consultant, save and except the costs incurred for meeting its expenses during the period after expiry of 18 weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates, which shall be reimbursed to the Consultant as per actual. For the avoidance of doubt, it is agreed that reimbursement of such costs on travel and personnel shall be due to the Consultant as aforesaid, even if the Concession Agreement is not executed.

[NOTE: This Illustrative Schedule-II comprising the TOR may be suitably modified, prior to issue of the RFP, for reflecting the project-specific provisions mentioned below:

- A. Square parenthesis:** Paragraphs 3.4, 4 (D) and 5.2.
- B. Asterisks:** Paragraphs 1.1, 1.2 and Attachment A 1.1.
- C. Serially numbered Footnotes (Fn.):** Footnote no. 24 and 25.
- D. Other modifications:** Other modifications may also be made, as necessary, to meet the specific requirements of the Project.]

Attachment A**Information to be provided by the Authority***(Refer para 3.1)*

- A1.1 The Authority shall provide the following to the Consultant on a best effort basis:
- (a) Jurisdiction Map, Single Line Diagram(s) of the Network/ and General Electrical Lay-Out (the “GELO”) of the Project Area;
 - (b) Power Transmission and Distribution Map of ***** urban area, division-wise, as in 2011;
 - (c) Output specifications of all equipment to be installed (to the extent feasible);
 - (d) Eleventh and Twelfth Five Year Plans for the Power Sector (or latest available);
 - (e) Load-Flow Studies up to *** (or latest available);
 - (f) Prevailing environmental and Social Policies and Procedures;
 - (g) Annual Accounts of the Authority for the last three years;
 - (h) Report on Electrical Power Survey of India: March 2010, Central Electricity Authority;
 - (i) To the extent available, a detailed inventory of various classes of assets; physical condition of the existing assets, their aging profile etc. (if comprehensive details are not available, provide details of a representative area);
 - (j) Population profile and growth for last 10 years;
 - (k) Consumer and connected load mix and category-wise revenue details for the last 5 years;
 - (l) Season wise monthly and daily typical load curves for the last 3 years;
 - (m) Detailed commercial data of the system, including sources, rates and quantum of power being provided to the area during the last 5 years;
 - (n) Details of on-going or approved R-APDRP schemes being implemented in the ***** urban area;
 - (o) Details of on-going or approved SCADA schemes being implemented in the ***** urban area;
 - (p) To the extent available, feeder wise AT&C losses for the last 5 years;

- (q) Details of power demand, availability and gap in supply and demand for the last 3 years;
- (r) Category-wise employee details and age profiles as on April 1,****;
- (s) Details of fatal/ non fatal accidents to human/ animals, near misses, unsafe acts, unsafe conditions, hazards and risks reported for the last 5 (five) years;
- (t) Transformer failure rate for the .last 5 (five) years;
- (u) Norms of supply restoration time, meter connection and energization time, billing and commercial complaint handling time, etc.; and
- (v) Any other information requested by the Consultant and considered relevant by the Authority.

A1.2 The Consultant shall examine and suggest possible improvements in respect of any of the above reports, information material and analyses (including Land Plan, General Electrical Lay-Out, technical specifications of equipments and the civil and electrical engineering designs, etc.) that may be provided by the Authority to the extent it complies with customary standards of industry practice.

ILLUSTRATIVE SCHEDULE-III

Consultancy for a Feasibility Report for
Water Supply and Sewerage System in *****

Terms of Reference (TOR)
for
TECHNICAL CONSULTANT

S. No.	Contents	Page No.
1	General	
2	Objective	
3	Scope of Services	
3.1	Scope of Services	
3.2	Population forecast and assessment of demand for drinking water, waste water and recycled water	
3.3	Assessment of additional sources of water	
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3.5	Hydraulic design of water supply system, waste water collection network and recycled water distribution system	
3.6	Indicative designs and layout plans for rehabilitation and development of water supply assets and waste water system	
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3.8	Social impact assessment	
3.9	Environment impact assessment	
3.10	Preparation of land acquisition plans	
3.11	Project cost	
3.12	Preparation of technical and system related Schedules of the Concession Agreement	
3.13	Preparation of Manuals of Standards and Specifications	
4.	Deliverables	
A.	Inception Report	
B.	Report on additional sources of water	
C.	Report on options for augmentation of the water supply and waste water system	
D.	Report on assessment of technical and non-technical water losses (NRW)	
E.	Reports on Environment and Social Impact Assessment	
F.	Manuals of Standards and Specifications	
G.	Feasibility Report	

H. Schedules of Concession Agreement

I. Financial analysis

J. Assistance during bid process

5. Time and Payment Schedule

6. Meetings

7. Consultancy Team

8. Reporting

9. Data and software to be made available by the Authority

10. Completion of Services

11. General data for the Project Area

ATTACHMENTS

Attachment A: Guidelines for the Field Surveys, including
Topographic, Alignment and Land Use Surveys

PROFORMAS

Proforma A1: Water Demand Survey (Bulk Consumers)

Proforma B1: Asset Inventory and Condition Assessment of Water
Treatment Plants

Proforma B2: Asset Inventory and Condition Assessment of Storage
Reservoirs

Proforma B3: Asset Inventory and Condition Assessment of Pump
House Buildings

Proforma B4: Documentation of Civil Structures

Proforma C1: Inventory of Electro-mechanical and Instrumentation
Equipment

Proforma C2: Condition Assessment of Electro-mechanical and
Instrumentation Equipment

Proforma C3: Documentation of Electro-mechanical and
Instrumentation Equipment

Proforma D: Inventory and Condition Assessment of Pipelines and
Valves

Proforma E: Inventory and Condition Assessment of Sewers and
Manholes

Proforma F: Energy Efficiency of Pumping/ Lift Equipment

Terms of Reference (TOR)

1. GENERAL

- 1.1 The Authority seeks the services of qualified firms for preparing a Feasibility Report for the rehabilitation, augmentation and operation of the water supply and sewerage system in ***** city through Public Private Participation on Develop, Build, Finance, Operate and Transfer (DBFOT) basis (the “**Project**”). The area of the Project shall include and extend to ***** city, the limits of which would be the service coverage area for the horizon period of 20 years, and to the sources, transmission, storage, treatment and disposal of water outside the city (the “**Project Area**”). The Terms of Reference (the “**TOR**”) for this assignment are specified below.
- 1.2 The Consultant shall be guided in its assignment by the Manual of Operation and Maintenance of Water Supply Systems, the Manual of Water Supply and Treatment and the Manual of Sewerage and Sewerage Treatment published by the Ministry of Urban Development, Government of India (the “**Manuals**”) and relevant rules, regulations and provisions of law.
- 1.3 The Consultant shall be responsible for preparing the technical and system related Schedules [including Schedules A, B, C, D and H] of the Water Supply and Sewerage Agreement (the “**Concession Agreement**”) and for bringing out any special feature or requirement of the Project referred to in the Concession Agreement or the Manuals, as the case may be.
- 1.4 The Consultant shall, to the extent possible, rely on the existing data and studies which it may verify, supplement and analyse, as necessary, during the course of Consultancy. The reports, information and material to be provided by the Authority are as follows:
- (i) Base map of Project Area, at contour interval of 1.0 mts. in hard copy as well as in soft copy.
 - (ii) Maps showing details of existing sources of water, raw water mains, water treatment plants, clear water transmission mains, transfer and distribution network, booster stations, and other water supply infrastructure for the Project Area.
 - (iii) Maps showing existing sewer laterals, branches and outfalls, sewer pumping stations, sewage treatment plants, and other sewerage infrastructure for the Project Area.
 - (iv) Master Plans of the Project Area prepared by the State Government/ULB
 - (v) Detailed Project Reports on Water Supply and Sewerage for the Project Area,
 - (vi) Reports on existing and proposed water resources for the Project Area.
 - (vii) Population data for the Project Area from the Census records for the last seven decades.
 - (viii) Data on urban poor and notified and non-notified slum settlements.
 - (ix) Information about metering, billing and revenue collection for the water supply and sewerage services of the Project Area for the last five years.

- (x) Income and expenditure data for water supply and sewerage system of the Project Area for the last five years.
- (xi) Water policy, Water Supply Rules/Bylaws, policy for water supply to urban poor/slum dwellers.
- (xii) Information on existing operating staff, engineering staff and support staff responsible for O&M of water supply and sewerage system along with administrative/reporting system for these services in the concerned organisation(s).
- (xiii) Details of all ongoing works and details of all operations/service contracts in currency, related to water supply and sewerage system of the town.

1.5 The Consultant shall assist the Authority/ULB, its Financial Consultant and the Legal Adviser by furnishing clarifications as required for the financial appraisal and legal scrutiny of the Project and the bid documents.

1.6 The Consultant shall also participate in the pre-bid conference with the Bidders of the Project and assist the Authority in clarifying the technical aspects arising from the bid documents including the Feasibility Report.

2. OBJECTIVE

The objective of this consultancy is to undertake feasibility studies and prepare a Feasibility Report for the up-gradation, augmentation, and operation of water supply [and sewerage] services in the Project Area that would enable the prospective bidders to assess the Authority's requirements in a clear and predictable manner with a view to ensuring:

- (i) efficient, economical, integrated and co-ordinated production, treatment, transmission, storage and distribution of safe drinking water and collection, treatment and reuse/ recycling/ disposal of waste water;
- (ii) reliability and security of the supply of water, and effective treatment and disposal of waste water;
- (iii) enhanced safety and level of service for the consumers;
- (iv) efficient operation and maintenance of the water supply, recycled waste water and sewerage system;
- (v) minimal adverse impact on the local population and environment;
- (vi) minimal acquisition of land;
- (vii) improving the financial viability of the Project consistent with the need to minimise disruptions of drinking and recycled water supply and sewerage facilities and to eliminate constraints in a cost effective manner; and
- (viii) phased development of the Project, on techno-economic considerations, over a period of two decades with implementation of works in two phases.

3. SCOPE OF SERVICES

3.1 The scope of services shall comprise:

- (i) Population forecast and assessment of demand for drinking water, waste water and recycled water.
- (ii) Assessment of the need for developing additional sources of water.
- (iii) Engineering surveys, investigations, inventory and condition assessment of the existing components of (a) water supply system i.e. raw water intake works, water treatment plants, pumping/ booster stations, storage reservoirs, transmission/transfer/distribution lines, electro-mechanical and instrumentation equipment, consumer and bulk meters and other water supply infrastructure, and (b) waste water system i.e. lift stations, lateral, trunk and outfall sewers, manholes, sewage treatment plants, disposal sites and other sewerage infrastructure.
- (iv) Hydraulic design, consistent with the techno-economic criteria, of (a) transmission, transfer and distribution pipeline networks of the water supply system for each distribution zone, (b) waste water collection network for each sewer section, and (c) recycled water distribution system.
- (v) Indicative designs and layout plans for rehabilitation and development of (a) water supply assets, including as may be necessary, intake, water treatment plant(s) head works, pumping stations, reservoirs, transmission, transfer and distribution pipeline network, master control/SCADA centres, customer care centres etc, and (b) waste water system, including lift stations, lateral, trunk and outfall sewers, sewage treatment plants, disposal sites, etc. For the avoidance of doubt, indicative designs shall mean indicative sizes, capacities, layout plans and sectional elevations that would provide an indication of general arrangement, land requirement and the preparation of cost estimates and will not include any structural design, drawings and detailed specifications.
- (vi) Indicative designs and layout plans for development of the recycled water system, including tertiary treatment plants, pumping stations, main pipelines and distribution lines.
- (vii) Social impact assessment.
- (viii) Environment impact assessment.
- (ix) Preparation of land acquisition plans.
- (x) Preparation of indicative BOQ and rough cost estimates.
- (xi) Preparation of technical and system related Schedules [including Schedules A, B, C, D and H] of the Concession Agreement.
- (xii) The Consultants shall review the documents related to standards and specifications, as made available by the Authority and prepare the draft

Manuals of Standards and Specifications for Water Supply and Sewerage Works that would govern the construction and operation of the Project by the Concessionaire.

(xiii) Financial analysis, for the Project period.

These services are briefly explained hereunder:

3.2 Population forecast and assessment of demand for drinking water, waste water and recycled water

3.2.1 The Consultant shall, upon award of the Consultancy, submit its proposal regarding the factors to be used for each of the methodologies for population forecasts described in the Manuals along with the rationale of its proposal. Care shall be taken in proposing the factors in a manner that they capture the demographics in different distribution zones and sewer sections, as the case may be, of the Project Area. This proposal shall form part of the Inception Report. The Authority may, within one week of receiving the Inception Report, modify the factors in accordance with the provisions of the aforesaid Manuals and the Consultant shall comply with the same.

3.2.2 The forecasts and overall planning for the water supply, waste water and recycled water systems shall be for a period of 20 (twenty) years, with implementation of works in two phases. The Consultant shall determine the extent of the area to be urbanised by having due regard to the Master Plan for the Project Area prepared by the State Government and after consultations with the Urban Local Bodies and relevant Departments/ Agencies of the Government.

3.2.3 For the present and prospective areas to be served by the water supply, waste water and recycled water systems, the Consultant shall also review the past records of population growth to forecast the population by using the methodologies and factors determined under Paragraph 3.2.1 above. These population forecasts shall be compared with any other study(s) conducted by any other agency with a view to recommending the population forecast for adoption in the planning horizon. The Consultant shall also assign suitable population densities for different zones/ sections/ areas for planning the water supply, waste water and recycled water systems. The Consultant shall forecast the demand for recycled water in various distribution zones considering various relevant factors including, but not limited to, the extent of green spaces, road-side plantation, and density of institutional and industrial users in the zone. The forecasts on the demand per day shall be at five year intervals over the Project horizon.

3.2.4 The Consultant shall carry out surveys of actual water consumption and demand for each of the major industrial, commercial, institutional and other non-domestic water users, which shall include all users of these categories with monthly water consumption of more than 200 kL. A representative format for the bulk consumers' survey is at Proforma 'A1'. The Consultant shall review this format and suitably modify it, if required, with the approval of the Authority.

3.2.5 Based on the forecasts of aggregate demand for drinking water and recycled water, the Consultant shall also estimate the per capita water demand per day by different user groups for various distribution zones/ sewer sections/ new urban areas to be

adopted in the planning and design of system improvements, augmentation and modernisation.

- 3.2.6 The Consultant shall recommend suitable sub-divisions of the Project Area in the drinking water distribution zones and district metering areas (DMAs), waste water collection zones, and recycled water distribution zones, as the case may be, based on topography, existing infrastructural zoning, techno-economic feasibility and other relevant considerations.

3.3 Assessment of additional sources of water

- 3.3.1 The Consultant shall review the existing reports prepared by the State Government, the Central Ground Water Board and by any research body or non-governmental organisation in respect of availability of water from potential surface water and ground water sources for possible supply to the Project Area. A copy of these Reports shall be provided by the Authority to the Consultant who shall examine and analyse the potential of the various existing surface water and ground water sources and estimate the optimum yield at different reliability levels from these sources.
- 3.3.2 The Consultant shall make recommendations on the need to develop additional source(s) of water supply to the Project Area on the basis of the above analysis for each of the two phases of the Project.

3.4 Engineering surveys, investigations, inventory, condition assessment and review of previous studies/ project reports

- 3.4.1 The Consultant shall conduct the engineering surveys, investigations, inventory and condition assessment of the existing operation schedules, service levels of water supply and components of the (a) water supply system i.e. pumping stations, storage reservoirs, distribution lines, electro-mechanical and instrumentation equipment, consumer and bulk meters and other water supply infrastructure, and the (b) waste water system i.e. lift stations, lateral, trunk and outfall sewers, manholes, sewage treatment plants, disposal sites and other sewerage infrastructure. The condition assessment forms shall be duly supported by a sufficient number of photographs.
- 3.4.2 The Consultant shall undertake the following:
- (a) survey/data collection in respect of existing operation schedules and service levels;
 - (b) topographic, alignment and land use surveys;
 - (c) inventory and condition surveys;
 - (d) energy efficiency studies for pumping stations and sewage lift stations;
 - (e) estimation of technical and non-technical losses in transmission and distribution of water (NRW); and
 - (f) soil, geo-technical, material, hydrology and drainage surveys.

3.4.3 Existing operation schedules/logs and service levels

The Consultant shall compile the available data on the existing operation schedules of all pumping station(s) and valves for each distribution zone from the log books and discussions with operating staff. Further, the Consultant shall collect sample data on average duration of water supply and range of water supply pressure in different distribution zones. The Consultant shall also compile the available data for assessing the various parameters of the quality of present water supply. The Consultant shall collect and compile data on repair history of plant & machinery and leakages in pipe line to form basis for repair/replacement of the existing components of water supply system. The Consultant shall also compile data on operations of STP, lift stations and flushing /choke removal in sewers.

3.4.4 Topographic, alignment and land use surveys

The activities and Deliverables forming part of the topographic, alignment and land use surveys are described below (see also Attachment A to the TOR):

- (a) Topographic and route survey of the transmission and transfer mains of drinking water supply for each pipeline in the Project Area along with the existing and proposed locations for water treatment plants, storage reservoirs, pumping stations, etc. in sufficient detail, covering structures, drains, service roads, trees, utilities, safety devices etc, to enable the Bidders/ Concessionaire to undertake detailed surveys for determining the location of water treatment plant(s), storage reservoirs, pumping stations, etc. for different distribution zones. A list of encroachments on the aforesaid sites along with a brief description shall also be prepared and included in the Feasibility Report.
- (b) Topographic and route survey of the sewage laterals, trunks and outfalls for each pipeline in the Project Area along with the existing and proposed locations for tertiary treatment plants, lift stations, etc. in sufficient detail, covering structures, drains, service roads, trees, utilities, safety devices etc, to enable the Bidders/ Concessionaire to undertake detailed surveys for determining the locations of sewage disposal, lift stations, etc. for different drainage zones. A list of encroachments on the aforesaid locations along with a brief description shall also be prepared and included in the Feasibility Report.
- (c) Identification of the areas which could not be served directly by drinking water from existing service reservoirs.
- (d) Identification of the areas which could not be drained by gravity on techno-economic reasons and where alternative disposal of wastewater is proposed.
- (e) Identification of the areas where laying of sewers is not technically feasible and where alternative systems of small bore sewers or shallow sewers or on-site sanitation methods are required to be adopted.
- (f) Identification of stretches for construction of pipe-supporting structures, including those requiring reconstruction. Recommend location of such structures.

- [(g) Preparation of geo-referenced digitised base map of town having one meter interval contours. The map shall be prepared using stereoscopic satellite imageries of 0.6 m resolution which are not dated more than two years, populating the map with the layers of water supply network links and other components of the water supply system and the sewerage collection network and other components of sewerage system.]
- (h) Topographic survey (spot levels) of the Project Area not covered under the contour survey map to determine the topography of the new areas to be added in service coverage limits of water supply, waste water drainage and recycled water supply.

The topographic survey shall determine the spot levels of at least 1,000 locations²⁶ based on DGPS/GPS plus Auto level surveys, for which locations shall be finalised with prior approval of the Authority. The alignment surveys shall cover entire network in Project Area and the sections for undertaking such alignment surveys shall be finalised with prior approval of the Authority.

3.4.5 Inventory and condition surveys

The activities and Deliverables forming part of the inventory and condition assessment are described below.

- (a) For some of the components of the water supply and sewerage system, representative formats are attached herewith as below. The Consultants shall review these formats and suitably modify them, if required, with the approval of the Authority.
- (i) Proforma 'B1': Asset Inventory and Condition Assessment of Water Treatment Plant(s)
 - (ii) Proforma 'B2': Asset Inventory and Condition Assessment of Storage Reservoirs
 - (iii) Proforma 'B3': Asset Inventory and Condition Assessment of Pump House Buildings
 - (iv) Proforma 'B4': Documentation of Civil Structures
 - (v) Proforma 'C1': Inventory of Electro-mechanical and Instrumentation Equipment
 - (vi) Proforma 'C2': Condition Assessment of Electro-mechanical and Instrumentation Equipment
 - (vii) Proforma 'C3': Documentation of Electro-mechanical and Instrumentation Equipment
 - (viii) Proforma 'D': Inventory and Condition Assessment of Pipelines

²⁶ This number may be reduced for towns with a population of less than 20 lakhs.

and Valves

(ix) Proforma 'E': Inventory and Condition Assessment of Sewers and Manholes

- (b) The Consultant shall prepare an inventory of the (i) water supply system assets i.e. raw water intakes, WTPs, pumping stations, storage reservoirs, raw water mains, clear water transmission/transfer mains, distribution lines, electro-mechanical, instrumentation and automation equipment, consumer and bulk meters, land/campuses and other water supply infrastructure, and the (ii) waste water system i.e. lift stations, lateral, trunk and outfall sewers, manholes, sewage treatment plants, disposal sites and other sewerage infrastructure including all electromechanical/instrumentation/automation systems.

Major components of this inventory shall also be marked on the topographical maps and suitably interlinked with the entity representing it on the drawings through a unique identification scheme. A separate document containing inventory listing shall be submitted by the Consultant.

- (c) The Consultant shall assess the condition of pipelines, separately for different sizes of pipelines, along identified stretches through physical inspection and non-destructive techniques for ascertaining their maintenance requirements and balance life. For this purpose, the Consultant shall use at least the following representative sample:

	Size of Pipeline (diameter in mm)	Representative Interval (km)
(i)	Up to and including 200	50
(ii)	Greater than 200 and up to and including 400	20
(iii)	Greater than 400 and up to and including 600	10
(iv)	Greater than 600	5

A pit shall be dug for every representative interval length of pipeline and the surface of pipes and joints shall be thoroughly cleaned and inspected for any structural defects, potholes and surface corrosion, in case of metallic pipes. The hydraulic efficiencies of such pipeline stretches shall be checked from flow and pressure measurements, where possible, and by physical/ visual inspection of the external surface of pipes. The internal surface of pipes shall be examined in respect of the pipe pieces taken out during repairs and as available in stores/at site. In case of PVC/PE pipes, condition is to be specifically examined for it getting brittle, with age and development of any cracks, leakage from joints and consumer connection tapping points. For MS pipes, the condition of corrosion protection system (cement mortar lining or wrapping /coating with or without cathodic protection) is to be examined.

The Consultant shall assess the condition of all electro-mechanical, instrumentation and automation equipment through visual inspection, review

of logbooks and repair records, discussions with operators, past performance data and other suitable testing methods.

The Consultant shall assess the condition of all bulk meters and 1% (one per cent) of the consumer meters in the Project Area through visual inspection, discussions with operators, past performance data and other suitable testing methods.

The Consultant shall assess the condition of storage reservoirs through visual inspection of all its structures and assess their structural strength through non-destructive techniques; identify leakages in all water retaining structures to determine their water tightness; and check the condition of all ancillaries, such as float valves, stairs and ladders, ventilators, valves, manhole covers etc.

The Consultant shall assess the condition of water treatment plants for structural defects, hydraulic efficiencies etc.; and determine their backwash frequency, overall loss of water in backwash and sludge bleeding by review of log books as well as physical examination of the raw water inflows and clear water outflows.

The Consultant shall identify, list and describe all components of the water supply infrastructure that require repair, refurbishment and/or replacement.

- (d) The Consultant shall assess the condition of sewer lines, separately for different sizes of pipelines, along identified stretches through physical inspection and non-destructive techniques for ascertain their maintenance requirements and balance life. For this purpose, the Consultant shall use at least the following representative sample:

Size of Pipeline (diameter in mm)	Representative Interval (km)
(i) Upto and including 200	20
(ii) Greater than 200 and upto and including 400	10
(iii) Greater than 400 and upto and including 600	7.5
(iv) Greater than 600	5.0

A pit shall be dug for every representative interval length of pipeline and the surface of pipes and joints shall be thoroughly cleaned and inspected for any structural defects, surface corrosion and leakage from Joints. The flow condition /chokes in various sewer sections shall be observed by visual inspection of the manholes after removal of covers.

The Consultant shall give one week’s notice to the Authority for digging any road surface for inspection hereunder. The Consultant shall ensure that minimum damage is done to the road works and that disruption of traffic is also minimised. The cost of digging and inspection shall be borne by the Consultant. The repair of roads, however, shall be undertaken by the Authority at its own cost.

The Consultant shall assess the condition of manholes, footsteps and manhole covers through visual inspection for any defects such as debris, cracks, breakages, choking, etc.

The Consultant shall assess the condition of all electro-mechanical and instrumentation equipment through visual inspection, review of logbooks and repair records, discussions with operators, past performance data and other suitable testing methods.

The Consultant shall assess the condition of pumping stations and lift stations, through visual inspection.

The Consultant shall identify, list and describe all components of the water supply infrastructure that require repair, refurbishment and/or replacement.

3.4.6 Energy efficiency studies for pumping stations and sewage lift stations

The Consultant shall determine the energy efficiency of all mechanical, electrical and instrumentation equipment through physical inspection, past operational parameters and discussions with operating staff. The Consultant shall carry out energy efficiency studies for all the pumping stations and sewage lift stations of pumping/ lift capacity of 100 HP and above and representative studies for at least 10% (ten per cent) of all pumping stations and sewage lift stations of pumping/ lift capacity less than 30 HP and at least 10% (ten per cent) of all tube wells and open wells.

A representative format for checking the energy efficiency of pumping/ lift equipment is attached herewith at Proforma 'F'. The Consultants shall review this format and suitably modify it, if required, with the approval of the Authority.

3.4.7 Soil, geotechnical, material, hydrology and drainage surveys

The activities and Deliverables forming part of the soil, geotechnical, material, hydrology and drainage surveys are described below:

- (a) The Consultant shall determine the characteristics of the soil strata in excavations for at least 50 (fifty) locations, to be distributed uniformly in the Project Area with the prior approval of the Authority, for providing a representative analysis of the soil strata for laying of the water/ sewer lines and for the foundations of various structures. The bore/ open excavation pit depth shall be at least upto the invert level of the water pipeline/ sewer plus 30 cms. For locations of new assets such as water treatment plants, sewage treatment plants, tertiary treatment plants, storage reservoirs, pumping stations, lift stations, etc, at least two bore holes/ pits shall be made up to foundation level for each site.
- (b) The Consultant shall collect and analyse preliminary hydraulic data such as design discharge, high flood level, low water level, etc. for all drainage features such as rivers, drains, nallahs, ponds, lakes etc. at cross drainage works of pipelines and sewers.

- (c) The Consultant shall also conduct a soil resistivity survey for at least 50 (fifty) locations, to be distributed uniformly in the Project Area with the prior approval of the Authority, for providing a representative analysis of soil resistivity along the routes of the proposed transmission mains, transfer pipelines and trunks and sewage outfalls as relevant for drinking water and recycled water.

The Consultant shall provide a report on the soil strata and soil resistivity along the alignment of proposed transmission mains, other new pipelines and sewers. The Feasibility Report shall include a broad assessment of the drainage condition and the requirements of the Project Area.

3.4.8 *Estimation of T&D Losses of Water*

For the present, there is no fair estimate of transmission and distribution (T&D) losses in the water supply systems of the Project Area.

The Consultant shall provide a fair estimate of the current levels of T&D losses with break-up in terms of technical and non-technical losses including billing and collection efficiency. The Consultant shall also estimate the rehabilitation work required and recommend priorities for the execution of a detailed T & D loss detection and repair/ replacement programme.

3.5 **Hydraulic design of the water supply system, waste water collection network and recycled water distribution system**

- 3.5.1 The Consultant shall carry out hydraulic modelling and design for all pipes with diameter more than or equal to 100 mm, separately for the (a) transmission, transfer and distribution pipeline networks of the water supply system, (b) waste water collection network, and (c) recycled water distribution system.
- 3.5.2 The distribution pipeline networks of the water supply system shall be checked for the following two configurations independently of each other:
- (a) 40% (forty per cent) of the Project Area with 24x7 hours water supply for the first [5 (five) years] from completion of the construction works for augmentation of the Project; and
 - (b) 90% (ninety per cent) of the Project Area with 24x7 hours water supply in the next phase.
- 3.5.3 The Consultant shall carry out surge analyses of major transmission mains and pumping stations and corrosion protection works for metallic pipes proposed in the Project.
- 3.5.4 The distribution pipeline networks of the water supply system shall meet all design requirements as follows:

S. No.	Parameter	Value
1.	Minimum residual pressure in distribution network	12 mtr at ferrule point

2.	Maximum flow Velocity in pipe	3.0 m/s
3.	Terminal pressure in reservoirs	2.0 mtr above crown of inlet pipe

3.5.5 The Consultant shall estimate the waste water flows from different zones with due consideration to per capita water supply, living habits, surface type etc. The Consultant shall also determine the probable ground water infiltration in sewers based on construction quality and practices, ground water table, soil strata etc. The Consultant shall also assess any other incidental inflows in sewers.

3.5.6 The Consultant shall carry out the hydraulic design of the sewerage network for the Project Area using an industry-specific hydraulic modelling software. The hydraulic model shall be designed for the first year of operation to achieve a flow velocity of 0.6 m/sec and preferably 0.8 m/s for 250 mm and above sewers. The other required parameters shall be as follows:

S. No.	Parameter	Value
1.	Minimum velocity	0.8 m/s
2.	Maximum Velocity	3.0 m/s
3.	Maximum Flow Depth	80% of pipe diameter

3.5.7 The Consultant shall also identify the stretches of sewer network which do not meet the minimum flow velocity criteria as above and shall arrive at the flushing requirements for the Project Area.

3.5.8 The Consultant shall identify the areas where the recycled water demand is sufficient to warrant the development of a recycled water distribution system. For the areas identified, the Consultant shall carry out the hydraulic design of the recycled water distribution network based on the following parameters:

S. No.	Parameter	Value
1.	Minimum residual pressure in distribution network	7 mtr at ferrule point
3.	Maximum flow velocity in pipe	3.0 m/s
4.	Terminal pressure in reservoirs	2.0 mtr above crown of inlet pipe

3.5.9 The Consultant shall provide a report on the network designs and include it in the report on the options of the proposed rehabilitation and augmentation of the water supply, waste water collection and recycled water supply systems.

3.6 Indicative designs and layout plans for rehabilitation and development of water supply assets and waste water system

3.6.1 Based on the capacity sizing of the components of the water supply system and the waste water system and the determination of the locations of pumping stations, sewage treatment plants, effluent disposal sites etc, the Consultant shall develop indicative designs and layout plans for the water treatment plants, sewage treatment

plants, tertiary treatment plants, head works, pumping/ lift stations, power systems, storage reservoirs, transmission mains, transfer and distribution pipeline network, lateral, trunk and outfall sewer network, disposal sites, master control/SCADA centres, customer care centres, etc. At the draft stage, the Consultant shall provide at least 2 alternatives, along with the recommendation on the optimal option, for treatment processes as well as their techno-economic comparisons. Following consultations with the Authority, the Consultant shall include the preferred option in the Feasibility Report.

3.6.2 The Consultant will draw up a conceptual plan for master control/SCADA for automation and control of water supply and sewerage system of Project Area.

3.6.3 The Consultant shall develop the conceptual layout plans of Project campuses, general arrangement drawings, process and instrumentation diagrams, hydraulic diagrams etc. for all Project facilities. In all the proposed indicative designs and layout plans, the Consultant shall ensure integration and co-ordination with the existing water supply and sewerage system. The Consultants shall also prepare Single Line Diagrams (SLDs) for existing and proposed electric installations.

3.7 Indicative designs and layout plans for development of recycled water system

Based on the evaluation of the potential for reuse of secondary/ tertiary treated waste water for industry, horticulture, flushing etc., the Consultant shall develop at least two options, along with the recommendation on the optimal option, for tertiary treatment of waste water. The Consultant shall prepare suitable indicative designs and layout plans for the tertiary treatment plants and the distribution network for recycled water.

3.8 Social Impact Assessment (SIA)

The Consultant shall undertake social impact assessment due to the improvements forming part of the Project, especially for the persons affected due to the Project and requiring resettlement and rehabilitation. The extant policies and guidelines of the Government would be kept in view while undertaking the assessment. The Consultant shall prepare a plan for involuntary resettlement and land acquisition, which shall include the following:

- (a) Prepare in accordance with guidelines of the Government, a draft Resettlement and Land Acquisition Plan;
- (b) Prepare area specific social assessments to support development of a locally relevant approach to resettlement which provides benefits to people in the Project's area of influence, which include socioeconomic conditions, social service infrastructure, and social institutions and organization, in accordance with the Government policies and guidelines;
- (c) These social assessments should include gender and local ethnic aspects;
- (d) Provide recommendations and action plan for the Concessionaire to undertake, at the detailed design stage, a full census and inventory of lost assets (households, shops and agricultural and other lands, or access to current income-generating activities, including impacts caused by permanent or

temporary acquisition) of affected people and a baseline socioeconomic survey of the affected population. Determine the scope and magnitude of likely resettlement and land acquisition effects, and list likely losses of households, agricultural lands, business and income opportunities, as well as affected communal assets and public buildings;

- (e) In consultation with local stakeholders, government and the Authority, develop an entitlement matrix, on the basis of the consultations, socio-economic surveys, and inventories of losses that will determine the amount of compensation in accordance with the guidelines and policies of the Government;
- (f) Prepare the plans with full stakeholder participation, including the Government and the Authority. Consult with affected persons and community-based organizations to ensure that all affected persons have been fully informed of their entitlements through the consultative processes initiated by the Government and the Authority. Ensure that communities and displaced persons understand the Project, its impacts, and the responsibilities of the parties; and
- (g) Analyse and confirm the following aspects that will apply to land acquisition and resettlement in the Project Area: (i) laws and regulations, including local practices; (ii) budgetary processes for involuntary resettlement and land acquisition; (iii) schedules for these activities that are coordinated with the construction schedule; and (iv) administrative arrangements and requirements.

3.9 Environment Impact Assessment (EIA)

- (a) The Consultant shall undertake environment impact assessment of the Project as per provisions of the Applicable Laws on environment protection and identify a package of measures to reduce/ eliminate the adverse impact identified during the assessment. An environmental impact assessment report and environmental management plan shall be prepared based on such assessment. The management plan shall include Project specific mitigation and monitoring measures for identified impacts as well as management and monitoring plans to address them.
- (b) The Consultant shall also assist the Authority in conducting public hearings and addressing the comments and suggestions received during the EIA process with a view to getting environmental clearance from the competent authority.

3.10 Preparation of Land Acquisition Plans

The Consultant shall identify each Khasra along the proposed alignment, wherever land is recommended to be acquired for the development of the Project, and superimpose the Khasra maps on the topographical survey results. The Land Acquisition Plans shall be marked on duly certified village maps showing Khasra numbers and shall be furnished along with a report which will include details of related Khatedars as well as detailed schedules in respect of the proposed acquisition of land holdings as per revenue records in a format that would enable the Authority to initiate land acquisition proceedings. The Consultant shall procure the Khasra maps

from the concerned officials and necessary assistance will be provided by the Authority for this purpose.

3.11 Project Cost

- 3.11.1 The Consultant shall work out indicative BOQ of various components and prepare rough cost estimates of the Project with a break-up of costs for each component separately. To the rehabilitation cost of existing assets and the construction cost so arrived at, the Consultant shall add 25% (twenty five per cent) thereof as a lump sum provision for physical and price contingencies, interest during construction and other financing costs, pre-construction expenses etc.

Financial analysis and bid process

- 3.11.2 Detailed financial analysis is not required to be undertaken by the Consultant. However, the Consultant shall provide the estimated construction costs, operation and maintenance costs, water demand and waste water flows forecast, revenues from water supply, sewerage collection, wastewater reuse etc. as part of its preliminary financial analysis and appraisal of the Project. The Consultant shall also provide a preliminary assessment of the financial viability of the Project with a view to estimating the likely internal rate of return (IRR) over a concession period of 20 (twenty) years, 25 (twenty five) years and 30 (thirty) years respectively. It shall also provide assistance during the Bid Process for selection of the Concessionaire.

- 3.11.3 While undertaking the financial analysis and projecting the IRR, the following assumptions shall be adopted:

- (a) Capital cost shall be adopted as per estimates of construction cost to which 25% (twenty five per cent) shall be added for physical and price contingencies, interest during construction, other financing costs etc.;
- (b) debt equity ratio may be assumed as 70:30;
- (c) O&M costs may be assumed as per norms of the Authority; and
- (d) the concession period may be fixed by reference to a two stage development where the first phase shall be about 10 (ten) years.

- 3.11.4 The Consultant shall:

- (a) Calculate the NPV and EIRR for the Project. It will undertake sensitivity analysis by identifying the most critical factors and determine their impact on the EIRR, including varying project costs and benefits, implementation period, and combinations of these factors; and
- (b) conduct a risk analysis (using the Monte Carlo method) by considering the possible values for key variables based on records, and their occurrence probability.

- 3.11.5 If the IRR of the Project, based on the aforesaid calculations is less than 12% (twelve per cent), an effort should be made to reduce the capital costs in consultation with the Authority. This may be done either by omitting/ modifying some of the proposed

structures or by phasing them after a period of seven years or more, such that the IRR reaches a minimum of 12% (twelve per cent).

3.12 Preparation of technical and system related Schedules of the Concession Agreement

The Consultant shall prepare the technical and system related Schedules [including Schedules A, B, C, D and H] of the Concession Agreement as specified in Paragraph 1.3.

3.13 Preparation of Manuals of Standards and Specifications

The Consultants shall review the documents related to standards and specifications, as made available by the Authority and prepare the draft Manuals on Standards and Specifications for Water Supply and Sewerage Works that would govern the construction and operation of the Project by the Concessionaire. The Manual shall form part of the Concession Agreement and shall be binding on the Concessionaire.

4 DELIVERABLES

The Consultant shall deliver the following deliverables (the “**Deliverables**”) during the course of this Consultancy. The Deliverables shall be so drafted that they could be given to the prospective bidders for guidance in preparation of their bids. Twenty hard copies and two soft copies in CDs of all the final reports, drawings, etc. shall be submitted to the Authority. For draft reports only five hard copies and one soft copy in CD shall be submitted to the Authority. The size of drawings shall be A-3 and A-0 (as per requirement). The Authority shall provide comments on the draft of each of the following Deliverables within 15 (fifteen) days prior to its finalisation by the Consultant.

A. Inception Report

On commencement of the Consultancy, the Consultant shall submit an Inception Report. The Inception Report shall include the Consultant’s submissions towards understanding of the RFP, the methodology to be followed and the Work Plan. The Inception Report shall also include the Consultant’s proposal regarding the proposed water treatment plants from the existing and additional sources of water and wastewater disposal sites.

Within a period of four weeks of submission of the Inception Report, the Consultant shall submit a Supplementary Inception Report where it must clearly spell out the broad strategy for structuring the Project in a manner that would restrict the likely viability gap funding to a level not exceeding 40% (forty per cent) of the capital cost of the Project assuming an IRR of 12% (twelve per cent). In making this assessment, the Consultant shall follow the assumptions specified in Paragraph 3.11.3 above. In particular, the Consultant must make realistic assumptions about the water demand projections and the resulting revenue streams with a view to making an assessment of the capital cost that can be sustained by such revenues. For this purpose, the Consultant shall undertake a 7 (seven) day classified water demand sample survey. The Project components should be so formulated as to make the Project viable.

B. Report on additional sources of water

The Consultant shall submit the Report on developing additional sources of water based on the assessments and forecasts made under Paragraphs 3.2 and 3.3 above.

C. Report on options for augmentation of the water supply and waste water systems

Based on the engineering surveys, investigations, inventory and condition assessments of the existing water supply and waste water infrastructure under Paragraph 3.4 above, the Consultant shall submit a Report, which shall include identification of hydraulic and physical deficiencies as well as the requirements for rehabilitation or replacement of existing equipment and/or construction of new infrastructure for water supply, waste water collection and treatment, and recycled water supply systems in the Project Area.

The Consultant shall finalise the phased development of the proposed infrastructure based on the assessments under Paragraphs 3.5, 3.6 and 3.7 above after taking into account the comments of the Authority on the draft Report. The hydraulic designs of the Project and the indicative designs, location and layout plans of the proposed augmentation of the water supply and waste water systems as well as of the development of the recycled water supply system shall be included in this Report.

The Consultant shall include in this Report, the Land Acquisition Plans and schedules for acquisition of additional land where required for components of the phased augmentation and development programme, including laying of water transmission mains, sewers etc. and the land required for facilities such as pumping stations, treatment plants, reservoirs etc. (Refer Paragraph 3.10)

The Consultant shall also submit another plan of the Project showing the existing ROW (along with all the existing assets within the ROW) and encroachments, if any, together with a list of such encroachments along with their brief description (Refer Paragraph 3.4.4).

Utility-wise preliminary plans together with approximate costs for shifting/relocation shall be provided for proposed water supply and sewerage system. Indicative Plans shall also be provided for Project facilities for design horizon of 20 (twenty) years.

D. Report on assessment of technical and non-technical water losses (NRW)

Report shall include an analysis of the data compiled for the Project Area and a fair estimate of the current levels of NRW with break-up in terms of technical and non-technical losses including billing and collection efficiency. The Consultant shall also estimate the rehabilitation work required and recommend priorities for execution of a detailed NRW reduction programme involving detection and repair of leaks, / replacement of damaged pipe lines, disconnection of illegal connections, bulk and consumer metering etc. (Refer Paragraph 3.4.8).

E. Reports on Environment and Social Impact Assessment

The Consultant shall submit Reports on social impact assessment (Refer Paragraph 3.8) and environment impact assessment (Refer Paragraph 3.9).

F. Manuals of Standards and Specifications

The Consultant shall submit drafts of the Manuals on Standards and Specifications for Water Supply and Sewerage Works under this Project (Refer Paragraph 3.13).

G. Feasibility Report

The Feasibility Report of the Project shall include the following:

(i) Relevant drawings

- (a) An Index Plan of the existing and proposed systems for drinking water supply, recycled water supply and waste water collection and disposal under the Project;
- (b) Plans, L-sections, and typical cross-sections showing the existing features along the alignments of water pipelines and sewers. Plans shall show the location of the facility with reference to permanent structures along with carriageway, structures, drains, service roads, utilities, adjoining land use, intersecting roads/ access roads, etc.). The L-sections shall depict the over burden depth, location of ancillaries, and flow depth in the case of sewers.

(ii) Investigation Reports

- (a) Report on population forecasts, water demand survey and water demand assessments (Refer Paragraph 3.2).
- (b) Report on water resources and their prospective utilisation for the Project period (Refer Paragraph 3.3).
- (c) Inventory and condition assessments of water supply and waste water systems (Refer Paragraph 3.4).
- (d) Energy efficiency studies (Refer Paragraph 3.4.6).
- (e) Soil, geotechnical, material, hydrology and drainage surveys (Refer Paragraph 3.4.7).
- (f) Estimation of T & D losses (Refer Paragraph 3.4.8).

(iii) Hydraulic designs and Indicative designs, Location and Layout Plans

- (a) Hydraulic models and designs separately of the (a) transmission, transfer and distribution pipeline networks of the water supply system, (b) waste water collection network and (c) recycled water distribution system (Refer Paragraph 3.5).
- (b) Indicative designs, location and layout plans of the Project (refer Paragraphs 3.6 and 3.7), consistent with the existing facility and the additional requirements including:

- (i) Water demand and waste water flows forecasting till the Project horizon year of the 20th (twentieth) year and at every 5 year interval.
 - (ii) Preliminary designs for new infrastructure required for water supply, sewerage and recycled water systems upto the 10th (tenth) year and suitable provisions for 20 (twenty) years along with typical plans and L-sections.
 - (iii) Options for replacement of existing infrastructure by new structures together with preliminary design.
 - (iv) Preliminary layouts of pumping stations, reservoirs, treatment plants, etc.
- (iv) *Preliminary costing*
- (a) Indicative BOQ.
 - (b) Preliminary cost estimates for rehabilitation of existing infrastructure and construction of new Project facilities.
 - (c) Total Project Cost (Refer Paragraph 3.11).
- (v) *Implementation schedule*
- (a) Construction period, for each phase of development.
 - (b) Likely delays, if any, on account of land acquisition.

H. Schedules of Concession Agreement

The Consultant shall separately provide the technical and system-related Schedules [including Schedules A, B, C, D and H] of the Concession Agreement for the Project with all supporting documentation relating to these Schedules.

I. Financial analysis

A preliminary financial assessment of the Project indicating the likely IRR for a 20 (twenty) year, 25 (twenty five) year and 30 (thirty) year concession period respectively (Refer Paragraph 3.11).

The Consultant shall, based on the assumptions specified in Paragraph 3.11.3, indicate the likely viability gap funding for the Project. In case the viability gap funding projected in the Feasibility Report exceeds the projection in the Inception Report by more than 10% (ten per cent) of the capital costs, a deduction of 10% (ten per cent) of the Agreement Value shall be made from the payment due to the Consultant. Such deduction shall be deemed to be mutually agreed genuine pre-estimated compensation and damages suffered by the Authority on account of inaccurate projections leading to higher costs.

J. Assistance during bid process

The Consultant shall provide the required assistance to the financial consultant and the legal adviser of the Authority in preparation of bid documents. The Consultant shall also participate in Pre-bid Conferences and assist in preparation of answers to the Bidders' queries on technical aspects of the Project and bid documents.

5 TIME AND PAYMENT SCHEDULE

- 5.1 The total duration for preparation of the Feasibility Report and Schedules to the Concession Agreement shall be 20 (twenty) weeks, excluding the time taken by the Authority in providing the requisite documents or in conveying its comments on the Draft Feasibility Report. The Consultant shall deploy its Key Personnel as per the Deployment of Personnel proposed. Intermittent services will be required beyond the 20th (twentieth) week and until the end of 52 (fifty two) weeks or 2 (two) months after the signing of the Concession Agreement, whichever is earlier. The man-days required for the intermittent services shall be provided by the Consultant as per the Agreement.
- 5.2 Time schedule for important Deliverables (the “**Key Dates**”) of the Consultancy and the payment schedule linked to the specified Deliverables is given below:

Key Date No.	Description of Deliverables	Week No.	Payment
KD1	Inception Report	2	--
KD2	Report on developing Additional Sources of Water	10	10%
KD3	Report on Existing Water Supply and Sewerage System	12	10%
KD4	Report on options for Augmentation of the Water Supply and Waste Water Systems	14	10%
KD5	Report on Assessment of T & D Losses of Water	16	10%
KD6	Report on Environment and Social Impact Assessment	18	10%
KD7	Draft Feasibility Report and including Schedules [including Schedules A, B, C, D and H] to the Concession Agreement	18	10%
KD8	Final Feasibility Report	20 ^s	15%
KD9	Manuals of Standards and Specification for Water Supply System and Sewerage System	24	10%
KD10	Completion of Services including assistance during Bid Process	52	15%
	Total		100%

^sExcludes time taken by the Authority in providing its comments on the Draft Reports. The Consultant shall get one week for submission of Final Feasibility Report after comments of the Authority are provided.

- 5.3 The TOR for the Consultant envisages assistance in the process of public hearings, etc. in respect of the EIA of the Project specified in Paragraph 3.9. In the event that the process cannot be completed within the period specified herein for completion of Final Feasibility Report, the EIA Report may be completed and submitted to the Authority within an extended period of 6 (six) weeks after submission of the Feasibility Report. A sum equal to 10% (ten per cent) of the total payment due shall be withheld and paid to the Consultant upon submission of the EIA Report and environment management plan.
- 5.4 Mobilization Advance up to 10% (ten per cent) of the total Agreement Value shall be paid on request against Bank Guarantee of a Scheduled Bank. This shall attract 10% (ten per cent) simple interest per annum and shall be adjusted against the first four bills in four equal instalments and the accrued interest shall be recovered from the fifth bill.
- 5.5 15% (fifteen per cent) of the Agreement Value has been earmarked as Final Payment to be made to the Consultant upon execution of the Concession Agreement. In the event the Concession Agreement does not get executed within one year of the Effective Date, the Final Payment shall not become due to the Consultant, save and except the costs incurred for meeting its reimbursable expenses during the period after expiry of 26 weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates.

6 MEETINGS

The Authority may review with the Consultant, any or all of the documents and advice forming part of the Consultancy, in meetings and conferences which will be held in the Authority's office. Further, the Consultant may be required to attend meetings and conferences with pre-qualified Bidders or the Selected Bidder. The expenses towards attending such meetings during the period of Consultancy, including travel costs and *per diem*, shall be reimbursed in accordance with the Financial Proposal contained in Form-2 of Appendix-II of the RFP. The days required to be spent at the Authority's headquarters or the Site shall be computed at the rate of 8 (eight) man hours a day in case of an outstation Consultant. For a Consultant having its office in the same city as the Authority's headquarters, the time spent during meetings shall be calculated as per actuals. No travel time shall be payable except in case of an expatriate Consultant who will be entitled to claim actual travel time, subject to a maximum of 10 (ten) man hours for a return journey.

7 CONSULTANCY TEAM

- 7.1 The Consultant shall form a multi-disciplinary team (the "**Consultancy Team**") for undertaking this assignment. The following Key Personnel whose experience and responsibilities are briefly described herein would be considered for evaluation of the Technical Proposal. Other expertise such as that required for financial analysis, social impact assessment etc. for the Project shall be included in the Team either through the Key Personnel specified below or through other Professional Personnel, as necessary.

(a) Senior Water Supply and Sewerage Engineer-cum-Team Leader

Educational Qualifications	Graduate in Civil Engineering with Post Graduation in Environment Engineering/ Public Health Engineering
Essential Experience	15 (fifteen) years in planning, project preparation and design of water supply and sewerage projects.
Job responsibilities	He will lead, coordinate and supervise the multi-disciplinary team. It will be his responsibility to guide the team in arriving at solutions within the constraints specified in the TOR.
Minimum time required on site	45 (forty five) days

(b) Water Supply Expert

Educational Qualifications	Graduate in Civil Engineering with Post Graduation in Environment Engineering/ Public Health Engineering
Essential Experience	10 (ten) years in assessment and design of water supply systems
Job responsibilities	He will be responsible for the assessment of water supply system and suggesting options for augmentation of the water supply system under the constraints described in the TOR.
Minimum time required on site	30 (thirty) days

(c) Waste Water Expert

Educational Qualifications	Graduate in Civil Engineering with Post Graduation in Environment Engineering/ Public Health Engineering
Essential Experience	10 (Ten) years in assessment of sewerage systems and design of waste water collection and treatment systems.
Job responsibilities	He will be responsible for assessment of sewerage system and suggesting augmentation of the sewerage system, as well as design of waste water collection and treatment system under the constraints described in the TOR.
Minimum time required on site	30 (thirty) days

(d) Utility Management Expert

Educational Qualifications	Graduate in Civil/ Mechanical Engineering/ MBA
Essential Experience	5 (five) years as management expert for water supply / sewerage systems.
Job responsibilities	He will be responsible for finding the infrastructure and management gaps in water supply and sewerage services in the Project Area and assessing the interventions and associated investments required.
Minimum time required on site	30 (thirty) days

(e) Financial Analyst

Educational Qualifications	Post Graduate in Commerce/ Chartered Accountant or equivalent.
Essential Experience	7 (Seven) years in financial analysis and modelling of infrastructure projects.
Job responsibilities	He will be responsible for financial analysis and modelling of the Project.
Minimum time required on site	5 (five) days

- 7.2 The Consultant shall establish a Project Office at a suitable location in or near the city where the Authority's office or the Project is situate, for efficient and coordinated performance of its Services. All the Key Personnel shall be deployed at this office during the first 20 (twenty) weeks as specified in the Manning Schedule forming part of the Agreement. The authorised officials of the Authority may visit the Consultant's Project Office any time during office hours for inspection and interaction with the Consultant's Personnel. It is not expected of the Consultant to carry out the operations from the Head/Home Office. However, he may do so for the remaining consultancy services beyond the first 20 (twenty) weeks.[§]
- 7.3 The Consultant shall mobilise and demobilise its Professional Personnel and Support Personnel with the concurrence of the Authority and shall maintain the time sheet/ attendance sheet of the working of all Personnel in the Project Office. These time sheets/ attendance sheets shall be made available to the Authority as and when asked for and a copy of such record shall be submitted to the Authority at the end of each calendar month.

8 REPORTING

- 8.1 The Consultant will work closely with the Authority. The Authority has established a Working Group (the "WG") to enable conduct of this assignment. A designated Project Officer of the Authority will be responsible for the overall coordination and project development. He will play a coordinating role in dissemination of the Consultant's outputs, facilitating discussions, and ensuring required reactions and responses to the Consultant.
- 8.2 The Consultant may prepare Issue Papers highlighting issues that could become critical for the timely completion of the Project and that require attention from the Authority.
- 8.3 The Consultant will make a presentation on the Inception Report for discussion with the WG at a meeting. This will be a working document. The Consultant is required to prepare and submit a monthly report that includes and describes, inter alia, general progress to date; data and reports obtained and reviewed, conclusions to date, if any; concerns about availability of, or access to, data, analyses, reports; questions regarding the TOR or any other matters regarding work scope and related issues; and

[§] This Paragraph 7.2 shall not apply if the Agreement Value is less than Rs. 50 (fifty) lakh for the Consultancy.

so on. The Consultants' work on the TOR tasks should continue while the report is under consideration and is being discussed.

8.4 Regular communication with the WG and the Project Officer is required in addition to all key communications. This may take the form of telephone/ teleconferencing, emails, faxes, and occasional meetings.

8.5 The Deliverables will be submitted as per schedule provided in this RFP.

9 DATA AND SOFTWARE TO BE MADE AVAILABLE BY THE AUTHORITY

The Authority shall provide to the Consultant the following:

- (a) Manual on Water Supply and Treatment published by Central Public Health and Environmental Engineering Organisation (the “CPHEEO”), Ministry of Urban Development, Government of India.
- (b) Manual on Sewerage and Sewerage Treatment published by CPHEEO, Ministry of Urban Development, Government of India.
- (c) Manual on Operation and Maintenance of Water Supply Systems published by CPHEEO, Ministry of Urban Development, Government of India.
- (d) Water supply rules.
- (e) A copy of the Model Concession Agreement.
- (f) Other documents, drawings, data and information required to be provided by the Authority in accordance with the RFP and TOR.

Available data/ documents/ reports as may be required by the Consultant, will be provided by the Authority on request. The Nodal Officer designated by the Authority shall facilitate handing over of such information to the Consultant.

10 COMPLETION OF SERVICES

10.1 All the study outputs including primary data shall be compiled, classified and submitted by the Consultant to the Authority in soft form apart from the reports indicated in the Deliverables (Paragraph 4). The study outputs shall remain the property of the Authority and shall not be used for any purpose other than that intended under these Terms of Reference without the permission of the Authority. The Consultancy shall stand completed on acceptance by the Authority of all the Deliverables of the Consultant and execution of the Concession Agreement or 52 (fifty two) weeks from the Effective Date, whichever is earlier. The Authority shall issue a certificate to that effect. The Consultancy shall in any case be deemed to be completed upon expiry of 1 (one) year from the Effective Date, unless extended by mutual consent of the Authority and the Consultant.

10.2 15% (fifteen per cent) of the Agreement Value has been earmarked as lump sum payment to be made to the Consultant upon execution of the Concession Agreement (the “**Lump Sum Payment**”). In consideration of the Lump Sum Payment, the Consultant shall provide such services as may be required by the Authority for

concluding the Bid Process and execution of the Concession Agreement. In the event the Concession Agreement does not get executed within 1 (one) year of the Effective Date, the Consultancy shall stand completed as specified in Paragraph 10.1 above, but no Lump Sum Payment shall be due to the Consultant, save and except the costs incurred for meeting its expenses during the period after expiry of 20 (twenty) weeks from the Effective Date, including travel costs and personnel costs, at the agreed rates specified in Annex-3 of the Agreement, which shall be reimbursed to the Consultant as per actuals. For the avoidance of doubt, it is agreed that reimbursement of such costs on travel and personnel shall be due to the Consultant as aforesaid, even if the Concession Agreement is not executed.

11 GENERAL DATA FOR THE PROJECT AREA

The general data for the Project Area is as below:

1.	Existing Population	About *** lakh
2.	Project Area	*** sq. km
3.	Present Domestic Users	***
4.	Present Industrial Users	***
5.	Present Commercial Users	***
6.	Length of existing WS System (km)	*** km
7.	Length of Sewage System (km)	*** km
8.	No. of Surface Water Sources	***
9.	No. of Ground Water Sources	***
10.	No. of Water Treatment Plants and total installed capacity.	***
11.	No. of Sewerage Treatment Plants and total installed capacity.	***

[NOTE: This Illustrative Schedule-III comprising the TOR may be suitably modified, prior to issue of the RFP, for reflecting the project-specific provisions mentioned below:

- A. Square parenthesis:** Paragraphs 1.3, 2, 3.1 (xi), 3.4.4 (g), 3.5.2 (a), 3.12, 4 (H) and 5.2.
- B. Asterisks:** Paragraphs 1.1 and 11.
- C. Serially numbered Footnotes (Fn.):** Footnote no. 26
- D. Other modifications:** Other modifications may also be made, as necessary, to meet the specific requirements of the Project.]

Guidelines for Field Surveys, including Topographic, Alignment and Land Use Surveys

(Refer Paragraph 3.4.4)

1. The field surveys would be sufficiently detailed to meet the following objectives:
 - (i) Finalising the alignment of proposed transmission and other mains and sewers and other important structures like water treatment plant, pumping stations, etc.
 - (ii) Preliminary layout of intake, pumping stations, water treatment plants, storage reservoirs, lift stations, etc.
 - (iii) Preparation of Land Plans for acquisition of additional land where necessary.
 - (iv) Plans for shifting and relocation of utilities.
2. The field surveys shall be carried out using high precision instruments, i.e. DGPS/total stations, auto-level etc. and would cover the following activities:
 - (i) Running a continuous open traverse along the existing and proposed pipeline / sewer alignments.
 - (ii) Collection of details for all features such as structures, utilities, existing roads, electric and telephone installations (both overhead as well as underground), huts, buildings, fencing, trees, oil and gas lines, etc. falling within the extent of surveys.
3. The width of survey corridor shall be as under:
 - (i) The topographic surveys shall cover sufficient width on both sides of proposed water pipelines / sewers.
 - (ii) In case need for bypassing the congested locations is felt and the feasibility study for the bypass is included in the TOR, preliminary survey would be carried out along the possible alignments in order to identify and select the most suitable alignments for the transmission mains / outfall sewers. The final alignment shall be got approved by the Authority. Further surveys shall be carried out along the final alignment.
4. The important features of the survey conducted and the reference points taken in consideration like GPS bench mark, temporary and permanent bench marks, etc. shall be listed in appropriate formats.
5. The topographical, alignment and land use surveys shall include a full set of topographical maps of the National Remote Sensing Agency (the “**NRSA**”) of minimum resolution corresponding to 1:25,000 scale) and any Survey of India topographical maps, and the field surveys on alignments of the pipelines, the technical feasibility of the proposed water supply and sewerage system routes shall be verified

through physical visits (e.g. driving and walking) of the entire length. The definition of the system routes must be accurate enough to allow estimation of construction costs compatible with the needs of financial analysis.

Proforma A1 to the TOR

Water Demand Survey (Bulk Consumers)
(Refer Paragraph 3.2.4)

Category I: Non-Domestic Users

Name	Location/ Address	Ward	Activity	Number of		Water Consumption					Area Occupied (in Sq. m.)		Water Storage (m ³)	Total Water Cost Rs./ m ³	Additional Water Need in Future (m ³)
				Workers	Users	PHED /ULB	Bore well	Others	Total	Per Day	Built- up	Empty Space			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

Category II: Industrial Users

Name	Location/ Address	Ward	Activity	Number of		Water Consumption					Area Occupied (in Sq. m.)		Water Storage (m ³)	Total Water Cost Rs./ m ³	Additional Water Need (m ³)
				Workers	Users	PHED /ULB	Bore well	Others	Total	Per Day	Built- up	Empty Space			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

Proforma B1 to the TOR

Asset Inventory and Condition Assessment of Water Treatment Plant(s)

(Refer Paragraph 3.4.5)

- (a) Location
- (b) Capacity (million litres per day)
- (c) Filtration Loss (%)
- (d) Frequency of back wash (hrs.)
- (e) Unit wise present condition:

S. No.	Unit	Cracks in Concrete	Rusting in Reinforcements	Leakages	Condition of electro-mechanical equipment installed in it
1	Inlet Channel				
2	Flash Mixer				
3	Clarifloculator 1 Clarifloculator 2 Clarifloculator 3 And more, as applicable				
4	Filter units				
5	Chemical storage buildings				
6	Other buildings				
7	General remarks				

Note: The above format is typical for a rapid gravity filter. The Consultant may, suitably, modify the form for other type of filters, as available at site.

Proforma B2 to the TOR

Asset Inventory and Condition Assessment of Storage Reservoirs
(Refer Paragraph 3.4.5)

(A) Elevated Service Reservoirs

- A.1 Location
- A.2 Capacity (kilolitres)
- A.3 Component condition:

S.No.	Component	Crack in Concrete	Reinforcement Rusting	Leakages	Others (Specify)
1.	Ventilator Mesh	NA	NA	NA	
2.	Top dome			NA	
3.	Top ring beam				
4.	Vertical wall				
5.	Middle beam / balcony			NA	
6.	Conical dome				
7.	Bottom beam				
8.	Columns			NA	
9.	Braces			NA	
10.	CI pipes	NA	NA		
11	Inlet/outlet/washout valves	NA	NA		

Note: The above components are, typically, for Intz type RCC ESR. The Consultant may modify the form for other types of ESRs, suitably.

(B) Clear Water Reservoirs

- B.1 Location
- B.2 Capacity (kilolitres)
- B.3 Component condition:

S.No.	Component	Crack in Concrete	Reinforcement Rusting	Leakages	Others (Specify)
1	Ventilator mesh	NA	NA	NA	
2	Roof/cover			NA	
3	Roof beams				
4	Vertical wall				
5	Base slab				
6	CI pipes	NA	NA		
7	Inlet/outlet valves	NA	NA		

Proforma B3 to the TOR

Asset Inventory and Condition Assessment of Pump House Buildings
(Refer Paragraph 3.4.5)

(A) Pump Houses

B.1 Location

B.2 Component Condition:

S. No.	Components	Cracks	Leakages	Painting	Other Defects (Specify)
1.	Roof				
2.	Walls				
3.	Floors		N.A.		
4.	Doors		N.A.		
5.	Windows				
6.	Electric fittings				
7.	Joinery				
8.	Foundation				
9.	Hoist crane				
10.	Pump Foundation				
11.	Drainage System				

(B) All Campuses

C.1 Location

C.2 Area (sq. Meters)

C.3 Component Condition:

S. No.	Component	Broken	Non-functional	Other Defects (Specify)
1.	Approach road			
2.	Boundary walls			
3.	Lighting			
4.	Drainage System			

Documentation of Civil Structures

(Refer Paragraph 3.4.5)

The Consultant shall submit the following documents of the civil structures in the scale of 1:50 for structural and 1:100 for General Arrangements, or an appropriate scale finalised with the prior approval of the Authority and plotted on A3 / A0 size paper.

(A) Filter Plants

1. General Arrangement drawings showing layout and levels of each filter plant.

(B) Service Reservoir and Clear Water Reservoir

1. General Arrangement drawings showing inlets and outlets and overflows, with markings of Top Water Level (TWL) and Lower Water Level (LWL).
2. Structural Drawings/ Completion drawings

(C) Pump Houses

1. Layout plans, Elevations, and Sectional Elevations
2. Detailed drawings, etc of inlets, outlets and pumping machinery

(D) Office Buildings and Campuses

1. Layout plans, Elevations, and Sectional Elevations

Inventory of Electro-Mechanical and Instrumentation Equipment

(Refer Paragraph 3.4.5)

(A) Mechanical

1. Record Name Plate Details of all Pumps
2. Record name plate details of all Motors
3. Record sizes and PN rating and Make of such Valves
4. Record sizes and PN rating and Make of delivery Valves
5. Record sizes and PN rating and Make of sectionalizing Valves
6. Record size of NRV
7. Record size, type, make and model of votmav type flow meter
8. Record details of all surge equipments
9. Record details of raw water flow meter and loss of head gauge

(B) Electrical

1. Record name plate details of transformer
2. Record switchgear details of High Tension (HT) system
3. Record protection details on HT system
4. Record cable details on HT system
5. Record cable details of Low Tension (LT) system
6. Record control and instrumentation cable details
7. Record switchgear details of main LT Panel
8. Record details of Earthing system

(C) Instrumentation

1. Record details of pressure sensor/gauges
2. Record details of level sensors/ gauges
3. Record details of Full bore and electromagnetic meters
4. Record details of ultrasonic full bore meters

(D) Filter Plant Equipments

1. Record details of Alum and lime mixing and dosing equipment
2. Record details of pre and post chlorination equipment
3. Record details of flocculation equipment
4. Record details of clarifier mechanism
5. Record details of all valves and tripping

Condition Assessment of Electro-Mechanical and Instrumentation Equipment
(Refer Paragraph 3.4.5)

(A) Mechanical

1. Condition of each pump:
2. Noise level:
3. Vibration level:
4. Operating parameters with duty point:
5. Condition of suction and delivery pipeline:
6. Condition of all valves:
7. Condition of all Non-Return Valve(s) (NRVs):
8. Sizes of all pipelines:
9. Is the surge equipment is working?

(B) Electrical

1. Condition of transformer:
 - a) Insulation level of High Tension(HT) to Earth, High Voltage to Low Voltage:
 - b) Oil Break Down Voltage:
 - c) Condition of protection equipments:
2. Insulation level of HT system:
3. Earthing resistance and resistance of earthing conductor:
4. Insulation level of Low Tension (LT) cables:
5. Insulation level of all motors:
6. Insulation level of all panels:
7. Signs of overheating, loose connections:
8. Operating temperatures of important electrical equipments such as transformer, motors, cable ends:

(C) Instrumentation

1. Calibration of all instruments:
 - a) Flow meters
 - b) Pressure sensors
 - c) Level sensors
2. Functioning of filter plant equipment:

Documentation of Electro-Mechanical and Instrumentation Equipment

(Refer Paragraph 3.4.5)

1. Prepare P&I diagram of total system pumping station and water treatment plants giving details for the following:

Pump	(Flow and Head)
Motor	(KW)
Pipe	(Sizes)
Valve	(Sizes)
Instruments	(Locations)

2. Prepare single line diagram of total system giving details of the following:

HT system	
Transformer	(Details)
Cable	(Details on HT and LT system)
Switchgear	(Details)
Motor Protection	(Details)

3. Prepare physical layout plan of the total system giving details about construction of pump houses, water treatment Plants and campus; layout of pumping machinery and layout of piping.
4. Prepare sectional deviations giving various levels
5. Photography: on DVD for all major equipment and layouts
6. Videography: on DVD for all operating machinery and layouts

Inventory and Condition Assessment of Pipelines and Valves
(Refer Paragraph 3.4.5)

(A) Pipelines

S. No.	Pipeline	From Node	To Node	Length (mts.)	Diameter	Material	Laying Year	Surface Smoothness	External Corrosion	Leakage in Joints
1.										
2.										
3.										
4.										
5.										
6.										
7.										

Note: Assessment is to be done for representative Zones, diameter of pipe, age of pipe and material as defined in para 3.4.5(c)

(B) Valves

S. No.	Type	Size	Rating	Location/ Pipe ID	Normal/ Closed Operation	Condition
1						
2						
3						
4						
5						

Note: Condition assessment of 5% valves shall be done for water tightness by physical observation and discussion with operating staff.

Proforma E to the TOR

Inventory and Condition Assessment of Sewers and Manholes
(Refer Paragraph 3.4.5)

(A) Sewers

S. No.	Pipeline	From Node	To Node	Length (mts.)	Diameter	Material	Laying Year	Surface Smoothness	External Corrosion	Leakage in Joints
1.										
2.										
3.										
4.										
5.										
6.										
7.										

Note: Assessment is to be done as per 3.4.5(d)

- (i)
- (ii)
- (iii)
- (iv)

(B) Manholes

S. No.	Location and Node No.	Size (mm) and Shape	Construction Material	Silting Levels	Physical Damage
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

Note: Assessment is to be done as per the following quantities:

- (i) upto 200 mm diameter - 10 km interval
- (ii) 250 mm to 400 mm - 5 km interval
- (iii) 450 mm to 600 mm - 2.5 km interval
- (iv) 700 mm and above - 1 km interval

Energy Efficiency of Pumping/Lift Equipment

(Refer Paragraph 3.4.6)

1. Obtain Log Books of past observations and analyse Log of :
 - a) Flow
 - b) Pressure
 - c) Operation of Pumps
 - d) Maintenance of Machinery

2. Obtain electricity bills and correlate consumption data with production
 - (A) Measures of Efficiency
 1. Measure flow of individual pump/flow over a defined period
 2. Measure corresponding pressure/effective head on pump
 3. Measure corresponding power parameters/consumption over a defined period
 4. Work out present day operating efficiency of each pump

 - (B) Suggested Instruments to be employed
 1. Strap on type Ultrasonic Flow Meter
 2. Pressure Sensor and Recorder
 3. Power Monitor and Recorder
 4. Sound Meter
 5. Vibration Meter
 6. Infrared Temperature Sensor
 7. Milli OHM Meter
 8. Digital Earth Tester
 9. Insulation Tester 2.5kv and 1kvs