GOVERNMENT OF KHYBER PAKHTUNKHWA
COMMUNICATION & WORKS DEPARTMENT

REQUEST FOR PROPOSAL (RFP)

FEASIBILITY STUDY, SURVEY, TECHNICAL & ENVIRONMENTAL STUDY, DETAIL DESIGNING, PREPARATION OF PC1 & CONTRACT DOCUMENTS

for the Project

F/s and design of Mastuj Boroghul Pass Road (153 KM)
District Upper Chitral

ADP NO. 1295/250331 (2025-26)

C&W DIVISION UPPER CHITRAL,
GOVT. OF KHYBER PAKHTUNKHWA

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Request for Proposal

Country:	Pakistan
Province:	Khyber Pakhtunkhwa
Executing Agency:	C&W Department, Govt. of Khyber Pakhtunkhwa
District:	Upper Chitral
Name of Scheme:	F/s and design of Mastuj Boroghul Pass Road (153 KM) District Upper Chitral ADP NO. 1295/250331 (2025-26)
Services Required	Feasibility study, survey, technical & environmental study, detail designing, preparation of PC-1 & contract documents
Consultancy Cost:	PKR 150 (M)
Sponsored Through:	ADP NO. 1295/250331 (2025-26)

DEFINITIONS:

a) "Client" means the agency with which the selected Consultant signs the Contract for the Services.

b) "Consultant" means any entity including a Joint Venture that will provide the Services to the Client under the Contract.

c) "Contract" means the Contract signed by the Parties and all the attached documents listed in its Clause 1, that is the General Conditions (GC), the Special Conditions (SC) by which the GC may be amended or supplemented, and the Appendices.

d) "Data Sheet" means such part of the Instructions to Consultants used to reflect specific assignment conditions.

e) "Day" means calendar day.

f) "Government" means the Government of Khyber Pakhtunkhwa.

g) "Instructions to Consultants" means the document, which provides short listed Consultants with all information needed to prepare their Proposals.

j) "Joint Venture" means a Consultant, which comprises two or more Partners each of whom will be jointly and severally liable to the Client for all the Consultant's obligations under the Contract.

k) "Personnel" means qualified persons provided by the Consultant and assigned to perform the Services or any part thereof.

l) "Proposal" means a technical proposal or a financial proposal, or both.

m) "QBS" means Quality-Based Selection.

n) "QCBS" means Quality- and Cost-Based Selection.

o) “RFP” means this Request for Proposal.

p) "Services" means the work to be performed pursuant to the Contract.

q) “SSS” means the Single Source Selection.

r) "Standard Electronic Means" includes facsimile and email transmissions.

s) "Sub-Consultant" means any person or entity with whom the Consultant associates for performance of any part of the Services and for whom the Consultant is fully responsible.

t) "Terms of Reference" (TOR) means the document included in the RFP, which explains the objectives, scope of work, activities, tasks to be performed, respective responsibilities of the Client and the Consultant, and expected results and deliverables of the assignment.

LETTER OF INVITATION (LOI)

Description of services:

Feasibility study, survey, technical & environmental study, detail designing, preparation of PC-1 & contract documents for **Mastuj Boroghul Pass Road (153 KM) District Upper Chitral ADP NO. 1295/250331 (2025-26)**

Client : Executive Engineer, C&W Division, Upper Chitral.

Dated : _____

Name & Address of Consultant: _____

1. INTRODUCTION

1.1 You firm is hereby invited to submit a technical and a financial proposal for consulting services required for the Assignment named in the attached LOI Data Sheet (referred to as "Data Sheet" hereafter) annexed with this letter. Your proposal could form the basis for future negotiations and ultimately a contract between your firm and the Client named in the Data Sheet.

1.2 A brief description of the Assignment and its objectives are given in the Data Sheet. Details are provided in the attached TOR.

1.3 The Assignment shall be implemented in accordance with the phasing indicated in the Data Sheet. (When the Assignment includes several phases, continuation of services for the next phase shall be subject to satisfactory performance of the previous phase, as determined and directed by the Client).

1.4 The Client - C&W Department (Executive Engineer, C&W Division, Upper Chitral) has been entrusted the duty to implement the Project as Executing Agency by the *(Government of Khyber Pakhtunkhwa.)* and funds for the project have been approved and provided in the budget for utilization towards the cost of the Assignment, and the Client intends to apply part of the funds to eligible payments under the contract for which this LOI is issued.

1.5 To obtain first-hand information on the Assignment and on the local conditions, you are encouraged to pay a visit to the Client before submitting a proposal and attend a pre-

proposal conference if specified in the Data Sheet. Your representative shall meet the officials named in the Data Sheet. Please ensure that these officials are obliged to visit in advance to allow adequate time for them to make appropriate arrangements. You must fully inform yourself of local conditions and consider them in preparing your proposal.

1.6 The Client shall provide the inputs specified in the Data Sheet, assist the Consultants in obtaining licenses and permits needed to carry out the services, and make available relevant project data and reports.

1.7 Please note that:

i) The cost of preparing the proposal and of negotiating the contract, including a visit to the Client, are not reimbursable as a direct cost of the Assignment; and

ii) The Client is not bound to accept any of the proposals submitted.

1.8 An invitation to submit proposals has been sent to the firms as listed/stated in the Data Sheet.

1.9 We wish to remind you that in order to avoid conflicts of interest:

i) Any firm providing goods, works, or services with which you are affiliated or associated is not eligible to participate in bidding for any goods, works, or services (other than the Services and any continuation thereof) resulting from or associated with the project of which this Assignment forms a part; and

ii) Any previous or ongoing participation in relation with the project by your firm, its professional staff, its affiliates or associates under a contract may result in rejection of your proposal. You should clarify your situation in that respect with the Client before preparing the proposal.

1.10 **Your Firm / Joint venture/Associations should conform to the requirement circulated vide Secretary C&W Department notification No.SO(B)/II 52/Consultancy/PBC/2020-21/C&WD dated 09-09-2021 as given below: -**

"The competent authority has been pleased to de-notify all joint venture (JVs)/ Associations of consulting firms already enlisted with Communication & Works Department with immediate effect as per decision of minutes of the meeting circulated vide this office letter of even No. dated 01-09-2020, however it will not affect the following: -

i. Consultant's agreement already executed.

ii. The works for which RFP has been floated.

iii. Technical / Financial evaluation or award of work which is in progress.

Further, consulting firms shall be pre-enlisted with Communication & Works Department as an individual entity and Joint Venture could be made by the enlisted consultant for a specific project by providing the following details.

i. Joint Venture or association agreement of the parties duly approved by the registrar/ sub registrar of companies. ii. Specifying shares of each party. iii. Name of the lead firm. iv. Brief of description and scope of work for which the association or Joint Venture intends to participate in bidding.

Similarly, the Joint Venture (JV) Consultants may enlist themselves individually (if not registered / enlisted already)."

2. DOCUMENTS

2.1 To prepare a proposal, please use the attached Forms/Documents listed in the Data Sheet.

2.2 Consultants requiring a clarification of the Documents must notify the Client, in writing, not later than Ten (10) days before the proposal submission date. Any request for clarification in writing, or by cable, e-mail, telex or telefax shall be sent to the Client's address indicated in the Data Sheet. The Client shall respond by cable, e-mail, telex or telefax to such requests and copies of the response shall be sent to all invited Consultants.

2.3 At any time before the submission of proposals, the Client may, for any reason, whether at its own initiative or in response to a clarification requested by an invited consulting firm, modify the Documents by amendment. The amendment shall be sent in writing or by e-mail, fax to all invited consulting firms and will be binding on them. The Client may at its discretion extend the deadline for the submission of proposals.

3. PREPARATION OF PROPOSAL

3.1 You are requested to submit a technical and a financial proposal. Your proposal shall be written in English language.

Technical Proposal

3.2 In preparing the technical proposal, you are expected to examine all terms and instructions

included in the Documents. Failure to provide all requested information shall be at your own risk and result in rejection of your proposal.

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

i) If you consider that your firm does not have all the expertise for the Assignment you may obtain a full range of expertise by associating with other firms or entities. You may also utilize the services of expatriate experts but only to the extent for which the requisite expertise is not available in any Pakistani Firm. You may not associate with the other firms invited for this Assignment unless specified in the Data Sheet.

ii) Subcontracting part of the Assignment to other consultants if considered desirable; the same sub-consultant may be included in several proposals, subject to limitations in the Data Sheet.

iii) The estimated number of key professional staff required for the Assignment is stated in the Data Sheet. Your proposal should be based on a number of key professional staff months substantially in accordance with the above number. However, you may propose changes in the light of your experience through your comments on the TOR.

iv) The key professional staff proposed shall be permanent employees of the firm unless otherwise indicated in the Data Sheet.

v) Proposed staff should have experience preferably under conditions similar to those prevailing in the area of the Assignment. The minimum required experience of proposed key staff shall be as listed in the Data Sheet.

vi) No alternative to key professional staff may be proposed, and only one curriculum vitae (CV) may be submitted for each position.

vii) Study reports must be in the English Language. Working knowledge of the national language by the firm's personnel is recommended. The knowledge of the regional language where the Assignment is located will be considered additional qualification.

3.4 Your technical proposal shall provide the following and any additional information, using the formats attached in Appendix 1:

I-From-1 A brief description of the Consultant's organization and an outline of recent Five Years experience on assignments of a similar nature. For each assignment, the outline should indicate, inter alia, the profiles of the staff provided, duration, contract amount and firm's involvement.

I-Form-2 A list of projects presently being under taken by the Firm and expertise-wise total number of firm's key staff deployed on the projects being presently under-taken by your firm.

I-Form-3 Consultants' understanding of the objectives of the project, their approach towards the assignment and a description of methodology that the consultants propose to perform on the activities and completion of the assignment.

I-Form-4 Any comments or suggestions on the TOR;
The Consultant's comments, if any, on the data, services and facilities to be provided by the Client and indicated in the TOR.

I-Form-5 CVs recently signed by the proposed key professional staff. Key information should include number of years with the firm, and degree of responsibility held in various assignments.

I-Form-6 A monthly work plan, illustrated with a bar chart of activities and graphics of the critical path method (CPM) or Project Evaluation Review Techniques (PERT) type - using Primavera or MS Project.

I-Form-7 A schedule for compilation and submission of various types of reports as envisaged in Appendix-II of TOR.

I-Form-8 A work plan and time schedule for the key personnel also showing the total number of person-months by each key person.

I-Form-9 The composition of the proposed staff team, the tasks which would be assigned to each staff members and their positions.

I-Form-10. Any additional information as requested in the Data Sheet.

3.5 The technical proposal shall not include any financial information. The Consultant's comments, if any, on the data, services and facilities to be provided by the Client and indicated in the TOR shall be included in the technical proposal.

Financial Proposal

3.6 The financial proposal should list the costs associated with the Assignment. These normally cover remuneration for staff in the field and at headquarters, per diem, housing, transportation for mobilization and demobilization, services and equipment (vehicles, office equipment furniture and supplies), printing of documents, surveys and investigations. These costs should be broken into foreign (if applicable) and local costs. Your financial proposal should be prepared using the formats attached as Appendix 2 i.e. Form Nos. 1 to 6. Your financial proposal shall clearly state the amount stated is for Feasibility study, Detail Engineering Design and Supervision only. All activities and items described in the Technical Proposal must be priced separately; activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items.

3.7 The financial proposal shall also take into account the professional liability as provided under the relevant Contract for Engineering Consultancy Services Govt. of Khyber Pakhtunkhwa Peshawar and cost of insurances specified in the Data Sheet. Costs shall be expressed in currency as listed in the Data Sheet.

Taxes:

The Consultant will be subject to all admissible taxes including stamp duty and service charges at a rate prevailing on the date of contract agreement unless exempted by relevant tax authority.

4. SUBMISSION OF PROPOSALS

4.1 Proposals must be submitted online **through E-PADS.** One original technical proposal and one original financial proposal and the number of copies of each indicated in the Data Sheet must be submitted in Hard Form. The proposal shall be in book binding form, having proper table of content and page numbered **(Loose, Ring & Spring binding are not acceptable).** Each proposal shall be in a separate envelope-indicating original or copy, as appropriate. All

technical proposals shall be placed in an envelope clearly marked “Technical Proposal” and the financial proposals in the one marked “Financial Proposal”. These two envelops, in turn, shall be sealed in an outer envelope bearing the address and information indicated in the Data Sheet. The envelope shall be clearly marked, “DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE.”

4.2 In the event of any discrepancy between the copies of the proposal, the original shall govern. The original and each copy of the technical and financial proposals shall be prepared in indelible ink and shall be signed by the authorized Consultant’s representative. The representative’s authorization shall be confirmed by a written power of attorney accompanying the proposals. All pages of the technical and financial proposals shall be initialed by the person or persons signing the proposal.

4.3 The proposal shall contain no interlineation or overwriting.

4.4 The completed technical and financial proposals shall be delivered on or before the time and date stated in the Data Sheet.

4.5 The proposals shall be valid for the number of days stated in the Data Sheet from the date of its submission. During this period, you shall keep available the professional staff proposed for the assignment. The Client shall make its best effort to complete negotiations at the location stated in the Data Sheet within this period.

5. PROPOSAL EVALUATION

5.1 A single stage two-envelope procedure shall be adopted in ranking of the proposals. The technical evaluation shall be carried out first, followed by the financial evaluation. From the time the Proposals are opened to the time the Contract is awarded, the Consultants should not contact the PE on any matter related to its Technical and/or Financial Proposal. Any effort by consultants to influence the PE in the examination, evaluation, ranking of Proposals, and recommendation for award of Contract may result in the rejection of the Consultants’ Proposal.

Evaluators of Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded. Firms shall be ranked using a combined technical/financial score.

Technical Proposal

5.2 The evaluation committee appointed by the Client shall carry out its evaluation, applying the evaluation criteria and point system specified in the Data Sheet. Each responsive proposal shall be attributed a technical score (St). Firms scoring less than seventy (70) percent points shall be rejected and their financial proposals returned un-opened. 80% weightage will be given to St.

Financial Proposal

For Quality cum Cost Based Selection

5.3 The financial proposals of the consulting firms scoring more than 70%, on the basis of evaluation of technical proposals shall be opened in the presence of the representatives of these firms, who shall be invited for the occasion and who care to attend. The Client shall inform the date, time and address for opening of financial proposals as indicated in the data Sheet. The total cost and major components of each proposal shall be publicly announced to the attending representatives of the firms.

5.4 The evaluation committee shall determine whether the financial proposals are complete and without computational errors. The lowest financial proposal (Fm) among the qualified consultants shall be given a financial score (Sf) of 100 points. The financial scores of the proposals shall be computed as follows:

$$S_f = 100 \times Fm / F$$

Where F is amount of specific financial proposal. 20% weightage will be for Sf.

5.5 Proposals, in the quality cum cost-based selection (QCBS) shall finally be ranked according to their combined technical (St) and financial (S_f) scores using the weights (T- the weight given to the technical proposal, P = the weight given to the financial proposal; and T+P=1) indicated in the Data Sheet:

$$S = St \times T\% + S_f \times P\%$$

6. NEGOTIATION

6.1 Prior to the expiration of proposal validity, the Client shall notify the successful Consultant that submitted the highest-ranking proposal in writing, by registered letter, cable telex or facsimile and invite it to negotiate the Contract.

6.2 Negotiations normally take from two to five days. The aim is to reach agreement on all points and initial a draft contract by the conclusion of negotiations.

6.3 Negotiations shall commence with a discussion of your technical proposal. The proposed methodology, work plan, staffing and any suggestions you may have made to improve the TOR. Agreement shall then be reached on the final TOR, the staffing, and the bar charts, which shall indicate activities, staff, periods in the field and in the home office, staff months, logistics and reporting.

6.4 Changes agreed upon shall then be reflected in the financial proposal, using proposed unit rates.

6.5 Having selected Consultants on the basis of, among other things, an evaluation of proposed key professional staff, the Client expects to negotiate a contract on the basis of the staff named in the proposal. Prior to contract negotiations, the Client shall require assurances that the staff members will be actually available. The Client shall not consider substitutions of key staff except in cases of un-expected delays in the starting date or incapacity of key professional staff for reasons of health.

6.6 The negotiations shall be concluded with a review of the draft form of the contract. The Client and the Consultants shall finalize the contract to conclude negotiations. If negotiations fail, the Client shall invite the Consultants that received the second highest score in ranking to Contract negotiations. The procedure will continue with the third in case the negotiation process is not successful with the second ranked consultants.

6.7 If applicable, it is the responsibility of the Consultant, before starting financial negotiations, to contact the local tax authorities to determine the tax amount to be Paid by the Consultant under the Contract. The financial negotiations will include a clarification (if any) of the firm's tax liability, and the manner in which it will be reflected in the Contract; and will reflect the agreed technical modifications in the cost of the services

7. AWARD OF CONTRACT

7.1 The contract shall be awarded after successful negotiations with the selected Consultants and approved by the competent authority. Upon successful completion of negotiations and finalizing of the draft contract, the Client shall promptly inform the other Consultants that their proposals have not been selected.

7.2 The selected Consultant is expected to commence the Assignment on the date and at the location specified in the Data Sheet.

7.3 After publishing of award of contract consultant required to submit a Performance security at the rate indicated in date sheet.

8. CONFIRMATION OF RECEIPT

8.1 Please inform the Client by telex/facsimile courier or any other means:

i) That you received the letter of invitation;

ii) Whether you will submit a proposal; and

iii) If you plan to submit a proposal, when and how you will transmit it.

LETTER OF INVITATION (LOI)

DATA SHEET

LOI Clause #

1.1 The Assignment is: FEASIBILITY STUDY, SURVEY, TECHNICAL & ENVIRONMENTAL STUDY, DETAIL DESIGNING, PREPARATION OF PC1 & CONTRACT DOCUMENTS **for the Project "F/s and design of Mastuj Boroghul Pass Road (153 KM) District Upper Chitral ADP NO. 1295/250331 (2025-26)"**

The name of the Client is:

Secretary to the Government of Khyber Pakhtunkhwa (Communication & Works Department) through XEN (C&WD) Upper Chitral

1.2 The details of procurement is:

Through this exercise the Govt. of KP through C&WD Intends to hire the services of reputed consultancy firm for Feasibility study, detail survey, environmental and technical study, detail designing, preparation of PC-1 & contract documents

1.3 Phasing of the Assignment (if any): _____NIL_____

1.4 Pre-Proposal Conference: (Yes, **October 30, 2025** and **10-11-2025**). The Pre-proposal conference can be attended physically / online through Zoom (on prior request).

1.5 The Documents are: LOI, Data Sheet, Technical & Financial Proposal forms TOR/Background information, Draft Form of Contract, Sample formats / Appendices etc.

1.6 The address for seeking clarification is: **Office of the Executive Engineer, C&W Division, Upper Chitral at Booni. Contact Number: 094-3470405, 0345-8550624.**

1.7 (i) A short-listed firm may associate with another short-listed firm.
Yes _**(√)**_ No_

(ii) The consultant shortlisted by client may participate in several proposals
Yes ___ No ___**(√)**__

(iii) Proposed key staff shall be permanent employees who are employed with the consultants (Lead Partner) at least six months prior to submission of Proposal (verified by PEC).
Yes (√) No ___

(iv) The minimum required experience of proposed Key staff in Form Tech 5,8,9 is:

Design Staff of the Consultant with Professional Work Experience							
Sl. No.	**Position**	**Minimum Academic Qualification**	**No. of Years of Professional Experience**	**No. of Years of Professional Experience in Similar Projects**	**Minimum No. of Similar Projects for Specific Expertise**	**No.**	**MM**
1	Team Leader	BSc in Civil Engineering	25	15	5	1	08
2	Highway / Transportation Engineer	PhD/M.Sc./BSc in Civil Engineering (Transportation Engineering)	20	10	5	1	08
3	Structure Engineer	PhD/M.Sc./BSc in Civil Engineering (Structure)	20	10	5	1	08
4	Bridge Designer	PhD/M.Sc./BSc in Civil Engineering (Structure)	20	10	5	1	08
5	Tunnel Expert	PhD/M.Sc./BSc in Civil Engineering (Structure)	20	10	5	1	08
6	Traffic Engineer	PhD/M.Sc./BSc in Civil Engineering (Transportation Engineering)	15	8	5	1	08
7	Geotechnical Engineer	PhD/M.Sc./BSc in Civil Engineering Civil / Geo Tech Engineering	15	8	5	1	08
8	Hydraulic Engineer	PhD/M.Sc./BSc in Civil Engineering (In the Relevant Field)	15	8	5	1	08
9	Pavement Expert / Designer	PhD/M.Sc./BSc in Civil Engineering (In the Relevant Field)	15	8	5	1	08
10	Environmental Expert	PhD/M.Sc./BSc in Environmental Engineering	10	5	5	1	08
11	LARP Expert	M.Sc Social Science	10	5	5	1	08
12	Social Safe Guard Expert	M.Sc Social Science	10	5	5	1	08
13	Gender Specialist	M.Sc Social Science	10	5	5	1	08
14	Community Laison Officer	M.Sc Social Science	10	5	5	1	08
15	Software Engineer /IT Expert	M.Sc in Computer Science / Software Engineering	10	5	5	1	08
16	Contract Specialist	PhD/M.Sc./BSc in Civil Engineering Civil Engineer	10	5	5	1	08
17	Architect	B.Arch /MSc Architecture	15	8	5	1	08
18	Electrical Engineer	PhD/M.Sc./BSc in Electrical Engineering	10	5	5	1	08
19	WS&S Engineer	PhD/M.Sc./BSc Engineer in Water & Management	10	5	5	1	08
20	Mechanical Engineer	PhD/M.Sc./BSc in Mechanical Engineering	10	5	5	1	08
21	Material Engineer	PhD/M.Sc./BSc in Civil Engineering	10	5	5	1	08

22	Hydrologist	PhD/M.Sc./BSc in Civil Engineering	20	10	5	1	08
23	Economic Expert	MBA Finance / M. Com / MPhil in Commerce	15	8	5	1	08
24	Quantity Surveyor	B.Tech Civil Technology	10	5	5	1	08

NOTES:

- ✓ This configuration must remain intact in Fin. Proposal. In case of deviation, correction will be done as per procurement rules.

1.8 Training is an important feature of this Assignment: Yes, ___ No **(√)**

2.1 The number of copies of the Proposal required is: __One original + One Copy ____

2.2 The address for writing on the proposal is: **Executive Engineer, C&W Division, Chitral.** Telephone: 0943-470014

2.3 The date and time of proposal submission are: **11/11/2025, 12:00 (Noon) Revised 18/11/2025, 12.00 (Noon)**

2.4 Validity period of the proposal is (days, date): **90-days**

The location for submission of proposals is: Office of the Executive Engineer, C&W Division, Upper Chitral.

2.5 The points given to each category of **Evaluation / Marking criteria** are:

<table>
<tr><th>S.No</th><th>Description / Item</th><th>Points</th><th>Explanation / Detail for award of Marks</th></tr>
<tr><td>1</td><td><u>Qualification and competence of the Key Staff for the Assignment</u>

- CVs must be duly signed by proposed candidates or Authorized Representative.
- Salary Slip for latest month issued by firm must be attached with CV
- Affidavit on Judicial Stamper affirming that all proposed staff will be available when required in Project.</td><td><u>30</u></td><td>Relevant Technical Form is I-Form-5

<table>
<tr><th>No</th><th>Experts</th><th>Points</th></tr>
<tr><td>1.</td><td>Team Leader</td><td>3</td></tr>
<tr><td>2.</td><td>Highway / Transportation Engineer</td><td>3</td></tr>
<tr><td>3.</td><td>Structure Engineer</td><td>2</td></tr>
<tr><td>4.</td><td>Bridge Designer</td><td>2</td></tr>
<tr><td>5.</td><td>Tunnel Expert</td><td>2</td></tr>
<tr><td>6.</td><td>Traffic Engineer</td><td>2</td></tr>
<tr><td>7.</td><td>Geotechnical Engineer</td><td>2</td></tr>
<tr><td>8.</td><td>Hydraulic Engineer</td><td>2</td></tr>
<tr><td>9.</td><td>Pavement Expert / Designer</td><td>1</td></tr>
<tr><td>10.</td><td>Environmental Expert</td><td>1</td></tr>
<tr><td>11.</td><td>LARP Expert</td><td>0.5</td></tr>
<tr><td>12.</td><td>Social Safe Guard Expert</td><td>0.5</td></tr>
<tr><td>13.</td><td>Gender Specialist</td><td>0.5</td></tr>
<tr><td>14.</td><td>Community Laison Officer</td><td>0.5</td></tr>
<tr><td>15.</td><td>Software Engineer /IT Expert</td><td>0.5</td></tr>
<tr><td>16.</td><td>Contract Specialist</td><td>1</td></tr>
<tr><td>17.</td><td>Architect</td><td>1</td></tr>
<tr><td>18.</td><td>Electrical Engineer</td><td>1</td></tr>
<tr><td>19.</td><td>WS&S Engineer</td><td>0.5</td></tr>
<tr><td>20.</td><td>Mechanical Engineer</td><td>0.5</td></tr>
<tr><td>21.</td><td>Material Engineer</td><td>1</td></tr>
<tr><td>22.</td><td>Hydrologist</td><td>1</td></tr>
<tr><td>23.</td><td>Economic Expert</td><td>1</td></tr>
<tr><td>24.</td><td>Quantity Surveyor</td><td>0.5</td></tr>
<tr><td></td><td>Total</td><td>30</td></tr>
</table>
The CVs shall be supported by CNIC, Highest Degree, the number of points to be assigned to each of the above positions shall be determined considering the following three sub-criteria and relevant percentage weights:

General qualifications (40%)
PhD = 100%
MSc = 95%
BSc = 90%
Adequacy for the Assignment (60%)
Specific Experience = 50%
General Experience = 50%
Total weight: = 100%</td></tr>
<tr><td>2</td><td><u>Experience and standing</u></td><td><u>50</u></td><td>Relevant Technical Form is I-Form-1, 2</td></tr>
<tr><td></td><td>i) Specifically Similar Experience

In Case of JV for this assignment, only the Lead Firms' Experience will be considered under this sub-</td><td>20</td><td>Successfully completed at least Two (2) similar projects, must involving Feasibility Study and Detailed Design of Roads in hilly terrain of same magnitude executed as the Lead Firm. Each project must have been completed within the last ten (10) years. Documentary evidence in the form of Completion Certificates issued by the relevant department or client must be provided. The total Road length must be</td></tr>
</table>

	criterion.		100+ KMs with minimum 10 No. bridges. **Zero marks will be awarded if any of the above-mentioned condition lacks in the furnished experience.**
	ii) Experience of Bridges & Tunnel Projects *In case of JV, the consortium experience will be considered under this sub-criterion*	20	Top Ten (10) Similar Government Sector Bridges & Tunnel Projects (Similar in Nature & Magnitude) 10 marks for (F/S & Designing of 8 Nos Bridges with respect cost of each project @ PKR. 500.00 million and 10 marks for F/S & designing / supervision of 2 Nos Tunnel Projects completed) with proof of work order & completion Certificate in the last 10 years.
	iii) General Experience *In case of JV, the consortium experience will be considered under this sub-criterion*	10	Top Ten (10) General nature (Other Than Roads) projects, Five (5) completed and Five (5) ongoing, executed within the last ten (10) years, each with a minimum project cost of PKR 2.50 billion OR consultancy cost of PKR 100 million. Each project must include services related to design or design review. Each qualifying project shall be awarded 2 marks, for a maximum of 20 marks under this sub-criterion. Documentary evidence in the form of Completion Certificates (for completed projects) and LOA (for ongoing projects) issued by the relevant client must be provided.
3	**Adequacy of the proposed Work Plan and Methodology in responding to the TOR**	**15**	***Relevant Technical Form is I-Form-3, 4, 5, 6 ,7, 8***
	i) Understanding of objective	2	
	ii) Quality of Methodology	3	
	iii) Work Plan & Manning Schedule	6	
	iv) Innovativeness / distinctions of the Firm	2	
	v) Proposals Presentation	2	
4	**Firm's Performance**	**5**	***Misc. Data (Technical Proposal)***
	Annual Turn Over of the Firm & Capital	3	Turnover of 03 years along with Financial Statements in support audited by a Chartered Accountant Firm.
	Performance in C&W/ PKHA	2	At least Four (4) Performance Certificates of the ongoing Roads infra-projects with C&WD/ PKHA
Total Points		**100**	
Qualifying Marks		**70/100**	
MANDATORY REQUIREMENTS			
1.		Registered with FBR & KPRA	
2.		Shortlisted in C&W Panel of Consultants for Roads & Bridges	
3.		Valid Registration with PEC and PCATP	
4.		Affidavit of not Blacklisting / Bankruptcy	
5.		Certificate of Having Advance DJI Matrice 300 RTK or equivalent drone technology	
6.		The financial proposal should be prepared using the formats attached as Appendix 2 i.e. Financial Form Nos. 1 to 4. Your financial proposal shall clearly state the amount for Detail Design (including all required services described in the TOR / RFP and Draft Contract Agreement). The rates of other services mentioned in the TOR / Draft Contract Agreement shall deemed to be included in the rates quoted against salary cost and direct cost. A firm/company will not bid less than 50% of the approved PC-II Cost, as per clear instructions of the Departmental Consulting Selection Committee.	
7.		Consultants must provide special service codes which are also available on the PEC website: 0507, 0510, 0518, 531, 0532, 0537, 0545, 0543, 0505, 0502, 0515, 506, 0511, 0513, 0509 & 0544)	

8	If Team Leader do not meet the requirement describe above in BDS, the firm will not be evaluated further and will stand disqualifying for the bidding.

NOTE:

1. Financial Proposal will be on Man-Months Basis.

2. Incomplete information provided in above-mentioned criteria will result zero marking that category.

2.6 The date, time and address of the financial proposal opening are: -

Address of opening of financial proposal is as per section 2.2, while date and time will be decided as the technical evaluation is completed and will be intimated to the technically qualified firms only.

2.7 The weights given to the Technical and Financial Proposals are **0.80 and 0.20** respectively

2.8 The Assignment is expected to commence on: -

Date: As per LOA.
Location: Upper Chitral

Period of Assignment: 2-months Feasibility Studies and 6-months design

Sincerely,

Executive Engineer,
C&W Division, Upper Chitral

Enclosures

- Sample Forms for: -
  - Technical Proposal
  - Financial Proposal
- Terms of Reference
- Contract for Engineering Consultancy Services

STANDARD FORMS

APPENDIX-I

Form 1

FIRM'S REFERENCE

Relevant Services Carried Out in the Last Five Years
Which Best Illustrate Qualifications

Using in the format below, provide information on each reference assignment for which your Firm, either individually as a corporate entity or as one of the major companies within a consortium, was largely contracted.

<table>
<tr><td colspan="2">Assignment Name:</td><td>Project Cost:</td></tr>
<tr><td colspan="2">Location within Country:</td><td>Professional Staff Provided by Your Firm:</td></tr>
<tr><td colspan="2">Name of Client:</td><td>No of Staff:</td></tr>
<tr><td colspan="2">Address:</td><td>No of Staff Months:</td></tr>
<tr><td>Start Date (Month/Year):</td><td>Completion Date (Month/Year):</td><td>Approx. Value of Services (in Current USD/Rs.)</td></tr>
<tr><td colspan="2">Name of Associated Firm (s), if any:</td><td>No. of Months of Professional Staff Provided by Associated Firm(s)</td></tr>
<tr><td colspan="3">Name of Senior Staff (Project Director/Co-Ordinator, Team Leader) involved and functions performed:</td></tr>
<tr><td colspan="3">Narrative Description of Project</td></tr>
<tr><td colspan="3">Description of Actual Services Provided by Your Staff</td></tr>
</table>

Consultants' Name: _____

Form 2

SHORT CV OF CONSULTANT'S KEY STAFF & PROJECTS

(As of _____)

Name	Designation	Qualification	Staff Deployment	Experience

SUMMARY OF MAJOR ROAD PROJECTS COMPLETED BY FIRM IN LAST FIVE YEARS

(As of _____)

In Millions

Sr. No.	Start Date/ Comp. Date	Name of the Project	Client	Location	Project Cost (Rs.)	Fee (Rs)	Scope of Services

SUMMARY OF MAJOR ROAD IN-HAND PROJECTS BY FIRM IN LAST FIVE YEARS

(As of _____)

In Millions

Sr. No.	Start Date/ Comp. Date	Name of the Project	Client	Location	Project Cost (Rs.)	Fee (Rs.)	Scope of Services

Form 3

APPROACH PAPER ON METHODOLOGY PROPOSED FOR PERFORMING THE ASSIGNMENT

Approach and Methodology proposed by the firm to carry out the assignment is sub divided in to several areas which include the following heads.

- Understanding of objectives
- Quality of Methodology
- Work Plan and Manning Schedule
- Innovations / distinctions of the Firm
- Proposal Presentation

Form 4

COMMENTS/SUGGESTIONS OF CONSULTANT

On the Terms of Reference (TOR)

1.

2.

3.

4.

5.

6.

Etc.

On the data, services and facilities to be provided by the Client indicated in the TOR:-

1.

2.

3.

4.

5.

Etc.

Form 5

FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY STAFF

1. Proposed Position: _____
2. Name of Firm: _____
3. Name of Staff: _____
4. Profession: _____
5. Date of Birth: _____
6. Years with Firm: _____
7. Nationality: _____
8. Membership in Professional Societies: _____
   (Membership of PEC is Mandatory)
9. Detailed Tasks Assigned on the Project: _____
   _____
10. Key Qualifications:

    [Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use up to one page].

11. Education:

    [Summarize college/university and other specialized education of staff member, giving names of institutions, dates attended and degrees obtained.]

12. Employment Record:

    [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, title of positions held and location of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate.

13. Languages:-

[Indicate proficiency in speaking, reading and writing of each language: excellent, good, fair, or poor].

14. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these bio-data correctly describe myself, my qualifications and my experience.

_____ Date: _____

Signature of Staff Member Day/Month/Year

Form 6

WORK PLAN/ACTIVITY SCHEDULE

Items of Work/Activities	**Monthly Programme from date of assignment (in the form of a Bar Chart)**														
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**

Form 7

Completion and Submission of Reports

Reports	Date

Form 8

WORK PLAN AND TIME SCHEDULE FOR KEY PERSONNEL

Name	**Position**	**Months (in the form of a Bar Chart)**															**Number of Months**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	

Full Time: _____
Part Time: _____ Activities Duration _____

Yours faithfully,

Signature _____
(Authorized Representative)

Full Name _____
Designation _____
Address _____

Form 9

COMPOSITION OF THE TEAM PERSONNEL AND THE TASKS TO BE ASSIGNED TO EACH TEAM MEMBER

1. Technical/Managerial Staff

Name	Position	Task Assignment

2. Support Staff

Name	Position	Task Assignment

APPENDIX-II

FINANCIAL PROPOSAL FORMS

Form 6

Project Title ----------

SUMMARY OF COST OF CONSULTANT

S.No.	Description	Amount (Rs.)
1.	Salary & Direct Cost Remuneration	
2.	Direct and Non-Salary Cost	
3.	Contingencies	
	Total Consultancy Cost (Rs.) =	

(in words)

Dated ___/___/_____

Chief Executive/Authorized Signature & Seal _____

Address of the company _____

_____

[Form 6 shall be submitted on Company letter head and signed by chief Executive or Authorized Agent]

Form 1

BREAKDOWN OF RATES FOR CONSULTANCY CONTRACT

Project:_____Firm:_____
_____

Name	Position	Basic Salary per Cal. Month	Social Charges (%age of 1)	Overhead (%age of 1+2)	Sub-Total (1+2+3)	Fee (%age of 4)	Rate per Month for project Office	Field Allow. (%age of 1)	Rate per Month for Field Work
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Notes:

Item No. 1 Basic salary shall include actual gross salary before deduction of taxes. Payroll sheet for each proposed personnel should be submitted at the time of negotiations.

Item No. 2 Social charges shall include Client's contribution to social security, paid vacation, average sick leave and other standard benefits paid by the company to the employee. Breakdown of proposed percentage charges should be submitted and supported (see Form 2).

Item No. 3 Overhead shall include general administration cost, rent, clerical and junior professional staff and business getting expenses, etc. Breakdown of proposed percentage charges for overhead should be submitted and supported (see Form 3).

Item No. 5 Fee shall include company profit and share of salary of partners and directors (if not billed individually for the project) or indicated in overhead costs of the Company.

Item No. 7 Normally payable only in case of field work under hard and arduous conditions.

Full Name:_____

Signature:_____

Title:_____

Form 2

BREAKDOWN OF SOCIAL CHARGES

S.No.	Detailed Description	As a %age of Basic Salary

Signature & Stamp of the consultant

Form 3

BREAKDOWN OF OVERHEAD COSTS

S.No.	Detailed Description	As a %age of Basic Salary and Social Charges

Signature & Stamp of the consultant

ESTIMATED LOCAL CURRENCY SALARY COSTS/REMUNERATION

S.No.	Name	Position	Staff-Months	Monthly Billing Rate	Total Estimated Amount (Rs.)
	Project Staff				
		Sub-Total:			

Signature & Stamp of the consultant

Form 5

DIRECT (NON-SALARY) COSTS

No.	Nomenclature	Unit	Quantity	Unit Price (Rs)	Total Amount (Rs.)	Remarks
1	Physical Work for Engineering Studies including geotechnical Investigations & Soil Investigation for Road, Bridges & Tunnels, Environmental & E&S Study, RAP, Land used & Acquisition Plan and material suitability & Classification tests in labs etc, Including Salaries cost of Non-Key Staff.	Lump Sum	-			
2	Detail Survey through Advance DJI Matrice 300 RTK or equivalent drone technology, Fixing of Temporary Bench Mark. Including Salaries cost of Non-Key Staff.	KM	153			
3	10 No. Rental Vehicles including driver salary & POL	Per Month	10x8			
4	Furnished Site Office /accommodation including all monthly utilities bills etc along with allied facilities.	Per Month	3x8			
5	Office Stationery, courier services etc.	Per Month	1x8			
6	EPA report (Payment shall be made based on actual payment made to EPA)	L.S	5			
7	Provision for mobile dispensary complete in all respect.	L.S	-			

Note: Consultants shall not alter the above configuration in their Fin. Proposals.

Signature & Stamp of the consultant

CONTRACT AGREEMENT AS PER KPPRA FORMAT

TERMS OF REFERENCE FOR CONSULTING SERVICES (TOR)

I. Scope of Work

The main objectives of the consultant services described herein is to assist the Government of KP through C&W Department in carrying out the following works:

Feasibility study, detail survey, environmental, Social, Settlement and technical study, Tunnels, detail designing, Economic and Financial viability, Analysis for the best Trade Route, preparation of PC-1 & contract documents:

F/s and design of Mastuj Boroghul Pass Road (153 KM) District Upper Chitral ADP NO. 1295/250331 (2025-26)

II. Scope of services

Main objects are as following:

- Origin Destination Survey.
- Drone Survey and photography
- Feasibility Survey.
- Traffic Count data (12 Hours, 24 Hours 7 Days).
- Detailed Survey of the Projects i/c Tummels & Bridges.
- Tests, Investigations and Engineering Studies.
- EIA, Social Studies.
- Resettlement and Land Acquisition Plan
- Economic and Financial viability and options
- Assesment of best suitable Trade Route
- Detailed Design & Drawings.
- Submission of Complete Bidding Documents.
- Preparation of PC-1

The scope of consulting services will include, but not necessarily be limited to the following:

Design & Construction of Road & Bridges.

(a) Detailed Survey of Road and Bridges:

To Carry out Origin destination survey.

Complete Feasibility Studies.

EIA and Social safeguard studies.

Traffic Count Survey (12 Hours, 24 Hours, 7 days)

To carry out condition survey. (Existing Road and Bridges)

To carry out Topo survey.

To carry out Detailed Design of Road and Bridge if required.

To prepare reports for submission to Client.

(b) <u>Detailed Designing</u>

To design the Roads, Tunnels and Bridge.

To prepare inventory of the roads, tunnels & bridges, including their geometric features, type and condition of drainage structures, load carrying capacity, pavements, and other major features. Assess / quantify potential problems that relate to land acquisition, cutting of trees, relocation of utilities etc.

To carry out topographic surveys, including horizontal and vertical alignments and cross-sections, establishment of horizontal control points, bench marks, and permanent reference beacons required for detailed engineering designs to enable construction quantities to be calculated to an accuracy of (+)(-) 5 percent.

To prepare designs based on relevant standards, including typical cross-sections, long sections and the pavement and geometric design.

To study various border crossings and roads leading to GB and Wakhan and recommend the most suitable route in terms of connectivity, benefit to local population, future aspects of international trade, security and safety and financial and economic viability.

To assure that the road designs incorporate measures to mitigate adverse environmental impacts, including those encountered during construction, based on the findings of environmental assessments.

To examine materials found along the road alignments, taken at suitable intervals. Pay particular attention to subsurface conditions at bridge site (if any) through appropriate geo-technical surveys.

To test soil samples by classification, liquid limits, plastic limit, California Bearing Ratio and suitability of stabilization, Test undistributed samples to determine the main mechanical characteristics. Test construction materials for grains-size distribution and plasticity characteristics, unit weight, and water absorption, and any other tests deemed necessary.

To study the existing hydrological regime, based on an analysis of rainfall and flood records, including subsurface water characteristics, supplemented by detailed filed investigations, to establish the adequacy of road embankment levels. Culverts, and side ditches.

To assesses cross drainage requirements and propose new structures (bridges, culverts, and causeways as appropriate) or improvements to existing structures where these are otherwise structurally sound.

To determine the most cost effective improvement option for each project and section on the basis of traffic count and projected traffic levels pavement structure studies, and axle load considerations.

To develop unit costs of construction for roads, tunnels and bridges.

To prepare detailed engineering designs and bills of quantities, and calculate detailed cost estimate for civil works, broken down into foreign (direct and indirect) and local components as well as taxes and customs duties.

To prepare appropriate contract packages, taking into account the location of the project and size of the contracts.

To update realistic construction schedules showing the anticipated progress of works and expenditures for the contract package in conjunction with client. The schedules will reflect seasonal climatic effects at the work site.

To design rest areas at an interval of 40 Km average with all facilities for users in terms of Tourism and Trade.

To design multi-purpose terminal at border crossing for future trade and immigration.

Defending PC-1 at appropriate forum and changes if required.

Preparation of complete tender documents / cost estimate / BOQs.

Preparation and submission of work plan bases on MS Project or primavera.

DESIGN STANDARDS AND CRITERIA:

Design Standards:

The following Design standard would be followed:

For Material and Testing

ASTM-American Society for Testing and Materials

AASHTO-American Association of State Highway & Transportation Officials

For Structures:

AASHTO LRFD (Latest Edition)—American Association of State Highway and Transportation Officials—Load and Resistance Factor Design

Loading:

West Pakistan code of Practice for Highway Bridges 1967

Seismic Design:

AASHTO analysis and design with latest Seismic zoning map for Pakistan as per revised current GoP Seismic parameters.

Other design criteria not specified herein shall be approved by the client before being adopted for the design. The consultant shall solicit approval of C&WD in this regard.

Structural Design:

The final design plans shall include all details in appropriate scale necessary to construct the said structures. The choice of structure and specifications will be determined keeping in view the economy, aesthetics and availability of material and local practice.

GEOMETRIC DESIGN

Geometric design will base on the following criteria. Any change in the criteria necessitated according to site condition shall be mutually agreed to:-

S #	Parameter	Unit	Plain Areas	Hilly Areas
a	Design speed	Km/h	80	40
b	Number of lanes	Number	02	02
c	Formation width	M	+11.00	+10.00
d	Width of Travelled way (Carriage-way)	M	7.31	7.31
e	Width of shoulders	M	1.00 m each side	1.00 m each side
f	Cross slope i- Carriageway ii- Shoulders	%	 2 4	
g	Maximum gradient	%	5.0	8.0
h	Other design criteria not specified herein shall be approved by C&WD before being adopted for the design			

REQUIRED LAB TEST / SSGS per KM

Length	153 KM	
Description	**Nos per Km**	**Total Nos**
CBR – Soaked	2	306
CBR at OMC	2	306
Un distrurbed Samples	153	153
Disturbed Samples	153	153
MC	2	306
Soil Classification	2	306
Hydrometer Analysis	2	306
LL	2	306
PL	2	306
Shrinkage Limit	2	306
Un confined Comp	2	306
Direct Shearing	2	306
Vane Shear	2	306
Organic Matter Soil	2	306
Hydraulics/hydrology	14	14
Materials classification	153	153
Tunnel Investigation	1	1
EIA and SSG Studies	1	1
RAP and land acquisition Plan	1	1

Note:

1. All Lab Tests will be conducted through C&W Labs on 1st priority followed by PKHA
2. Tests which are not carried out at C&W/PKHA will be conducted through UET Peshawar, PCSIR or NUST.

Bridge and Tunnel Laboratory Testing Requirements

Objective

The objective of the laboratory testing program is to determine the engineering and material properties of soil, rock, concrete, aggregates, water, and other construction materials that will be used in the design and construction of bridges and tunnels. The results will form the basis for geotechnical interpretation, structural design, and durability assessment.

Soil Investigation Laboratory Tests

The following laboratory tests shall be carried out on representative soil samples obtained from boreholes or trial pits for bridge and tunnel foundation analysis:

Category, Test Name, Purpose, Description,| Standard Reference

Index Properties, Natural Moisture Content, Specific Gravity, Grain Size Analysis, Atterberg Limits Determine soil classification and physical characteristics |(ASTM D2216, D854, D422, D4318)

Compaction & Density, Standard, Modified Proctor Test, Field Density

Establish compaction characteristics and optimum moisture content | ASTM D698, D1557 |

Shear Strength, Direct Shear, Unconfined Compression, Triaxial Shear (UU, CU, CD),

Determine shear parameters (c, φ) for foundation stability (ASTM D3080, D2166, D2850)

Consolidation, Oedometer Test, Assess compressibility and settlement characteristics (ASTM D2435)

Permeability, Falling-Constant Head Test, Assess soil permeability (ASTM D2434)

Chemical Tests, pH, Sulphate, Chloride Content, Determine aggressiveness towards concrete-steel

(ASTM D4972, D4327)

Rock Testing for Bridge and Tunnel Foundations

Rock testing shall be conducted where bedrock is encountered or where tunneling through rock strata is expected.

| Test Name | Purpose / Description | Standard Reference |

|---|---|---|

Rock Core Logging (RQD, Fracture Frequency, Joint Study) | Determine rock quality and discontinuities (ISRM / ASTM D6032).

Uniaxial Compressive Strength (UCS)- Measure compressive strength of intact rock (ASTM D7012)

Point Load Index - Quick assessment of rock strength (ASTM D5731)

Brazilian Tensile Strength -Determine tensile strength of rock- (ASTM D3967)

Triaxial Compression Test - Determine shear parameters of rock (ASTM D7012)

Slake Durability - Assess weathering resistance (ASTM D4644)

Density & Porosity - Determine mass density and water absorption (ASTM D6473)

P-wave Velocity- Determine elastic and dynamic properties (ASTM D2845)

Water Absorption & Permeability | Assess water-tightness (ASTM D2842)

Concrete and Aggregate Testing

| Category | Test Name | Purpose / Description | Standard Reference |

|----------|-----------|---------------------|------------------|

Aggregates - Sieve Analysis, Flakiness/Elongation Index, Los Angeles Abrasion, Specific Gravity, Soundness, Crushing Value, Impact Value | Assess grading, shape, durability, and strength (ASTM C136, C131, C88, C127)

Cement- Fineness, Standard Consistency, Setting Time, Compressive Strength -Confirm compliance with standards (ASTM C109, C191)

Concrete - Slump Test, Compressive Strength (7 & 28 days), Flexural & Split Tensile Strength Evaluate design mix performance (ASTM C143, C39, C78)

Reinforcing Steel - Tensile, Yield Stress, Elongation, Bend-Re-bend - Verify conformity with (ASTM A615 / BS4449 | ASTM A615, A370)

Water Quality Testing

Water samples from site or groundwater shall be tested to verify their suitability for use in concrete mixing and curing.

| Parameter | Purpose / Description | Standard Reference |

|-----------|---------------------|------------------|

pH | Check acidity/alkalinity | ASTM D1293 |

Total Dissolved Solids (TDS) | Measure dissolved solids content (ASTM D5907)

Sulphates (SO_4) | Check aggressiveness to concrete (ASTM D516)

Chlorides (Cl) | Assess potential for steel corrosion (ASTM D512)

Organic Matter | Confirm purity of mixing water (ASTM D1252)

Tunnel Material Testing

Specific tests for tunnel lining materials, shotcrete, waterproofing membranes, and grouting materials shall include:

Material/Test , Purpose , Description (Standard Reference)

|----------|----------|----------|

Shotcrete Strength Test | Evaluate early and final compressive strength (ASTM C1604)

Bond Strength (Pull-off Test) , Assess adhesion to substrate (ASTM C1583)

Fiber Reinforced Shotcrete Test , Determine ductility and toughness index (ASTM C1609)

Waterproofing Membrane Test ,Check tensile, tear, and permeability properties (ASTM D412, D751)

Grout Mix Test, Evaluate flow time, setting, and strength (ASTM C939, C109)

Reporting and Deliverables

The laboratory testing report shall include the following:

1. Description of sampling locations and methods.
2. Summary of all laboratory results with units and standards used.
3. Correlation between field test and lab test results.
4. Recommended geotechnical design parameters:

- Bearing capacity,
- Settlement characteristics,
- Rock classification and strength,
- Soil and water aggressiveness to concrete.

5. Suggested foundation type, depth, and allowable bearing pressures.
6. Tunnel design parameters (RMR, Q-system classification).
7. Tabulated summary of all tests and graphical plots where necessary.

Parameters not specified above shall conform to AASHTO Highway Design (Green Book), 2003 Edition

PAVEMENT DESIGN

Pavement design shall be done accordance to AASHTO recommendations (latest edition) with load factors from NTRC report and confirm the design to the mechanistic design methodology. The pavement design will be based on existing traffic keeping overload factors in view. Only granular sub base with Zero Plasticity index shall be used in the pavement structure.

(c) Tender Assistance

To prepare bid documents for each package, with specific provisions to minimize disruption/damage to the environment and local settlements dues to construction.

To prepare NIT as per requirement of project.

To prepare contract drawings, including road plans (1:1,000), longitudinal profiles (1:1,000 horizontal, 1:100 vertical), cross-sections, structural plans and others. Road plans should include all existing features, expected land-take based on plotted earthwork limits and further right-of-ways where different from existing ones.

To assist client in pre-qualification of contractors, if required.

Preparation of biding documents for each package, with specific provision to minimize disruption/damage to the environment.

PAYMENT SCHEDULE: (May be revised during contract negotiation stage)

No.	Deliverable	Payment Milestone	% of Contract Value
1	Inception Report (including Work Plan, Staffing Matrix, and Methodology)	Upon Submission	10%
2	Feasibility Studies Report	Upon submission	25%
3	Detailed Engineering Designs (Geometric + Structural) and PC-1s	Upon approval	35%
4	Tender Documents (BOQs, Engineer's Estimates, Drawings, Bid Evaluation Format)	Upon submission	20%
5	Upon approval of the Scheme from Pre-PDWP	Upon Approval	10%

Note:

- The **Financial Proposal shall be based on man-months** of key and support personnel as per the staffing matrix.
- However, **payments to the Consultant shall be made strictly against approved deliverables**, as outlined above.
- All deliverables must be submitted in both hard and editable soft formats.
- Taxes shall be deducted as per applicable laws.
- Any delay on the part of consultant will result in penalty of Rs. 50,000/- per day.

Reporting Requirements

The Consultant shall submit the following reports (in both Hard and Soft copies):

1.	Topographic Survey Report	3	Sets
	Alignment of various option		
2.	Geometric Design Report of the approved alignment	3	Sets
3.	Plan and Profile Drawings	3	Sets
4.	Structure Design Report	3	Sets
5.	Structure Drawings	3	Sets
6.	Tender Drawings	3	Sets
7.	Construction Drawings	4	Sets
8.	Highway Safety Audit Report	3	Sets
9.	Bill of Quantities	3	Sets
10.	Engineer Estimate ,C-Factor, Special Provision	3	Sets.
11.	Technical Specifications for each payable tem	3	Sets
	Comprising of		
-	Description		
-	Material Requirement		
-	Construction Requirement / Method of Working(Techniques)		
-	Equipments to be used		
-	Testing and quality control		
-	Method of measurement & payment		
12.	Tender/Contract Documents Comprising of	3	Sets
-	Invitation to Bid		
-	Instruction to Bidder		
-	Form of Contract		
-	General Conditions of Contract (GCC)		
-	Particular Conditions of Contract (PCC)		
-	Rate Analysis of Non-Schedule Items		
-	Bill of Quantities / Bid Schedules		
13.	PC–I Proforma including;	3	Sets
-	Engineer's Estimate		
-	EIA Report		
-	Geotechnical Investigation		
-	Hydrology and Hydraulic Study Report		
-	Economic Analysis		
-	Traffic Study Report		
-	Pavement Design Report		
14.	Detailed Cost Estimate for Technical Sanction	3	
15.	Design Calculation for Road Pavement, Road Structure and Bridges/ Flyovers (if any)	2	
16.	Land Acquisition Plan showing boundaries of land to be acquired for road construction (5 Prints with Sepia print). Identify separately the road with high development potential adjacent to the road.		
17.	Back-up calculation of BOQs:	2	Sets
18.	Soft copies of all documents mentioned above	3	CDs each

DETAIL SCOPE OF TUNNEL DESIGN:

SCOPE OF SERVICES

The Consultant shall implement following main activities:

- **Task 1: Detailed investigation:**
- **Task 2: Preparation of Detailed Designs of the Tunnels**, preparation of relevant environmental evaluation/assessment:

The Consultant shall choose standards with stricter requirements. Only after the Client approves the proposed standards, they can be used for design.

- ❖ Safeguards the Consultant shall be responsible for the preparation of the environmental evaluation/assessment documentation, including EIA/IEE (if required), EMP, baseline monitoring/modeling of environmental safeguards (air, noise, dust, vibration, water quality, soil, biodiversity)
- ❖ The detailed description of the Consultant's work is given below:

DETAILED INVESTIGATION OF THE TUNNELS.

In this stage the Consultant shall conduct surveys of the actual condition of the Tunnels and their ancillary engineering networks. The surveys shall include description of existing condition of the Tunnels, defects and incompliances, and other information necessary for feasibility assessment to be undertaken by the Consultant. The main works to be performed by the Consultant within the framework of this task shall include, but not be limited to the following: a) Based on the engineering studies and analysis of the previous design documents, economic analysis, geotechnical tests, inspection surveys, the Consultant shall identify all the possible preliminary solutions for the project and shall establish the merits and drawback of each solution.

These solutions may range from periodic maintenance options to rehabilitation, or a combination of options. It will be necessary for the Consultant to provide comparative data of rehabilitation and maintenance costs for the different design standards to support the final design adopted for the project.

- ❖ Based on the analysis so carried out, the Consultant shall prepare logic diagrams and schedules based on the preliminary reviews to map out the entire process. This is important so that tunnel maintenance/rehabilitation is not interpreted based on individual deterioration but is addressed holistically,

considering all possible causes together with relevant parameters and consequences (danger for the users or residents, risks for the structures).

- Consultant shall carry out preliminary inspections and required resources for establishing a Quality Plan (QP) for the detail inspections investigatory work. Client will decide whether these additional investigations should be conducted to confirm the causes for the preliminary diagnosis.
- The Consultant shall carry out the necessary field surveys (topographical surveys, hydrological studies, geotechnical studies, traffic studies, sub-surface soil exploration, materials surveys, laboratory investigations, availability, and location of suitable construction materials etc.), necessary for the examination of various design solutions
- The Consultant shall carry out Traffic Data Collection and Traffic Analysis. The Consultant shall determine the type and volume of the existing traffic between the two portals of the Tunnel by analyzing all existing statistical data, and by conducting and analyzing the data provided by the Client. The Consultant shall verify this data with selected field traffic investigations (24 hour counting) as required. The traffic studies will include:
- existing traffic composition (by appropriate vehicle types) and volume counts; and forecasts (for 40 years) of annual average daily traffic composed of normal, generated and diverted flows by appropriate vehicle types. The Consultant shall combine the results of his traffic counts with the available ones to determine any growth trends that could be used for the detailed traffic forecasting study.
- The Consultant shall investigate and assess the Tunnel in terms of compliance with safety standards and, if needed, provide solutions towards improvement of the current situation. The Consultant shall review the existing site condition and list areas where minor intervention would improve road and construction safety. The possible options must be discussed with the Client during the design phase and, where possible, be incorporated in the final design. Detailed description of the safety issues considered, and corresponding measures taken shall be provided in the Explanatory Note of the Detailed Design.
- The Consultant shall carry out a detailed instrumental examination of the roof and walls of the Tunnels.

- Implementation of topographic survey for the tunnel road pavement and approach road. Topographic survey for approach road shall be implemented for 150 m before and after the Tunnels.
- Investigation of the causes of surface water infiltration. Implementation of topographic survey of these sections in M1500 scale. Provide appropriate solutions to exclude or minimize the water penetration.
- Selection of road pavement shall be based on calculations. The Consultant shall conduct all possible and required tests, data collection and an appropriate calculation based on these data and include in the design package. Data required for existing pavement survey shall be collected at 100 m intervals. The design package shall include detailed description of condition of the existing pavement, the technical condition of the structural layers, the thickness, etc.
- Examination and assessment of the existing fire protection system and, if necessary, its replacement with the new one. Requirements provided by the Consultant shall be based on the defects or incompliances identified during the investigation. Defects or incompliances shall be described supported by photos.
- Examination of existing electrical system and power supply cables and wires. Design package shall include the description of the defects or incompliances and the respective photos. If necessary, provide replacement of the power supply system in compliance with the current normative requirements. Provide a calculation of the corresponding capacity needed for the substation of the modified or reconstructed power network.
- Investigation and study of existing lighting network, identification of defects and incompliances. Provide a report on the state of the existing network and design the network reconstruction, if necessary. Provide LED energy-saving luminaires according to the corresponding lighting calculation.
- Investigate and describe (attaching photos if possible) separately the existing water supply and drainage systems. Any defect or incompliance identified during the investigation shall serve as basis for design work. Depending on the current state, partial rehabilitation or completely new water supply and drainage systems shall be envisaged. Examine groundwater flows, and if

necessary, take appropriate measures, using directional water drainage. The hydrological calculation shall be enclosed to the design.

- Investigate the existing ventilation system and describe all current defects. Restoration of existing ventilation system or, if necessary, implementation of a new ventilation system shall be in compliance with the existing regulatory requirements and based on calculations. Ventilation calculation shall be enclosed to design.
- Provision/ modernization of the security system.
- Provision/ modernization of means of communication. Provide an equipped control center for management of all engineering systems of the Tunnels.
- Conduct laboratory tests necessary to complete the investigations and process the results. In addition, as needed, test the elements of natural portal zones, lined sections, prefabricated composite structures, deterioration analysis, geomembrane seals, etc.
- The Consultant's environmental study shall include, but not be limited to the following:

  • Collection and documentation of baseline of biodiversity, water quality, air quality, soil, dust, noise, and vibration,

  • Assessment of all potential direct and indirect environmental impacts;

  • Present impacts in the order of project cycle: pre-construction, construction, and operation.
- Preparation of the project Environmental Scoping Report, including evaluation of the project environmental categorization (A, B, C). A separate cost estimate of environmental mitigation measures and monitoring shall be developed to be included in detailed IEE-EMP to be developed at detailed design stage.
- After completing all the necessary investigations, the Consultant must prepare a survey report (hereinafter: Survey Report) with a detailed description of the survey methodology, methodology of the planned reconstruction/rehabilitation works, the requirements of the normative requirements for the planned works, defects found in each tunnel and the engineering systems (with photographs), the results and calculations of each survey, the laboratory tests results, as well as with the Consultant's preliminary proposals regarding the repair of the defects found. The Survey Report will be reviewed by the Client's specialists

and the Consultant will be provided with appropriate comments (if any). The Consultant will have to consider the Client's comments and take them into account in the revised version of the Survey Report.

PREPARATION OF DETAILED DESIGNS OF THE TUNNELS

- All design solutions as well as the composition and content of the detailed design package (hereinafter: Detailed Design Package) shall be must be discussed and agreed with the Client without fail.
- All design solutions shall be based on the corresponding necessary technical calculations (calculation of the road pavement, calculation of the capacity of the drainage system, illumination calculation, calculation of ventilation system capacity, etc.), which shall be carried out by the Consultant at the design preparation stage and shall be included in the Detailed Design Package.
- All drawings, sheets, standard drawings, cross and longitudinal sections, which must be included in the Detailed Design Package, must be prepared in the format and in scales required by the Client for the preparation of designs. The Consultant must agree in advance with the Client the scales of the drawings that will be used in the design.
- The Detailed Design Package must undergo an appropriate expertise, which will be organized and carried out by the Client. In the event that errors or omissions are revealed in the course of this expertise, the Consultant must correct them and provide the Client with a revised version of the Detailed Design Package at no additional cost to the Client.
- The detailed design package for Tunnel rehabilitation shall include, but not be limited to the following:

  i. Explanatory note (with a detailed description of design solutions and other information required.

  ii. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of roof and walls of the Tunnel,

  iii. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of road pavement and sidewalks,

iv. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel lighting,

v. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel ventilation system,

vi. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel power supply system,

vii. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel water supply and drainage,

viii. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel other engineering utilities,

ix. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel traffic safety elements.

x. Detailed design (including all necessary drawings, calculations, etc.) and detailed Bill of Quantities for rehabilitation/reconstruction of Tunnel emergency system,

xi. Technical Specifications covering all the work types envisaged in the Detailed Design.

xii. Bill of Quantities for rehabilitation/reconstruction of Tunnel (including Tunnel all systems). The Bill of Quantities shall be based on the various items of work to be executed in accordance with the Detailed Design Drawings, Summaries, and the Technical Specifications. The items in the Bill of Quantities and the work (pay) items specified in the Technical Specifications shall correspond to each other.

xiii. Construction/rehabilitation works plan indicating at least:

- organization of the construction site (including required schemes),
- organization of traffic safety during construction/rehabilitation (necessary schemes) considering the high traffic periods, winter viability, other scheduled projects in the vicinity, possibilities for diversion, etc.

- minimum number and types of equipment / machines necessary for performing construction/rehabilitation works,

xiv. Cost estimates for rehabilitation/reconstruction works of Tunnel. The Consultant shall also develop a confidential Unit Price Analysis for each work item and a Confidential Cost Estimate, for each work item, work category and contract package as a whole. Unit prices shall be classified into direct costs (labor, materials, and equipment), indirect costs (mobilization, on-site and general overheads, contractor's contingencies, and profit) and taxes. The Consultant's Confidential Cost Estimate shall break out separately all taxes for ease of identification. Cost Estimate and Bill of Quantity shall be closer with formats and shall be comparable to each other.

❖ Based on detailed design, the Consultant shall:

i. Prepare and deliver environmental management documents including EIA/IEE, EMP and all necessary associated documents, for submission to concern department.

ii. Prepare and deliver Health & Safety, Emergency Prevention and Preparedness plans for the works so as to assure the public and workers safety.

iii. Attend meetings for the processing of the EIA/IEE and assist the Client to obtain environmental clearance certification.

iv. Prepare and deliver detailed IEE-EMP and site specific EMP (SEMP) templet based on the baseline surveys (biodiversity, water quality, air quality, soil, dust, noise, and vibration) and Environmental Scoping Report.

v. Take all necessary actions to comply with relevant Legislation, including application for and obtaining Location Clearance Certificate and Environmental Clearance Certificate, assist the Client in organizing Public- and Stakeholders' consultations, participate in them and, if necessary, also initiate such consultations.

vi. Obtain all clearances – Permits, Authorizations (e.g., Construction waste disposal, tree-cutting etc.).

vii. Support the Client to incorporate Environmental Safeguards Requirements into the Construction Bidding documents.

viii. Review/update the EIA/IEE and Environmental Management and Monitoring Plan as per request of lenders and/or Client.

ECONOMIC ANALYSIS AND INTERNAL RATE OF RETURN (EIRR)

The Consultant shall carry out a comprehensive **Economic Analysis** of the proposed road project in accordance with the standard procedures.

The analysis shall include estimation of **Vehicle Operating Cost (VOC) savings**, **Travel Time savings**, **Accident cost reduction**, **Maintenance cost savings**, and other quantifiable economic benefits resulting from the project. Economic costs shall include capital cost, land acquisition, supervision, and annual maintenance and operating costs, computed at economic (shadow) prices.

The Consultant shall determine the **Economic Internal Rate of Return (EIRR)** and the **Net Present Value (NPV)** over a minimum **20-year analysis period**, using an appropriate economic evaluation model such as **HDM-IV**, **RED**, or equivalent internationally recognized software.

The EIRR shall be computed as the discount rate at which the present value of economic benefits equals the present value of economic costs. For acceptance, the **minimum EIRR shall not be less than twelve percent (12%)** under base case conditions. A **sensitivity analysis** shall be performed for variations of ±20% in project costs and benefits to assess the project's economic robustness.

All assumptions, input data, and model results shall be clearly documented and presented in the **Feasibility Report** with appropriate tables, charts, and summary conclusions.

Economic Analysis and Internal Rate of Return (EIRR)

Objective

The objective of the Economic Analysis is to evaluate the overall economic viability and justification of the proposed road project. The analysis shall determine whether the project provides adequate economic benefits in relation to its costs, using standard economic indicators such as the Economic Internal Rate of Return (EIRR), Net Present Value (NPV), and Benefit–Cost Ratio (BCR).

Methodology

The Consultant shall perform the economic evaluation.

The analysis shall cover the following key elements:

1. Definition of Alternatives

- Do-nothing (base case) scenario.
- Proposed improvement alternatives (at-grade, widening, or realignment).
- Comparison of each alternative in terms of cost and benefits.

2. Analysis Period

- Minimum 20-year period after opening to traffic.
- Include construction period (typically 2–3 years) as part of total analysis.

3. Discount Rate

- Base economic discount rate: 12% (as per Planning Commission guidelines).
- Sensitivity tests: ±20% variation in costs and benefits.

4. Economic Costs

- Construction and rehabilitation costs (excluding taxes, duties, and financing charges).
- Engineering design and supervision costs.
- Land acquisition and resettlement costs (if applicable).
- Annual routine and periodic maintenance costs.

5. Economic Benefits

The main quantifiable benefits shall include:

- Vehicle Operating Cost (VOC) Savings due to improved surface conditions, gradients, and reduced congestion.
- Travel Time Savings for passenger and freight vehicles.
- Accident Cost Reduction due to improved safety features and alignment.
- Maintenance Cost Savings for road agencies.
- Generated Traffic Benefits, where appropriate, following ADB/WB guidelines.

6. Traffic and Demand Forecasting

- Base year traffic (classified count, ADT, AADT).

Growth rates by vehicle type.

- Forecast traffic volumes for the analysis period.
- Directional distribution and lane factors as applicable.

7. Economic Evaluation Tools

- Use of HDM-IV (Highway Development and Management Model) or RED (Road Economic Decision Model) is recommended.
- Model calibration parameters shall be justified with local data or accepted defaults.
- All input data (traffic, cost, roughness, vehicle fleet, operating cost components) shall be clearly tabulated.

Economic Indicators

The Consultant shall compute the following indicators for each proposed alternative:

Indicator	Definition	Minimum Acceptable Value
EIRR (Economic Internal Rate of Return)	Discount rate at which NPV = 0	≥ 12%
NPV (Net Present Value)	Present value of net benefits at 12% discount rate	Positive
BCR (Benefit–Cost Ratio)	PV of benefits / PV of costs	≥ 1.0

In case of multiple alternatives, the Consultant shall recommend the option with the highest EIRR and positive NPV, subject to technical and environmental suitability.

Sensitivity and Risk Analysis

The Consultant shall carry out a sensitivity analysis to test the robustness of results against variations in key parameters, such as:

Parameter	Variation	Expected Result
Construction Cost	+20% / -20%	EIRR sensitivity
Benefits	+20% / -20%	EIRR sensitivity
Traffic Volume	±10–20%	EIRR sensitivity
Maintenance Cost	±20%	EIRR sensitivity

If the EIRR remains above 12% under adverse conditions (e.g. +20% cost and -20% benefits), the project shall be considered economically viable.

Reporting Requirements

The Consultant shall include the following outputs in the Feasibility Study Report:

1. Summary of assumptions and parameters used.
2. Tables showing yearly costs, benefits, and discounted values.
3. Computed EIRR, NPV, and BCR for each alternative.

4. Sensitivity analysis summary and graphical presentation.

5. Economic justification and final recommendation.

Illustrative Example (for RFP Guidance)

| Item | Base Case | +20% Cost | -20% Benefit

|------|------------|------------|--------------|

Construction Cost (Rs. Million) (5,000 | 6,000 | 5,000)

NPV @12% (Rs. Million) (+1,200 +400 +100)

EIRR (%) (18.5 - 14.2 - 12.3)

B/C Ratio (1.45 - 1.18 -1.05)

| Status | Acceptable | Acceptable | Marginally Acceptable |

Compliance Requirement

The Consultant shall ensure that the final Feasibility and Design Report demonstrate an EIRR not less than 12% under base case conditions. Projects falling below this threshold shall require re-evaluation of scope, alignment, or design standards.