



Government of Nepal  
Ministry of Physical Infrastructure and Transport  
Department of Roads  
Development Cooperation Implementation Division  
Jwagal, Lalitpur

## Procurement of Consulting Service for Construction Supervision of Improvement of Road and Bridges in Nagdhunga - Naubise – Mugling Road

Contract Identification Number: SRCTIP-DOR-CS-NNM-QCBS-1

Notice No. SRCTIP/3/2077-78

### REQUEST FOR EXPRESSION OF INTEREST (REOI)

Date of first publication: August 20, 2020

Country: Nepal

NAME OF PROJECT: Strategic Road Connectivity and Trade Improvement Project

Credit No.: 6673-NP

Assignment Title: Construction Supervision of Improvement of Road and Bridges in Nagdhunga - Naubise – Mugling Road

Reference No.: SRCTIP-DOR-CS-NNM-QCBS-1

The Government of Nepal has received financing from the World Bank towards the cost of the Strategic Road Connectivity and Trade Improvement Project, and intends to apply part of the proceeds for Consulting Services.

The Consulting Services (“the Services”) include Construction Supervision of Improvement of Road and Bridges in Nagdhunga - Naubise – Mugling Road.

Anticipated date for commencement of the services is March 2021 and the tentative duration of the assignment is about 99 months from commencement of Services. The detailed Terms of Reference (ToR) for the assignment are available in the website of the Department of Roads: <https://dor.gov.np/home/notices>.

The Department of Roads intends to widen and Improve Nagdhunga - Naubise - Mugling Road (94.8 Km) and Bridges in two lane standard with all road safety features, provision of one extra lane for slow moving vehicles in high gradient sections, foot over bridges, four lane with service track and footpath in market areas as well as social and environmental enhancement measures.

The Consultant shall provide expert service for the scope of works described above. The Department of Roads, Development Cooperation Implementation Division now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are:

- Years in Consulting Service business,
- Relevant experience,
- Technical, Managerial and Financial capability of the firm.

The attention of interested Consultants is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank’s “Procurement Regulations for IPF Borrowers” July 2016, Revised August 2018 (“Procurement Regulations”), setting forth the World Bank’s policy on conflict of interest.

Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected. The Consultants’ association, not stated clearly, shall be considered in the form of sub-consultancy.

A consultant will be selected in accordance with the Quality and Cost Based Selection (QCBS) method set out in the World Bank’s “Procurement Regulations for IPF Borrowers” July 2016, Revised August 2018.

Further information can be obtained at the address below during office hours or at the DoR’s website: <https://dor.gov.np/home/notices>. Expression of interest must be delivered in written form to the address below (in person, or by mail, or by e-mail) by September 14, 2020 office hours.

Attention: Program Coordinator,

Strategic Road Connectivity and Trade Improvement Project (SRCTIP),

Development Cooperation Implementation Division,

Department of Roads, Jwagal, Lalitpur, Nepal

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**Terms of Reference**  
for  
**Construction Supervision of Improvement of Road and Bridges in  
Nagdhunga - Naubise – Mugling Road**

# **TERMS OF REFERENCE**

## **1. INTRODUCTION AND BACKGROUND**

Nepal is geographically small landlocked country situated between India and China. Most of the commercial transaction is done through India. The port complex of Kolkata and Vishakhapatnam in India are mainly used as Nepal's access to the sea and these are the major transit point for third country trade. Indian Government has supported to build integrated check post at Birgunj and Biratnagar border, and further planning to develop similar facilities at Nepalgunj and Bhairahawa. To reduce the cost of trading and travel time Nepal government has the responsibility of improving the performance of road corridor from Birgunj to Kathmandu. The 276 Km stretch of road from Birgunj to Kathmandu is part of Asian Highway (AH-42) and is most important trade corridor in Nepal. The road transport between Kathmandu to Birgunj plays vital role in the both the trade and transit between Nepal and India, and also third countries. To enhance efficiency in the road transport, Nepal government intends to improve the road corridor from Birgunj to Kathmandu. As a first step, Birgunj -Pathlaiya and Narayangadh- Mugling road has been improved. Further, the government plans to improve the road section from Nagdhunga (Kathmandu)- Naubise-Mugling (NNM, 95 Km) road section under Strategic Road Connectivity and Trade Improvement Project (SRCTIP), proposed to be financed under the World Bank support. Detailed design for the improvement works for road and bridges are complete and biddings for the same under international competitive bidding will be started, soon. The Government intends to hire consulting services for construction supervision of NNM road widening/improvement and new construction/ maintenance of 2-lane Bridges.

Government of Nepal (GON), Ministry of Physical Infrastructure and Transport, Department of Roads, intends to apply portion of the proceeds from the World Bank finance to make payments for the proposed contract for this Consulting Services. Consultancy service is intended to be procured under World Bank's Procurement Regulations for IPF Borrowers, July 2016, Revised August 2018.

## **2. OBJECTIVES**

The main objectives of this consultancy services for NNM road and bridge works are to conduct :

- i. The main objective of the consultancy service is to carry out Construction Supervision of Nagdhunga- Naubise- Mugling road and bridge works including environmental and social management plan, health and safety plan, and other environment and social-related plans, resettlement implementation support, relocation of utility services, quality management, and all aspects of contract management as “Engineer” for the implementation of civil works contracts including Construction and 5 years Maintenance Phase.

### **3. SCOPE OF SERVICES**

To fulfill the main objectives as defined above the main scope of services for the consulting services are:

#### **A. Part 1: Construction Phase**

- i. Verify the proposed design and check suitability based on the site condition. If necessary, the design may need to be revised and finalized to suit the site condition.
- ii. Construction supervision of three (3) contracts ((i) Nagdhunga- Naubise, 12.3 km; (ii) Naubise- Malekhu, 43.5 km and Malekhu- Mugling, 38.9 km) under FIDIC conditions for Nagdhunga- Naubise- Mugling road (95 km), bridges (21 New Bridge Construction and maintenance of Existing Bridges) to ensure that the construction is achieved in scheduled time period, within budget and that the work is carried out in complete compliance with the approved engineering designs, technical specifications within the terms and condition of the contract documents and sound engineering practices.
- iii. Complete Contract management as an “Engineer” to the contract for construction supervision and contract administration ensuring full compliance with the design drawing, quality assurance and control as specified in the specification, and contract document.
- iv. Conduct regular supervision, monitoring, and reporting of social and environmental aspects, which includes Environmental and Social Management Plan (ESMP), Resettlement Action Plan (RAP), Indigenous People Development Plan (IPDP), Environmental and Social Commitment Plan (ESCP), Labor Management Procedures (LMP), Stakeholder Engagement Plan (SEP) and Gender Based Violence (GBV)

Action Plan and other environment and social-related plans such as Occupational and Community Health and Safety Plan, Traffic Management Plan, Labor Influx Management, Incidents and Accidents, etc.. The Consultant team to ensure full compliance with national legislation and World Bank Environmental and Social Framework (ESF) prior to commencement of construction activities in a specific location as construction progresses.

- v. The Consultant team will ensure that the necessary traffic management plan is in place before start of specific road or bridge works and is implemented throughout construction phase.
- vi. The Consultant shall support the Employer team to develop a communication plan consistent with the Stakeholder Engagement Plan and coordinate with the local stakeholders, organization and institutions, traffic police, and road users for the purpose of implementation of the project activities as well as shifting/ removing the utilities for construction purpose.
- vii. The Consultant shall prepare and submit regular progress reporting as well as specific reports necessary for the environmental and social safeguard issues, and other reports for Extension of time, variation, adjudication, arbitration, disputes, if any. The Consultant shall also report to the Employer any project-related incidents and accidents at the work place and at the community level.
- viii. The Consultant shall advise and assist the Employer and the Contractor to incorporate the tested techniques and technological developments, especially on climate resilience designs in road and bridges, and road safety.
- ix. The Consultant shall design suitable traffic safety features and road furniture including traffic signals, signs, markings, overhead sign boards, crash barriers, delineators etc for the proposed Structure and its approach roads.
- x. The Consultant shall act as “Engineer” to the contract and shall deliver their services through their Team Leader/ Representative and team. The Consultant will have roles and responsibilities as defined in the civil works contract under FIDIC conditions regarding contract administration. However, the Consultant shall seek and obtain the Employer’s specific approval prior to undertaking actions that would incur additional costs and time for completion of contracts.

- a. Issuing variation orders which have financial implications or significant in quantities ;
  - b. Revising the Time for Completion of the Works;
  - c. Approving any subcontracting of any part of the works;
  - d. Fixing new rates or prices that are not in the contract,
  - e. Issuance of Taking Over Certificate
  - f. Issuance of Performance Certificate,
  - g. Any other as mentioned in the Contract Documents for works.
- xi. Further, the Consultant's responsibilities shall include, but not necessarily be limited to, the followings:
- a. Approve contractor's quality assurance/management plan, work program, method statements, material sources, manpower and equipment deployment, contractors ESMP, OCHS Plan, Traffic Management Plan, Site Restoration Plan, Workers' Camp Management Plan and environment and social-related plans, etc.;
  - b. Ensure at all times the Contractor works in strict compliance with the Contractor's quality assurance/management plan, work plan, and contract specification, including instruction issued as per contract and non-compliance notification;
  - c. Carryout and recommend necessary adjustments in the design/drawing required during construction due to site requirement and considering value for money. Finalize the design drawings approve, and issue working drawings;
  - d. Check and approve the setting out of the works undertaken by the contractors on the basis of the control/reference points;
  - e. Prepare suitable standard formats and establish effective and efficient documentation and reporting procedure for contract administration, monitoring of schedules and quality assurances of the construction works;
  - f. Carry out survey work to provide adequate control points and reference points to the contractor for setting out of the works to be carried out by the contractor. Reconfirm site specific environmental and social issues/ conditions and provide data for preparing necessary site plans for mitigation works.
  - g. Prepare Supervision procedures / Manual for supervision staff and ensure that the team follows the Manual.

- h. Review, approve, and ensure to implement the site specific traffic management plan ensuring safety to the road users, construction workers and the locals. No works shall start before the traffic management plan is implemented.
- i. Inspect and supervise the day-to-day operations and activities of the contractor to ensure quality of materials, workmanship and compliance with the specification and contract.
- j. Review, check and certify acceptance of each part of work as completed based on the submitted Request for Inspection (RFI) from the contractors. Major activity like foundation for structures, reinforcement, and other layer of works should be checked and approved by the Consultant before next layer of work start. The bearing capacity of each foundation should be checked, recorded and approved in the inspection sheet by the authorized site staff and should be submitted in the monthly Progress report.
- k. Review the Contractor's organizational arrangements, key personnel and work plan, materials and their sources;
- l. Review the Contractor's Labor Management Plan (including Code of Conducts), Camp Management Plan and Working methodology of specific activities.
- m. Obtain, check and approve the contractors resource based work program, resource plan, method statements for quality assurance and material sources.
- n. Monitor progress of works against baseline work plan and advise on measures to be taken to improve progress and quality;
- o. Conduct regular progress review meetings at site with the contractor to discuss issues and problems affecting the progress, prepare and circulate minutes and report to the Employer for necessary action, if any ;
- p. In the event of variations to the works being required, prepare the necessary documents, verify / discuss with contractor, determine new rates, if necessary, and advise Employer for approval. The variations to be well justified and with possible alternatives, and should have prior discussion with the Employer's team ;
- q. Supervise the contractor in all matters concerning Environment Health and Safety (EHS) at work site, workers' personal safety and community health and safety. Ensure

that the civil works shall not start without the provision of necessary signs, safety barriers, traffic management measures, lights, fencing, security or safety persons at place;

- r. Prepare and issue monthly and quarterly progress reports for the contracts and projects in the form acceptable to Employer. These reports will include details of the physical and financial status of the contract/project, details of delays and consequences, if any, comments and solution on the quality of works in accordance with the contract. These reports shall also include updated status of all resources like manpower, machinery, materials including imported items, if any for each contract. There should be specific section on the Traffic Management, Safety, Labor Management, Social and Environmental safeguard implementation activities, incidents/accidents, if any.
- s. The Consultant shall make the proper record of contractor's equipment, material and manpower on the daily basis and jointly signed by the Consultant team and Contractors site representative and submit to the Employer on monthly basis.
- t. Regular review/ check of design drawings by the Consultant's team and if necessary, recommend better options to the Employer for correcting shortcomings identified during implementation, if any including in safety related aspects. The Consultant shall ensure that engineering measures for safety improvement of all road users such as improved geometry, forward visibility at blind corners and climbing lanes, improved signage and safety features at all bazaars, school zones and public amenities for safety of vulnerable road users (VRUs), and truck laybys for emergency truck stops are designed and implemented along the road.
- u. Approve and/or issue working drawings, instructions to the contractor as required in accordance with the contract specification and Contractor's quality management plan;
- v. Measure and keep detailed records of the completed works measurements;
- w. Supervise the tests in field and in laboratory, analyze and justify the results, and keep the record for all the test results whether failed or passed the test result. If necessary, undertake independent field and laboratory testing if required to verify. On the basis of test results, prepare the non-conformity reports and instruct the rectification work or solution;



- x. Regularly monitor and evaluate project physical progress and ensure that the works are executed on schedule and meet the established standards of performance and quality.
- y. Maintain records, correspondence, detailed diaries, photographs and other documents concerning relevant events and activities to assist the Employer to process contractor's claims/disputes, if any;
- z. Review, check and approve interim certificates for progress payments and recommend for payment to the Employer as specified in the contract. Before recommending the interim and other payment certificates completion of Environmental and Social mitigation works, Environmental Management Plan, and Social Commitment Plan, EHS Plan and other environment and social-related plans must also be checked.
- aa. Periodic checking of contract quantities and a constant check on the cost variation including a quarterly updating of monthly cash flow projections.
- bb. Assess and make recommendations to the Employer on the Contractors claims for additional payment, extension of time and any other matters, based on the Engineers interpretation of the contract as per Contractors detailed submissions;
- cc. Assist the Employer on preparation of documents and responses for the purpose of presenting to the hearings in case of dispute adjudication board, adjudication, arbitrations or other litigation process with the contractor.
- dd. Assist the Employer in maintaining the consolidated project accounts, and with preparation of financial statements and withdrawal applications for submission to the World Bank ;
- ee. Certify completion of works and issue the Taking Over Certificate or Completion certificate as per the provisions of the Contract;
- ff. Provide the Employer with complete records of contract, inception, monthly and completion reports, and other specific report, as required. Provide other specialized services upon request of the Employer;

- gg. Assist the Employer to provide on-site trainings to DoR Engineers/staff on quality assurance, contract administration , Claims management / Avoidance and or other specific area related to the NNM supervision activities;
- hh. Assist and support the Employer to comply with the audit requirements/ observations/ recommendations of the Government as well as the World Bank.
- ii. Assist the Employer for necessary communication and coordination for relocation of utilities to be carried out during construction.

**Social Aspects:**

**a. Implementation of Resettlement Action Plan and other measures :**

The Consultant will assist the Employer in implementing resettlement Action Plan (RAP) and other social mitigation plans. The Consultant will:

- i. Assist the DOR and Chief District Officer (CDO) for acquiring of land, Structures and houses.
- ii. Improve and work in accordance with the Implementation of RAP.
- iii. Develop resettlement and rehabilitation (R&R) information campaigns and implements Stakeholder Engagement Plan.
- iv. Assist the Project Affected Persons (PAPs), especially from indigenous people, vulnerable groups, in resettlement and rehabilitation, including redressing grievances, and coordination with all stakeholders.
- v. Update the database of PAPs and their entitlements for implementation and monitoring purposes.
- vi. Monitor and evaluate the construction induced impacts and propose action plan to address the impacts.
- vii. Monitor and evaluate progress and achievement of resettlement objectives.

**b. The administrative responsibilities of the Consultant will include:**

- i. Working in co-ordination with the Project In Charge and Chief District Officer.

- ii. The Consultant shall help to promote good working relationships between the PAPs, the Project In Charge and Local Consultative Forum (LCF). This will be achieved through regular meetings with both the LCF and the PAPs. All meetings and decisions taken shall be documented by the consultant.
- iii. Preparing monthly Progress Reports including action plans with targets in consultation with the stakeholders.
- iv. Updating the database of PAPs and vulnerable community and their entitlements.
- v. In consultation with the PAPs, preparing micro-level plans indicating the categories of entitlement, alternative livelihood options, and relevant institutions for obtaining additional training and support. Stakeholders are important to be incorporated in the development of these plans.
- vi. Organizing orientation program to contractor's team regarding Social/ Environmental / Health and Safety/ Gender aspects once in a year.
- vii. Assist GESU / DOR in preparedness check and monitoring of Social Safeguard compliance and Indigenous People's Development Plan (IPDP).
- viii. Implementing the recommendations of Resettlement Action Plan
  - c. Assist the Employer to implement, monitor and ensure the compliance of the approved RAP and IPDP and provide information on the implementation processes and report the progress in the monthly progress reports in line with ESMF provisions.
  - d. Provide necessary support to the PAPs/PAFs to understand the project procedures and receive compensation payment in time.
  - e. Assist the Employer for the ownership/deed transfer process of land compensated by the project as well as land used by the existing road.

### **Environmental Management Aspects**

- a. The Consultant will ensure and monitor that the Government's Rules, Regulations and World Bank's Environmental and Social Framework, 2018

requirements are adequately complied with at construction sites and along the direct impact area of the project, including communities along the road corridors:

- b.** Undertake monitoring of the implementation of ESMP and Environmental Health and Safety Plans during construction period;
- c.** In case of unexpected environmental impacts during project implementation period, prepare detailed recommendations for remedial actions to handle such impacts;
- d.** Prepare a reporting system on implementation of ESMP and preparing semi-annual report to DOR.
- e.** Prepare a report on project-related accidents and report to the Employer within 24 hours from the occurrence of the accident/incident.
- f.** Coordinate with GESU/DOR in monitoring of implementation of ESMP and other related plans.
- g.** Consultant is to ensure that the approved ESMAPs are implemented, providing supportive supervision and technical backstopping/ instructions where necessary. . In this regard the consultant's services shall pay special attention to the following:
  - i.** Ensure that the all activities and sites including spoil disposal, quarry, borrow, material crushing, material stockpiling, compaction etc are operated and reinstated.
  - ii.** Identify environmentally safe tipping areas for surplus mass of excavated or any other material in addition to that specified in the design specifications. The consultant, in consultation with Employer, shall ensure that the contractor and the work force engaged in construction are aware and comply with the ESMP provisions, environmental requirements and spoil disposal restrictions. Obtain, check and approve the site specific quarry or disposal plan of the contractor: ensure that each of such site-plans show current and finished conditions with necessary protection measures.
  - iii.** Ensure that the contractor implements site restoration plan including removal of all installations and surplus materials and leaves the site in clean condition and restored.

- iv. Ensure that the contractor follows all Occupational and Community Health Safety and Emergency measures during construction.
- v. Brief, orient and aware implementing agency at field including contractor, as well as communities and other stakeholders on ESMP provisions/ requirements, environmental good practices, and site-specific issues/ concerns.

## **B. Part 2: Maintenance Phase**

The consultant's services during the Maintenance phase shall be as detailed below and the services during this period shall be provided on the basis of intermittent input of the consultant's staff.

- a. The consultant, upon completion of the works, shall carry out an inspection of the completed section or sections and recommend to the Employer the date or dates of completion. The inspection should also check satisfactory completion of environmental and social mitigation works. Supervision of routine, recurrent, specific and emergency maintenance works as per the provision of the civil works contracts during the 1 year Defect Notification Period and 4 years maintenance period. Inspections, reporting and certifying the works during Maintenance shall be as mentioned in Specifications and conditions of the Works contract during the maintenance phase.
- b. During the Maintenance period, the consultant shall carry out thorough inspection of the works. Consultant shall supervise all type of maintenance works such as routine, recurrent, specific and emergency maintenance works.
- c. The role of the Engineer, on behalf of the Employer, is to enforce the contract by verifying compliance with the agreed Service Levels and with all applicable legislation and regulations. The Contractor will receive a Monthly maintenance fee for the Performance Based Maintenance Works and Services. Consultant is to recommend the Payment reductions as per the contract document if the Contractor fails to comply with the Service Levels in any given month. Consultant can instruct Emergency Works as per the requirement with proper justification after consultation with the employer.

- d. Carrying out inspection of the completed works at appropriate interval to note down any defects and issue instructions to the contractor for the rectification of the defective works and ensuring that the contractors are carrying out their contractual obligations in respect of maintenance, repair and reconstruction of the works.
- e. Shortly before the end of the Defects Notification Period, the consultant shall carry out thorough inspection of the works and designate the rectification work to be done and supervise the rectification works. Once all the designated rectification work is completed to the Employer's satisfaction the consultant shall issue a certificate of DNP as per contract. The final inspection report, shall also capture status on the environmental mitigation works implemented in the road providing initial indication on the adequacy, appropriateness and effectiveness.
- f. Approve the final accounts for contracts and recommend for payments as per contract provisions after the completion of Defect notification period and Maintenance period;
- g. At the completion of the works, undertake project monitoring and evaluation in the format acceptable by the Employer and the World Bank and assist in preparing a consolidated Project Completion Report. Consultant should mention the findings of Contracting approach and Performance based Maintenance system and recommendation for future.
- h. Submission of "As built" drawings showing details of changes from the original plans in construction details or materials, drainage, utilities, etc. checking and certifying precise and correct "As built "Drawings submitted by the contractor will be the responsibility of the Consultant. The Consultant shall make cost provision for the final print of the checked drawings. Six copies of the approved as built drawings and electronic soft copy shall be enclosed in the Project Completion Report and shall be supplied to the concerned DOR office as instructed by the Employer.
- i. Complete a final report highlighting any residual environmental impacts following the completion of construction work, and recommended actions, responsibilities and timeline to mitigate, manage or monitor these impacts.
- j. Issue a certificate of Final acceptance after the completion of Maintenance period. The final inspection report shall also capture status report on the environmental mitigation works implemented in the road providing initial indication on the adequacy, appropriateness and effectiveness.

- k. The consultant shall furnish the important documents, reports, drawing, field data (such as pavement strength, normal and generated traffic etc.) and other necessary information in the DOR acceptable format in soft copies compatible with DOR's Management Information System.

#### **4. DURATION OF THE SERVICES**

Considering the Consultant's service requirement up to maintenance phase the service requirement are divided into two parts as:

- i. Part 1: Construction Phase: This phase includes construction supervision and contract management for improvement works of Nagdhunga - Naubise - Mugling Road and Bridges and Maintenance of Existing Bridges during construction. The Consultant's services shall start from the beginning and continue until completion of the works contracts for the road and bridges. The duration of Construction phase (Part 1) is anticipated to be 3 years.
- ii. Part 2: Maintenance phase: This Part 2 will be 5 year including 1 year Defect Notification Period (DNP). DNP for each contract will start after the issuance of Taking over certificate and accordingly the Maintenance for each contract will start as specified in the contract document.

Consultant's services duration is to be planned for total 8 years 3 months (3 year construction and 5 years for Maintenance period including 1 year Defect Notification Period and 3 months for post maintenance period) such that all the responsibilities related to the contractual requirements to be completed within three month after the completion of Maintenance period of the works contracts. In case if there is any ongoing and or new claim, adjudication, arbitration, or disputes even after duration of Part 1 and 2, the Consultant shall provide necessary information and report to assist the Employer/DOR, under the same conditions of engagement as applicable to this Agreement.

#### **5. REPORTING REQUIREMENT**

The Consultant shall keep full records relating to all aspects of the work covered by his service contract. Such records shall be available for inspection and use by the Employer. All original drawings, work sheets, field notes, computer programs, reports and other documents relating to the study shall become the property of the Employer and shall not used in other

purpose without approval from the Employer. Reports required to be submitted by the Consultant during the course of their services for Part 1 and 2 are as follows:

**Part 1: Construction Phase**

- a. Inception Report (Six copies each in paper and electronic soft copy in original version)

Within a month of commencement of Part I activities, the Consultant shall submit an Inception report including the detail formats for quality, time and cost control including recording, reporting, payment certificates, quality assurance and quality control, resource plan and details of taking over consulting service of Nagdhunga - Naubise - Mugling Road and Bridges. This should provide initial assessment with regard to readiness for environmental and social safeguard measures implementation, and highlight any immediate actions needed.

- b. Monthly Progress Reports (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare a monthly progress reports on the project activities during construction period. It shall include physical and financial status of different construction activities, information on validity of various advance and performance guarantees issued from the banks. Resources mobilized such as construction material requirement and the stock at site, information on equipment requirement and equipment mobilized by the contractor, adequacy of contractor's manpower shall be also part of the report. It shall include the daily records of equipment, material and manpower and jointly signed with contractor and consultant. The Consultant should also record letter issued to the contractors and letter received from the contractors, and weekly/ monthly progress review meeting minutes. It shall also include the details regarding issues or problems related to the contract or project works, action agreed by the Contractor / Consultant/Employer to resolve the issue with due dates, and status. It should also include information on the extension of time, contract variation order, contractor's claims/ dispute, if any. For Claim and disputes a separate monitoring format shall be included in the report showing contract wise issues, claims date, engineer's decision, disputes and their status. Report should specifically include the environmental and social safe guard implementation and monitoring part showing the details of activities implemented and their status. Documenting the progress on implementation of ESMP and site-specific EMAP requirements, grievances received,



if any and their status towards resolution, accident information, and Road Closure Information is must. Report should also include brief information on Consultant's and project staff' activities. The report format shall be agreed by the Employer during inception period.

- c. Specific reports on the EOT, variation, claims, and or disputes: as per need basis the Consultant are required to prepare and submit specific reports to the Employer for necessary approval and or dispute resolution process.
- d. Project Management Report (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare Trimester Project Management Reports for monitoring financial, procurement and physical activities including the environmental and social status in agreed format with DOR.

## **Part 2: Maintenance Phase**

- a. Bi-Monthly Progress Reports (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare a bi-monthly progress reports (every two months) on the project activities during the maintenance period. The reports shall include the Consultant's team activities and progress status on activites related to the maintenance and defects restoration works, if any.

It shall include physical and financial status, information on validity of various advance and performance guarantees for each contracts, contractor's management team and resources mobilized such as construction material, and adequacy of manpower. It shall include the daily records of equipment, material and manpower, and record letters exchanged between Consultant, Contractor and Employer, if any. It shall also include the details regarding issues or problems related to the contract or project works, action agreed by the Contractor/ Consultant/Employer to resolve the issue with due dates, and status. It should also include information variation order and contractor's claims/ dispute, if any. For Claim and disputes a separate monitoring format shall be included in the report showing contract wise issues, claims date, engineer's decision, disputes and their status. Report should specifically include the environmental and social safe guard implementation and monitoring part showing the details of activities implemented and their status. Documenting the progress on

implementation of ESMP and site-specific EMAP requirements, grievances received, if any and their status towards resolution, accident information, and Road Closure Information is must. The Consultant should include the routine, recurrent and emergency maintenance plan for the next month and activities performed during the reporting period. The report format shall be agreed by the Employer.

- b. Project Management Report (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare Trimester Project Management Reports for monitoring financial, procurement and physical activities including the environmental and social status in agreed format with Employer/DOR.

- c. Specific reports on the EOT, variation, claims, and or disputes: as per need basis the Consultant are required to prepare and submit specific reports to the Employer for necessary approval and or dispute resolution process.

- d. Final Project Completion Report (Ten copies each in paper and electronic soft copy in original version)

Upon completion of each civil works contract's period for construction and issuance of performance certificate, the Consultant shall prepare a contract wise Final completion report. This report shall include the project completion report prepared after completion as Part 1 followed by Part 2 capturing the overall physical and financial activities under design, construction and maintenance period. It should also include the information regarding environmental and social safeguard. The report shall also mention the final financial statement, variation in contracts, claim/ dispute status and future steps, further operation and maintenance guide. The report should include lessons learned and recommendation for improvement in future projects regarding the contract documents, applied methodology, and use of PBMC contract. A Detail evaluation on the maintenance contract performance, issues in supervision, quality assurance, Environment and social management during maintenance, and needed improvement in the contract provision and management will be required.

- e. Final Confidential Report (Two copies for each contract in paper and electronic soft copy in original version)

The Consultant shall submit a final confidential report on the performance of each contractor upon completion of the Maintenance period. The report format shall be as

specified in the Public Works Directive, Nepal. Such performance evaluation shall be based on the guidelines provided in Public Works Directives, Nepal.

## **6. TIME FRAME AND STAFFING REQUIREMENT**

The total time period for the consulting service has been expected to be nearly 99 months including service for the 5 year Maintenance Period and 3 months post Maintenance Period. During the overall period it is estimated that approximately 80 person-months of International staff input and 583 person-months of national technical professional staff. In addition to the technical professional staffs in the team composition other administrative staff and technical support staff may be required for completion of works during Construction as well as in maintenance phase of the service.

## **7. TEAM COMPOSITION AND QUALIFICATION REQUIREMENT**

The consulting services shall be carried out by an international firm. The Consulting firm must have sufficient qualification and experience to carry out the assignment. As a minimum, the consultant (firm) must have (i) 10 years of experience in consulting services in the road sector; and (ii) experience of Construction Supervision of Multilane Road having Project Cost more than USD 90 Million. Experience of the firm outside of the firm's native country will have advantage. Experience of the firm in Nepal will also has advantage.

The estimated consulting staff team composition for construction and maintenance phase is as follows for the performance of the services specified in the scope of work.

### **Estimated Team Composition**

<b>Position</b>	<b>No</b>	<b>Input (MM)</b>	<b>Remarks</b>
<b>A. International Professional Staff</b>			
Team Leader/Chief Resident Engineer	1	52	
Procurement Specialist/Contract Specialist	1	16	
Pavement Specialist	1	4	
Sr. Road Safety Expert	1	2	
Sr. Highway Engineer	1	2	

Bridge Engineer/ Structural Engineer	1	4	
<b>Total of International Professional Staff</b>	<b>6</b>	<b>80</b>	
<b>B. National Professional Staff</b>			
Resident Engineer - 1	1	58	
Resident Engineer - 2	1	36	
Highway Engineer	1	12	
Geotechnical Engineer	1	6	
Assistant Resident Engineer	5	240	
Geologist	1	2	
Environmental Safeguard Expert	1	20	
Bridge Engineer/ Structural Engineer	1	36	
Health and Safety Expert	1	8	
Office Engineer/Quantity Surveyor	1	56	
Hydrologist	1	2	
Sr. Material Engineer-1	1	36	
Sr. Material Engineer-2	1	36	
Social Safeguard Expert	1	20	
Road Safety Expert	1	9	
Gender Expert	1	6	
<b>Total of National Professional Staff</b>	<b>20</b>	<b>583</b>	
<b>C. Support Staff</b>			
Inspector of Works	6	396	
Senior Laboratory Technician	3	168	
Bio Engineering Technician	1	21	

Senior Surveyor	3	6	
Health and Safety Inspector	1	36	
Social Mobilizer	1	36	
Environmental Inspector	1	36	
<b>Total of National Professional Staff</b>	<b>16</b>	<b>699</b>	

**Note:**

- a) **The above key staff composition and estimated total key staff man-month is for Employer's estimate. The consultants are advised to assess their own requirement and propose their own staff composition and staff input requirement for efficient performance of their job as per the Terms of Reference. If the proposed consultant's team is found inadequate or not sufficient during the performance of the services then additional staff shall be provided by the consultant at their own cost.**
- b) **A Technical Proposal shall be considered unsuitable and shall be rejected for further evaluation if it does not respond to important aspect of TOR.**

## **8. TECHNOLOGY TRANSFER**

The Consultant shall consider the technology transfer as an important aspect of Construction and Maintenance Period. The consultant should involve 2 DOR Engineers for 1.5 years in the working team of consultants during Contract Administration, Construction supervision, Quality Control and Maintenance as a consultant's team member for their capacity development. The consultant has to pay DOR Engineers per diem as per the Government rules. As per the request of DOR PCU, the Consultant shall brief and demonstrate the working procedure, design concept, pavement design, quality control procedure, software operation, contract management, Maintenance Management procedures, and Claim /Dispute management. The consultant shall assist the DOR PCU and its staff to build their capacity as a part of the on the job training under this project.

The Consultant should provide minimum one week training to 40 DoR officials in contract management (FIDIC) and arbitration as per UNCITRAL procedure during the initial phase of service. The schedule and the participant of the training program will be finalized with consent from the Department of Roads. The expert should have International experience including European countries. The contract management Training should be based on FIDIC and trainer should be FIDIC Certified.

## **9. CONSULTANTS FACILITIES**

For the Construction phase, the Consultant should establish their main office in between Naubise to Mugling and the key supervision staff should be based on the main office and satellite offices at appropriate places to cover the main works from Nagdhunga to Mugling, including bridges. For Maintenance phase, the Consultant's office set up may be reduced considering limited scope of supervision for maintenance. The Consultant will need to provide the key technical professional staff, including administrative and support staff needed to carry out their services during the construction phase and maintenance phase. The Consultants will also be responsible for providing all other necessary facilities and logistical support for its staff, including accommodation, sufficient vehicle/transportation office equipment, Survey equipment, communications, utilities, office supplies and other miscellaneous requirements required to render their services effectively.

The Consultant shall have provision of sufficient transport facilities during the whole period of consulting service. There should be at least SUV to each International Professional staff and Double cab pickup to each Professional National Staff having full time input. There should be at least 3 SUV in pool basis for experts having intermittent inputs in construction phase and one SUV in pool basis for the maintenance phase. There should be at least motorcycles to each staff involved in supervision in order to deliver their service effectively during Construction Phase and Maintenance Phase of the service. The Consultant shall also make provision of at least one additional SUV in pool basis for the Construction period.

Except provision of laboratory and laboratory equipment including laboratory boys, other additional staff and facilities will not be included in the civil works contract.

#### **10. DATA AND ASSISTANCE TO BE PROVIDED BY THE EMPLOYER**

The following shall be provided to the Consultant by DOR/ Employer

- Detail design report for the Nagdhunga - Naubise - Mugling Road and Bridges.
- ESIA report for the Nagdhunga - Naubise - Mugling Road and Bridges.
- Access to other available necessary documents and data available in DOR required for the performance of the Consultant's services.

#### **11. CONTRACTUAL ARRANGEMENT**

The Consultant's contract will be with Government of Nepal, Department of Roads, Development Cooperation Implementation Division and will be based on a contract agreement consistent with the standard document based on World Bank Procurement Regulations for IPF Borrowers, July 2016 Revised August 2018.

## **Annex I**

**(New Bridges Construction)**



Sl. No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (km)	Design Chainage at centre of bridge (km)	Proposed Span arrangement (c/c of Bearings) (m)	Angle of Skew of Bridge (degree)	Total Length of Bridge (l/f of dirt wall) (m)	Type of Superstructure	Type of Substructure	Type of Foundation	Remarks
1	Khatripauwa 26/H002/005	4+080	4+138	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Counterfort Abutment	Open	New Bridge
2	Naubise 24/H002/006	10+526	12+352	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
3	Ganesh 24/H004/001	2+995	3+000	1 x 17	0	18.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
4	Sopyang 24/H004/002	5+130	5+140	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
5	Khahare 24/H004/005	12+359	12+359	1 x 25	39	26.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
6	Phedi 24/H004/006	14+417	14+408	1 x 9.2	0	9.68	RCC Solid Slab	RCC Cantilever Abutment	Open	New Bridge
7	Dangdunge 24/H004/007	14+668	14+686	1 x 17	0	18.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
8	Kheste 24/H004/008	18+131	18+129	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
9	Machhed	19+430	19+520	2 x 5.0	0	11.30		RCC Box Cell		
10	GardoKhola 24/H004/009	23+084	23+178	3 x 8.5	40	18.60		RCC Box Cell		
11	Jundi 24/H004/010	25+015	25+025	1 x 9.0	0	10.00		RCC Box Cell		

Sl. No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (km)	Design Chainage at centre of bridge (km)	Proposed Span arrangement (c/c of Bearings) (m)	Angle of Skew of Bridge (degree)	Total Length of Bridge (l/f of dirt wall) (m)	Type of Superstructure	Type of Substructure	Type of Foundation	Remarks
12	Chiraundi 24/H004/011	26+560	26+563	1 x 17	0	18.48	Precast RCC Beam and Slab	RCC Counterfort Abutment	Open	New Bridge
13	Pokhare 24/H004/013	33+249	33+250	1 x 17	0	18.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
14	Galaudi 24/H004/014	36+436	36+449	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
15	Soti 24/H004/015	38+529	38+620	2 x 6.0	0	13.30	RCC Box Cell		Open	
16	Gomati 24/H004/017	49+853	50+165	1 x 17	0	18.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge
17	Charaundi 24/H004/018	55+840	55+460	1 x 35 + 1 x 22	0	59.96	PSC and RCC beam and slab	RCC Counterfort abutment & RCC wall pier	Open	New Bridge
18	Khataudi 24/H004/019	58+154	58+430	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Counterfort Abutment	Open	New Bridge
19	Hugdi 24/H004/020	61+665	61+930	1 x 35 + 1 x 20	0	57.96	PSC and RCC beam and slab	RCC Counterfort abutment & RCC wall pier	Open	New Bridge
20	Mowa 35/H004/021	65+869	66+130	1 x 22	0	23.48	Precast RCC Beam and Slab	RCC Counterfort Abutment	Open	New Bridge
21	Barban 35/H004/023	73+287	73+570	1 x 25	0	26.48	Precast RCC Beam and Slab	RCC Cantilever Abutment	Open	New Bridge

## **Annex II**

**(Maintenance of Bridges)**

Sl. No.	Name of Bridge	Bridge Identification No.	Package	Existing Chainage (km)	Design Chainage (km)	Span arrangement (m)	Angle of Skew (degree)	Total Length of Bridge (m)	Type of Superstructure	Type of Substructure	Remarks
1	Agra	24/H004/003	II	10+923	10+923	3 x 35	0	105.0	Steel Plate Girder	RCC Wall type	Maintenance
2	Belkhu	24/H004/012	III	28+888	28+900	3 x 28.9	0	85.70	Steel Plate Girder	RCC Wall type	Maintenance
3	Malekhu	24/H004/016	III	43+270	43+580	1 x 35 + 1 x 55	0	90.40	Steel Plate Girder	RCC Wall type	Maintenance
4	Dahaki	35/H004/022	IV	72+334	72+334	1 x 32.20	0	33	Steel Plate Girder	RCC Wall type	Maintenance
5	Nyagdi	35/H004/024	IV	80+254	80+254	1 x 16.00	0	37.15	Arch	Masonry	Maintenance

# Staffing Requirements

## 1. International Staff

### A. Team Leader /Chief Resident Engineer(TL/CRE) (1 No., 52 months)

The Team Leader / Chief Resident Engineer will take the overall responsibility for the implementation of the project in accordance with the Terms of Reference and also for the conduct and the co-ordination of all professional inputs. S/He will be responsible to the Program Coordinator (PC), Strategic Road Connectivity and Trade Improvement Project, Department of Roads. S/He will assist and advice the PC, Project Coordination/ Unit (PCU), and Project Field Offices (PFOs), and Project Team members on all aspects of the Project implementation. S/He will also maintain contact and liaison with the related Project offices, Units of DOR, Federal offices to ensure that the project is implemented in accordance with the Government's / DOR's policies and objectives.

The office of the Team leader / Chief Resident Engineer will be in between Naubise and Mugling as agreed with the Client. The Team Leader will be leading the team of consultant for all the works and required to coordinate for the Part 1 and 2. TL / CRE shall be responsible for overall implementation of Project.

The Team Leader / Chief Resident Engineer should be the same person for part 1 and 2 of the services.

#### **Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in Civil Engineering

Preferable : Master Degree in Highway /Transportation /Construction

Management/ Engineering Management/ Project Management or related field

ii. Experience

a. General Civil Engineering Works

Minimum : 15 years

Preferable : 20 years

b. Experience in Road projects

Minimum : 10 years

Preferable : 15 years

c. Experience in similar size Road project

Minimum:

- Shall have international experience of construction supervision of two road projects outside the native country as Team Leader/Resident Engineer/Project Manager
- Experience of having at least construction Supervision of one ICB Contract of size equal or more than US \$ 50 million as Team Leader/ Resident Engineer/Project Manager using FIDIC Conditions of Contract

Preferable:

- International experience of construction supervision of four road projects outside the native country as Team Leader/Resident Engineer/Project Manager
- Experience of having construction Supervision of three ICB Contract of size equal or more than US \$ 50 million as Team Leader/ Resident Engineer/Project Manager using FIDIC Conditions of Contract

iii. Language :Capable of communicating fluently in English Language

Team Leader / Chief Resident Engineer should be the same person for the Construction and Maintenance phase of the service.

**B. Sr. Highway Engineer (SHE)**

**(1 No., 2 months)**

The SHE will assist the Team Leader / Chief Resident Engineer in managing the overall works in Design verification and Construction Supervision works.

**Broad Qualification and Requirements:**

i. Education

Minimum : Master Degree in Highway /Transportation or Related field

ii. Experience

a. General Civil Engineering Works

Minimum : 15 years

b. Experience in related field in Road projects

Minimum : 10 years

c. Experience in similar size Road project

Minimum:

- Experience of Design of two road projects of size equal or more than 40 Km road length.
- Experience of Construction Supervision of one road projects each of size equal or more than USD 40 million.

iii. Language : Capable of communicating fluently in English Language

**C. Structural Engineer / Bridge Engineer (SE/BE) (1 No., 4 months)**

The SE/BE will assist the Team Leader / Chief Resident Engineer in managing the overall works in Design verification and Construction Supervision works of bridges and other Structures.

**Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in civil Engineering

Preferable : Master Degree in Structural / Bridge Engineering or related field

ii. Experience

a. General Civil Engineering Works

Minimum : 10 years

Preferable : 15 years

b. Experience in related field in Road / Bridge projects

Minimum : 5 years

Preferable : 10 years

c. Experience in similar size Road/Bridge project

Minimum:

- Completed Detail Design of at least 10 no. of highway bridges
- Experience of Construction Supervision of at least two bridges

Preferable:

- Shall have the experience of design of five highway bridges
- Experience of Construction Supervision of four road bridges

iii. Language : Capable of communicating fluently in English Language

**D. Procurement Specialist/Contract Specialist ( 1 No., 16 months)**

The Procurement Specialist / Contract Specialist will assist the Team Leader/Chief Resident Engineer in managing the overall works in construction and Maintenance phase. S/He will be responsible for resolving contractual matters/ disputes, delay assessment, variation, during the Construction and Maintenance period.

**Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in Civil Engineering

Preferable : Master Degree in Engineering / Construction Management /Project Management/ Law or related field

ii. Experience

a. Experience in Procurement of civil works/ Claims / Contract Management in Road / Bridge related field

Minimum : 10 Years

Preferable : 15 Years

b. Experience in related field

Minimum:

- Shall have experience of having worked in Procurement / Claims related works of FIDIC contracts in at least 3 nos. of road related project/ 5years.
- Shall have worked at least in 2 nos. of Construction Contracts in International sector.

Preferable:

- Shall have experience of having worked in Procurement / Claims related works of FIDIC contracts or worked as an arbitrator/ Dispute Board member in at least 5 nos. of road related project /10 years
- Shall have worked at least in 5 nos. of Construction Contracts in International sector.

iii. Language : Capable of communicating fluently in English Language

*The Contract Specialist should be the same person for Construction and Maintenance phase of the service.*

**E. Pavement Specialist**

**( 1 No., 4 months)**



Pavement Specialist will assist the Team Leader/Chief Resident Engineer to perform the required works during Design verification, Construction and Maintenance phase of the service.

**Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in Civil Engineering

Preferable : Masters Degree in Highway/Transportation/Construction Management or related field

ii. Experience

a. Experience in General Civil Engineering Works

Minimum : 10 Years

Preferable : 15 Years

b. Experience in Pavement of Road works

Minimum : 5 Years

Preferable : 10 Years

c. Experience in Related field

Minimum:

- Shall have international experience of pavement design works in at least 3 road projects.
- Shall have international experience of construction supervision of 3 nos. of road projects with Asphalt Concrete Pavement as Pavement Engineer.

Preferable:

- International experience of construction supervision of 5 nos. of road projects with Asphalt Concrete Pavement as Pavement Engineer.
- Experience in recycling of Pavement in at least one project.

iii. Language : Capable of communicating fluently in English Language

**F. Sr. Road Safety Expert**

**( 1 No., 2 months)**

Sr. Road Safety Expert will assist the Team Leader/Chief Resident Engineer to perform the required works during Design verification and Construction phase of the service. S/He will be overall responsible for the design works related to traffic safety, coordinate with

other expert while performing road safety related works as per the requirement during supervision period.

**Broad Qualification and Requirements:**

- i. Education  
Minimum : Graduate degree in Civil Engineering
- ii. Experience
  - a. Experience in General Civil Engineering Works  
Minimum : 10 Years
  - b. Experience in Road Safety works  
Minimum : 5 Years
  - c. Experience in Related field
    - Shall have international experience of road safety works in at least 3 nos. of road projects in detail design phase outside the native country as road safety specialist.
    - Shall have international experience of road safety works in construction supervision of 3 nos. of road projects outside the native country as road safety specialist.
- iii. Language : Capable of communicating fluently in English Language

**2. National Staff**

**G. Resident Engineer (RE) ( 2 No., 94 months)**

Resident Engineer (RE) will perform duties under the guidance of the Team Leader/Chief Resident Engineer. RE will responsible for Construction Supervision and Contract Administration and required to make regular visits to site for implementation of effective supervision, verification of quantities, quality control, progress monitoring and reporting etc.

Resident Engineer should be the same person for part 1 and 2 of the service. One of the RE will act as Deputy Team Leader. He/she will also perform as a acting Team Leader in the absence of Team Leader/Chief Resident Engineer and take overall responsibility of the Project.

**Broad Qualification and Requirements:**

- i. Education

Minimum : Graduate degree in civil Engineering  
Preferable : Master Degree in Highway / Project Management / Construction Management or Related field

ii. Experience

a. General Civil Engineering Works

Minimum : 10 years

Preferable : 15 years

b. Experience in design of Double Lane Bituminous Road Projects

Minimum : 5 years or 3 Road Projects

Preferable : 7 years or 5 Road Projects

c. Experience in Construction Supervision of Double Lane Bituminous Road Projects using FIDIC conditions of contract as Resident Engineer/Project Manager/Contract Manager

Minimum : 4 years or 2 Road Projects

Preferable : 10 years or 5 Road Projects

iii. Language : Capable of communicating fluently in Nepali/ English Language

**H. Highway Engineer (HE) ( 1 No., 12 months)**

Highway Engineer (HE) will perform duties under the guidance of the Team Leader/Chief Resident Engineer. HE will responsible for design review and preparation of review report considering the value engineering. He/she will support the team for any revision/amendment in design, additional design and preparation of construction drawings for the proper execution of specific site activities.

**Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in civil Engineering

ii. Experience

a. General Civil Engineering Works

Minimum : 5 years

b. Experience in design of Road Projects

Minimum : 3 years or 3 Road Projects

c. Experience in Construction Supervision of Road Projects

Minimum : 2 years or 1 Road Project

iii. Language :Capable of communicating fluently in Nepali/ English Language

**I. Bridge Engineer/Structure Engineer (1 Nos., 36 months)**

The Bridge Engineer / Structure Engineer will assist the Team Leader/Chief Resident Engineer in managing the Survey, Design verification and Construction Supervision works during the service period. S/He shall also coordinate and support the TL/CRE and team in quality assurance during construction supervision.

**Broad Qualification and Requirements:**

i. Education

Minimum : Graduate degree in Civil Engineering/Bridge Engineering

Preferable : Master Degree in Bridge Engineering/Structural Engineering or related field

ii.Experience

a. General Civil Engineering Works

Minimum : 10 years

Preferable : 15 years

b. Experience in Bridge Design

Minimum : 5 Nos.

Preferable : 10 Nos.

c. Experience in Bridge Construction Supervision

Minimum : 3 Nos.

Preferable : 5 Nos.

iii. Language :Capable of communicating fluently in English Language

**J. Geotechnical Engineer (GE) ( 1 No., 6 months)**

Geotechnical Engineer (GE) will work under the guidance of the Team Leader. GE will have the overall responsibility for reviewing the geology of road alignment, Bridge Sites and Road slopes as assumed during design of the road and suggest any improvement during construction. S/he shall also assess the geology of the alignment, properties of the soil and actual drainage system and recommend for any improvement for the stability of the alignment.

i. Education

Minimum :Masters Degree in Geotechnical Engineering or related field

- ii. Experience
  - a. General Civil Engineering Works  
Minimum : 10 years
  - b. Experience in design of Road projects as Geotechnical / Material Engineer  
Minimum : 5 years or five roads
  - c. Experience in Construction Supervision of Road projects as Geotechnical /  
Material Engineer  
Minimum : 3 years or three roads
- iii. Language : Capable of communicating fluently in English Language

**K. Hydrologist [HY] ( 1 Nos., 2 months)**

Hydrologist will perform their duties under the guidance of the Team Leader/Chief Resident Engineer. S/He will assist TL/CRE for any modification in design during implementation of project activities considering the value engineering.

**Broad Qualification and Requirements:**

- i. Education  
Minimum : Master degree in Hydrology/Hydropower Engineering or related Engineering discipline.
- ii. Experience
  - a. Experience as a Hydrologist  
Minimum : 10 years
  - b. Experience in Road Projects as hydrologist  
Minimum : 5 years or completed Five Road Projects
- iii. Language : Capable of communicating fluently in English

**L. Environmental Safeguard Expert (ESE) ( 1 No., 20 months)**

ESE will perform his/her duties under the guidance of the Team Leader / Chief Resident Engineer. S/he will work in construction supervision during construction and maintenance phase of the service for the implementation of mitigation measures.

**Broad Qualification and Requirements:**

- i. Education

- Minimum : Graduate degree in Civil Engineering/ Environmental Science/Environmental Engineering
- Preferable : Masters degree in Environmental Engineering/Science or related field
- ii. Experience
- a. Experience as a Environmental Specialist in road works
- Minimum : 5 years
- Preferable : 10 years
- b. Experience in Road Projects as Environmental Safeguard Expert/Environmental Specialist:
- Minimum:
- Experience of preparation of EIA/ESIA for three hill road projects as an Environmentalist/Environmental Safeguard Specialist or similar position;
  - Experience of implementation of EIA/ESIA in two Donor funded Road Projects (World Bank/ADB/JICA) as an Environmentalist/Environmental Safeguard Specialist or similar position;
- Preferable:
- Experience of preparation of EIA/ESIA for five hill road projects as an Environmentalist/Environmental Safeguard Specialist or similar position;
  - Experience of implementation of EIA/ESIA in three Donor funded Road Projects (World Bank/ADB/JICA) as an Environmentalist/Environmental Safeguard Specialist or similar position
- iii. Language : Capable of communicating fluently in English

*Environmental Safeguard Expert should be the same person for the Construction and Maintenance Phase.*

**M. Social Safeguard Expert (SSE) (1 No., 20 months)**

SSE will perform his/her duties under the guidance of the Team Leader/Chief Resident Engineer. SSE will assist and support the Construction Supervision team and Project staff in implementing social safeguard activities as per the requirement of World Bank's Environmental and Social Framework and GoN's relevant policies, guideline, frameworks etc.

**Broad Qualification and Requirements:**

- i. Education
  - Minimum : Graduate degree in Humanity/ Social Science or related field
  - Preferable : Masters degree in Social Science/Anthropology/Sociology/Rural Development/Economics or related field
- ii. Experience
  - a. Experience as a Sociologist in road works
    - Minimum : 5 years
    - Preferable : 10 years
  - b. Experience in Road Projects as a Social Safeguard Expert/Sociologist/Social development and Resettlement Specialist:
    - Minimum : Experience in two road Projects in the Design/construction supervision Phase of Donor (World Bank, ADB, JICA) Funded Projects
    - Preferable : Experience in five road Projects in the Design/construction supervision Phase of Donor (World Bank, ADB, JICA) Funded Projects
    - Language : Capable of communicating fluently in English.

*Social Safeguard Expert should be the same person for the Construction and Maintenance Phase.*

**N. Engineering Geologist ( 1 No., 2 months)**

Engineering Geologist will work under the guidance of the Team Leader/Chief Resident Engineer. S/he will have the overall responsibility for assessing, testing and confirming the availability and quality of construction materials and reviewing the geology of road /bridges.

**Broad Qualification and Requirements:**

- i. Education  
Minimum : Master Degree in Geology/Engineering Geology or related field
- ii. Experience
  - a. General  
Minimum : 10 years
  - b. Experience in geological study for Road / Bridge Works  
Minimum : 5 years or five roads
- iii. Language : Capable of communicating fluently in English Language

**O. Road Safety Expert ( 1 No., 9 months)**

The Road Safety Expert will assist the Team Leader / Chief Resident Engineer in managing the road safety measures in Road and Bridge approaches. S/He shall also coordinate and assist the TL/CRE and team in reviewing and implementing road safety measures considering the value engineering and best practices.

**Broad Qualification and Requirements:**

- i. Education  
Minimum : Masters degree in Highway/Transportation/Construction Management or related field
- ii. Experience
  - a. General  
Minimum : 10 years in Road Works
  - b. Experience in Road safety audit or design of road safety measures  
  
Minimum : Five number of two lane Highways
- iii. Language : Capable of communicating fluently in English Language

**P. Sr. Material Engineer (SME) ( 2 No., 72 months)**

Sr. Material Engineer will work under the guidance of the TL/ CRE and will have responsibility in testing materials, identification of source of materials and other material



related activities. For contract wise quality management the SME shall be supported by the respective AREs, Lab Technicians and IOWs. Before start of works the SME shall establish the laboratory and prepare the necessary quality control procedures, check list, approval formats for materials, approval for foundation of Structures, and record. SME shall also train the Lab technicians, IOWs, Contractor's relevant personals, and other related project staff on necessary laboratory tests to control the quality of materials, workmanship, and completed works.

i. Education

Minimum : Graduate degree in Civil Engineering

Preferable :Masters degree in Geotechnical/Transportation/Construction Management or related field

ii. Experience

a. General Civil Engineering Works

Minimum : 10 years

Preferable : 15 years

b. Experience in related field in Road projects

Minimum : 5 years or 5 road projects experience in quality assurance and quality control works in roads having bituminous surface pavement as Material Engineer/ Quality Control Engineer.

Preferable : 10 years or 10 road projects experience in quality assurance and quality control works as Material Engineer/Quality Control Engineer.

: 3 years or 3 road Project's experience of Asphalt Concrete as a Resident Engineer / Material Engineer/ Quality Control Engineer.

iii. Language :Capable of communicating fluently in English Language

**Q. Assistant Resident Engineer (ARE) ( 5 Nos., 240 months)**

ARE will work directly under TL/CRE and will have the responsibility for construction supervision, contract administration including design verification and preparing construction drawings. ARE will be responsible for implementation with quality assurance and quality control, measurement of works, compliance of Environmental and Social Safeguard requirements etc. ARE shall be working in close coordination with the SME/ ESE/ SSE and shall be supported by the Inspector of Works and Lab Technicians. ARE will be responsible for quantity measurement and verification in the role of quantity surveyor.

i. Education

Minimum : Graduate degree in Civil Engineering

ii. Experience

a. General Civil Engineering Works

Minimum : 5 years

b. Experience in Road works

Minimum : Experience of 5 years as an Assistant Resident Engineer in road projects in construction Supervision/ management of roads having bituminous surface pavement works or 10 Years as IOW (after completion of Graduation in Civil Engineering) in Road Projects with minimum experience of 2 Road projects in construction Supervision/ management of roads having bituminous surface pavement works

iii. Language :Capable of communicating fluently in English Language

**R. Office Engineer / Quantity Surveyor( 1 no., 56 months)**

Office Engineer / Quantity Surveyor will support the Supervision team and will work under Team Leader/Chief Resident Engineer. He/ She will support during the construction and maintenance phase of the service. He/she will assist the team leader in verification of quantities of works performed, design update/modification, preparation of monthly progress report and other required documents during the execution of works.

i. Education

Minimum : Graduate degree in Civil Engineering

ii. Experience

a. General Civil Engineering Works (Road/Bridge)

- Minimum : 5 years
- iii. Language : Capable of communicating fluently in English Language

**S. Bio Engineering Technician (BET) ( 1 No., 21 months)**

The Bio Engineering Technician will work under the guidance of the TL/CRE and support team in performing his duty.

Broad Qualification and Requirements:

1. Education

Minimum : Intermediate in Civil Engineering

2. Experience

a. General Civil Engineering Works

Minimum : 5 years

b. Experience in the hill road slope bio engineering design/construction Supervision

Minimum : 3 years

**T. Health and Safety Expert (HSE) ( 1 No., 8 months)**

The Health and Safety Expert will work under the guidance of the TL/CRE and support team in performing his duty.

Broad Qualification and Requirements:

1. Education

Minimum : Bachelor in Civil Engineering / Environmental Engineering/Environmental Science or related field

2. Experience

a. General Civil Engineering Works

Minimum : 5 years

b. Experience in the Health and Safety related works in Construction Contract

Minimum : 3 years

**U. Gender Expert (GE) ( 1 No., 6 months)**

The Gender Expert will work under the guidance of the TL/CRE and support team in performing his duty.

Broad Qualification and Requirements:

i. Education

Minimum : Graduate degree in Social Science / Gender or related field

ii. Experience

a. Experience as a Sociologist / Gender Expert

Minimum : 5 years

b. Experience in Construction Projects as a Social Safeguard Expert/Sociologist/Social development and Resettlement Specialist/Gender Expert or related field:

Minimum : 2 Projects or 2 years

iii. Language : Capable of communicating fluently in English.

**V. Inspector of Works (IOW) ( 6 Nos., 396 months)**

**IOW** should be a Civil Engineering Graduate with minimum 1 years of specific experience in construction supervision of road works with bituminous surfacing works or **S/He** should have a Certificate/ Diploma in Civil Engineering with minimum 10 years of experience in construction supervision of civil engineering works with minimum 2 years of specific experience in construction supervision of road works with bituminous surfacing works.

**W. Senior Laboratory Technician (SLT) ( 3 No., 168 months)**

SLT should have minimum 5 years general experience in Laboratory testing works and 3 years of specific experience in carrying out laboratory and field tests to maintain the quality of road works according to the specifications and a minimum education of Intermediate Level.

SLT should also have a minimum of 2 years experience in conducting Laboratory testing works of bituminous surfacing road works.

**X. Social Mobilizer (SM) ( 1 No., 36 months)**

SM should have minimum 5 years general experience in social related mobilization works and SM should have also a minimum education of Intermediate level.

**Y. Health and Safety Inspector (HSI) ( 1 No., 36 months)**

HSI should have minimum 5 years general experience in Construction works and should have also a minimum education of Intermediate level.

**Z. Environmental Inspector (EI) ( 1 No., 36 months)**

EI should have minimum 5 years general experience in Environmental related works and at least 1 year in field experience. EI should have also a minimum education of Intermediate level with training in Environment.

**AA. Senior Surveyor (SS) ( 3 Nos., 6 months)**

SS should have minimum 6 years general experience in surveying and 4 years of specific experience in surveying of or three projects related to road works as per standard practice.

SS should also have a minimum of 3 years experience in surveying of hill roads or two hill road projects.

**Note:**

The CV's of Sr. Road Safety Expert and Sr. Highway Engineer of International Staff and Hydrologist, Geologist, Geotechnical Engineer, Highway Engineer, Assistant Resident Engineer, Road Safety Expert, Office Engineer/Quantity Surveyor, Health and Safety Expert, Gender Expert, Bio Engineering Technician, Inspector of Works, Health and Safety Inspector, Senior Laboratory Technicians, Senior Surveyor, Social Mobilizer and Environmental Inspector of National Staff will not be used for the evaluation of the Technical proposals but the CV's of proposed Sr. Highway Engineer and Sr. Road Safety Expert, of International Staff and Hydrologist, Geologist, Geotechnical Engineer, Highway Engineer, Assistant Resident Engineer, Road Safety Expert, Office Engineer/Quantity Surveyor, Health and Safety Expert, Gender Expert of National Staff need to be submitted with the Consultant's proposal.

At commencement of service, the CV's of proposed Inspector of Works, Senior Surveyor, Senior Laboratory Technicians, Social Mobilizer, Environmental Inspector, Health and Safety Inspector and Bio Engineering Technician need to be submitted for approval from client before their appointment for the job. The approval criteria will be as mentioned above.