

Terms of Reference

Punjab Sustainable Highway Development Project / Punjab Arterial Roads Improvement Program PSHDP/QCBS/CS-2

For

Construction Supervision Consulting Services for all Civil Works Contracts Located in Corridor-3 & 4 (Total Road Length 225 Km)

- **Corridor-3: Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari Road Project**
- **Corridor-4: Rehabilitation of Hasilpur – Bahawalnagar Road Project**

1. Background:

- 1.1** In accordance with the Punjab Spatial Strategy, Government of Punjab (GoPb) has planned to improve its road network connectivity and identified 12 prioritized road links with a total length of 1,870 km and a total cost of \$1.9 billion in 2019, based on following objectives:
- Provide connectivity to the major corridors like CPEC, N5, CAREC and M3
 - Provide better access of farms with markets.
 - Unlock under-developed areas by providing connectivity and improvement of major corridors, especially in southern Punjab.
 - Trigger economic activities by interlinking different economic and service sectors
 - Improve connectivity with other provinces
 - Improve road safety
- 1.2** GoPb conducted pre-feasibility studies for 12 roads and explored various financing options for these projects based on traffic volume, investment cost and financial viability, such as PPP, federal government support, and international donors' support. GoPb identified four (04) candidate roads proposed to be considered for ADB financing after extensive internal deliberation, with the remaining ones either transferring for PPP consideration or postponing for next phase.
- 1.3** A project concept paper to envisage ADB's financing for reconstruction of four provincial highways with a length of about 535 km in center and southern Punjab was prepared, and the project concept was cleared by the Concept Clearance Committee of Planning Commission.
- 1.4** The Communication and Works Department (CWD) of Punjab engaged Design Consultants to conduct the feasibility study and detailed design. In continuation the following section of the four (04) Provincial Highways are being undertaken for improvement and Dualization. Details given as under:

Road Section	Length (Km)	Completion Period*
Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari	150	55 Months
Rehabilitation of Hasilpur – Bahawalnagar	75	55 Months
Total	225	

* Construction Period + Defect Notification Period

1.5 These road sections are further divided into sub-sections given as under:

PACKAGE NO.	Road	Sub-Sections	Length (Km)	
PSHDP/ QCBS/ CS-2	Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari	Lot-1 of Package OCB/CW-05: Depalpur to Pakpattan Sharif [Km 0+00 to Km 48+00] (48.00 Km)	48.00	
		Lot-2 of Package OCB/CW-02: Pakpattan Sharif to Rasool Pur [KM 48+00 to Km 76+00] (28.00 Km)	28.00	
		Lot-3 of Package OCB/CW-02: Rasool Pur to Burewala [KM 76+00 to Km 110+00] (34.00 Km)	34.00	
		Lot-4 of Package OCB/CW-02: Burewala to Vehari [KM 110+00 to Km 150+00] (40.00 Km)	40.00	
	Rehabilitation of Hasilpur – Bahawalnagar	Lot-1 of Package OCB/CW-03: Hasilpur to Chishtian [Km 0+00 to Km 33+600] (33.60 Km)	33.60	
		Lot-2 of Package OCB/CW-03: Chishtian to Bahawalnagar [KM 33+600 to Km 75+000] (41.40 Km)	41.40	
	Total			225

1.6 The Communication and Works Department (C&WD) Punjab will be the Executing Agency and the Project Management Unit (PMU) under C&WD will be the Implementation Agency, which will be established with the Project Director “PD” (Employer’s Representative) as the head. C&WD requires the services of Construction Supervision Consultants to carry out the construction supervision & contract administration, implementation & monitoring of Environmental Management plans where required.

1.7 **Brief Description of Project:**

1. Brief description of project roads is given below:

Road Section	Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari	Rehabilitation of Hasilpur – Bahawalnagar
Present Condition:	<ul style="list-style-type: none"> • Single carriageway without median. • Width of existing carriageway varies from 5.3 to 9.5 m. 	<ul style="list-style-type: none"> • Single carriageway without median. • Width of existing carriageway varies from 5.3 to 9.5 m.
Proposed Improvement:	<ul style="list-style-type: none"> • Improvement of horizontal and vertical geometry. • Strengthen the road pavement structure. 	<ul style="list-style-type: none"> • Improvement of horizontal and vertical geometry. • Strengthen the road pavement structure.

Road Section	Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari	Rehabilitation of Hasilpur – Bahawalnagar
	<ul style="list-style-type: none"> • Dualization and improvement of existing road as 2-lane divided carriageway with median / NJ Barrier and shoulders. 	<ul style="list-style-type: none"> • Dualization and improvement of existing road as 2-lane divided carriageway with median / NJ Barrier and shoulders.
Road Classification:	<ul style="list-style-type: none"> • Arterial Road 	<ul style="list-style-type: none"> • Arterial Road
Alignment:	<ul style="list-style-type: none"> • Brown field project. 	<ul style="list-style-type: none"> • Brown field project.
Geo-graphical Features:	<ul style="list-style-type: none"> • Plain terrain 	<ul style="list-style-type: none"> • Plain terrain
Climate:	<ul style="list-style-type: none"> • Punjab lies in the temperate zone. The climate is generally arid, characterized by hot summers upto 50° C and cool upto 2° C or cold winters, and wide variations between extremes of temperature at given location. There is little rainfall. 	<ul style="list-style-type: none"> • Punjab lies in the temperate zone. The climate is generally arid, characterized by hot summers upto 50° C and cool upto 2° C or cold winters, and wide variations between extremes of temperature at given location. There is little rainfall.
Benefits:	<ul style="list-style-type: none"> • Savings in vehicle operating cost and time cost savings. • Benefits to surrounding communities through lower transport costs and better access to marketplaces, jobs, and services such as health and education. • The local economy will be benefited and poverty alleviation at a considerable pace will be noticed. 	<ul style="list-style-type: none"> • Savings in vehicle operating cost and time cost savings. • Benefits to surrounding communities through lower transport costs and better access to marketplaces, jobs, and services such as health and education. • The local economy will be benefited and poverty alleviation at a considerable pace will be noticed.

1.8 Chief Resident Engineer / Team Leader will be mobilized in advance for a period of 02 months

- | | | |
|------------|------------------------------------------|--------------------|
| i) | Design Review and Preparation of manuals | = 02 months |
| ii) | Construction Supervision Period | = 27 to 36 months |
| iii) | Defect Notification Period | = 12 months |
| iv) | Project Handing / Taking over | = 03 months |
| v) | Project Closure | = 02 months |
| vi) | Total Duration of Assignment | = 55 months |

Total input of 747 person-months national key experts and 122 person-months national non-key experts would be required for the assignment to supervise the two (02) Corridors i.e., (i) *Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari*; and (ii) *Rehabilitation of Hasilpur – Bahawalnagar*.

1.9 The Consultants will perform the duties of **The Engineer** specified in the FIDIC conditions of contract and will be required to nominate Resident Engineers for the contract(s) who will be full-time residents in the areas or located in the proximity of project areas. In addition to the primary role, the Consultants will assist the Employer in the efficient administration and implementation of the sub-projects, support and strengthen it in its tasks, monitor progress, financial management, social, design review problems during construction (if arised) and environmental safeguards and gender mainstreaming in the project. The Consultant will report to the Project Director, PMU-C&WD (the concerned Chief Engineer as head of procuring agency). The Consultant will work under the overall guidance, coordination, and directions of the PD.

1.10 PROCUREMENT

Consulting Services will be engaged using Full Technical Proposal (FTP) in accordance with the procedures set out in ADB Procurement Policy (2017, as amended from time to time) and its associated project staff instructions. Consultant selection will be based on quality and cost criteria, with a quality: cost ratio of 90:10. The provisions of ADB's Anticorruption Policy will be included in all invitation documents and contracts for consultants.

2. Objective

The overall objectives of these Terms of Reference are to:

- a. Ensure that the detailed engineering design is reviewed, and updated if required, in accordance with the specified parameters / standards and best international practices prior to implementation of civil works contracts.
- b. Ensure that high quality construction is achieved in time within budget and that all work is carried out in full compliance with the approved engineering designs, technical specifications, agreed work schedule, and within the terms and conditions of all other contract documents and sound engineering practices.
- c. Demonstrate the efficacy of contract administration and supervision by independent external agencies.
- d. Ensure safeguards management of projects i.e., updating, and implementation of the LARPs, and incorporating EMPs in the works contracts, preparation, and implementation of site-specific EMPs which are fully consistent with the ADB's safeguards requirements. Monitor and evaluate the implementation of environmental management plan, resettlement plan and other social safeguard measures to be taken by the contractor and Employer.
- e. Promote technology transfer and the introduction of modern Contract Administration practices within transport sector.

3. Scope of Consultancy Services

3.1 General Duties and Responsibilities of the Consultants are:

- The Consultants will carry out a critical review (if required) of the detailed engineering design prior to the commencement of works to identify anomalies or omissions that constitutes inconsistency in the design and completeness of works. The design report (if required) should clearly indicate if any section of the road requires adjustment in the horizontal and vertical alignment, changes to the structures and identify the LARP and non LARP areas. On completion of the review, the Consultant will prepare a report, setting out all findings and recommendations for correcting any deficiency or omissions identified. Notwithstanding these, the Consultant will immediately inform the employer of any deficiency or omission that may have a substantial impact on the Project at the time the defect or omission is uncovered.
- Civil works will be carried out based on the FIDIC Conditions of Contract for Construction, MDB Harmonized Edition – June 2010. The consultant will administer the civil work's contracts, make engineering decisions, be responsible for quality assurance, provide general guidance and furnish timely responses to the contractors in all matters relating to the civil works, and ensure that all clauses of the contract agreement between the civil works contractors and PMU are adhered to and respected; and
- The consultants will advise PMU on all matters relating to the efficient and successful execution of the civil works contracts, and will act at all times to protect the interests of the project and will take all reasonable steps to keep the construction costs to a minimum, consistent with sound economic and engineering practices; and prior to execution work, will prepare a "Contract Administration and Construction Supervision Manual" outlining routines and standard operating procedures to be applied in contract administration and construction supervision, based on sound internationally recognized practice, NHA / C&WD specifications and civil work contract of the project.

3.2 Contract Administration & Construction Supervision:

The scope of construction supervision and contract administration services of the Consultant shall include but will not be limited to the following tasks/functions /duties /responsibilities. For the purpose of facilitation, the tasks, functions/ duties/ responsibilities of the consultant are being divided into groups/stages, but some duties/functions overlap to other groups/stages, therefore, the consultant shall not be relieved from its functions/ duties/ responsibilities if it falls in other group/stage or overlaps to other group/stage.

A- PRE-EXECUTION

a. Manual, Documents & Procedures

- Prepare Construction Supervision Manual and get its approval from the Client 15 days prior to execution of work. (Appendix-B)
- Prepare Contract Administration Manual and get its approval from the Client 15 days prior to execution of work. (Appendix-C)
- Prepare Self-Evaluation System in accordance with ISO 9001: 2015.

- Prepare SoPs for Pre-Requisite to Payment Certificate.

b. Design Review / Cognizance

- Consultant will left no fault or discrepancy, which may cause for delay of project during its execution.
- The consultant is responsible to check survey data provided in the road design (CPs, bench marks and random locations to verify the survey).
- To verify the data used in design process by the design consultant.
- To select the design sample of different components / locations with the consent of client and rerun the design for comprehensive design review and cognizance.
- Consultant shall perform the design review / cognizance prior to mobilization of the contractors.

c. Quality Assurance

- Prepare Project Quality Plan (PQP) and ITP linked with the specifications.
- Prepare Mock-up Programme and its implementation report.
- Update online RD wise Check request management system, wherein upload check request / test results with evidence of photographs and video clips, if non-conformance, repeat check request.

d. Value Engineering

- Prepare Statistical Evaluation Method for Contactor invoice; and form a plan for PWL according to AASHTO.

e. Management

- Prepare the Pre-Construction meeting agenda, and conduct the Pre-construction meeting, record, and distribute the minutes.
- Appoint various members of the Engineer's construction supervision team as the Engineer's Assistants (Resident Engineers, Material Engineers, Inspectors, etc.) and notify the Contractor and the Employer, and approve the Contractor's Representative.
- Verify whether the Performance Security complies with the form provided in the Contract, whether it is in the correct amount and currencies, and notify the Employer accordingly.
- Verify whether the bank guarantee for advance payment is in the form specified under the Contract and in the amount and currencies stated in the Particular Conditions of the Contract.

f. Survey

- Obtain the benchmarks and other information from the C&WD as required for review of survey work by the designer prior to commencement of construction activities.
- Consultant will establish suitable number of permanent benchmarks and base stations at suitable place & point preferably at employer's subordinate office or estate building in each corridor by using DGPS duly verified by the employer's representative.
- The supervisory consultant is responsible for joint survey prior to execution of earthwork with the designer representative, contractor

representative and employer representative/Deputy Director Construction PMU – C&WD.

- Inform the employer promptly regarding any variation from the basic survey data received from the design consultant.
- All levels and references will be referred to permanent benchmarks.
- Establish a system for validation of data both levels and RD's through RTK Rover and DGPS, by employer or 3rd party.

B- DURING EXECUTION

a. Contract Administration

- Obtain the Parties' confirmation that all conditions in Sub-Clause 8.1 of the Conditions of Contract are fulfilled.
- Issue instruction to the Contractor to commence the works and record the Parties agreement according to Sub-Clause 8.1 of the Conditions of Contract.
- Request the Contractor to top up the performance security if consumed partially or fully as per condition of contract or increased with the increment of contract price and monitor the validity of the Performance Security until the issue of the Performance Certificate.
- Verify whether the bank guarantee for advance payment conforms to the Contract requirements and that the guarantee is valid until the entire advance payment is recovered from the Contractor's payment certificates.
- Interpret the specific provisions of the Contract related to the Employer's obligation to give possession of the Site, and the Contractor's Work Program, assess the contractual consequences of any specific land acquisition issue and advise the Employer on the appropriate mitigation measures.
- If required, determine the Contractor's entitlements to time extensions on the basis of the Contractor's Work Program.
- Determine Delay Damages on the basis of the Work Program and advise the Employer of the relevant contractual remedies if the Contractor's progress is behind schedule.
- Verify the sources of indices or prices for price adjustment determine a provisional value of an index/reference price until it is published, but, if the index is not published in certain period(s), apply the last available published value.
- Initiate and process variations promptly when it is necessary for the additional construction of the works.
- Request the Contractor's technical and cost proposal, prior to its determination, as required, consult both parties in all matters in connection to variation work.
- Value variations obtain the Employer's approval of any variation, issue variations under the Contract, keep record of all variations issued under the Contract and report the summary of the variations in the Consultant's Monthly Progress Reports.
- Assess objectively the Contractor's claims and give professional and objective advice to the Employer, consult both parties before determining an extension of time.
- Extension of Time (EOT) – Determine Contractor's claims of EOT on the basis of the Contractor's approved Work Program, the impact of the delay(s) event on the Critical Path and the particulars submitted

by the Contractor, and not to act as the Contractor's advisor in this matter.

- Maintain an Events Log since the beginning of Contract.
- Assist the parties establish Dispute Board, provide all necessary information to DB members, and attempt to facilitate amicable settlement of the dispute between the Employer and the Contractor

b. Engineer Requires Prior Approval of the Employer

- The Engineer has no authority to alter or amend the contract.
- Carry out any subsequent design changes, variation orders and day work orders.
- Obtain the Employer's specific approval before taking any action for determination of extension of time, additional costs and the Contractor's claims for additional time or costs, for all events for which the Employer's express approval is required under the Conditions of Contract.
- Work Program
- Review the contractor work program with respect to the resources' efficiency such as equipment's efficiency, manpower efficiency and material supply chain and thereafter advise the contractor accordingly.
- Reviews the Contractor's Work Program and notify the Contractor if the program does not comply with the Contract and advising the contractor to co-op with the contractual timelines accordingly.
- Monitor the progress against the Work Program and the cash flow estimate and request revisions, if required.
- Conduct regular weekly site meetings and monthly progress review meetings, record and distribute the minutes.
- Assess minimum construction equipment, plant and machinery requirements, by type and specification, and monitor, keep and regularly update a list of the Contractors' equipment, plant and machinery in order to keep a check on the Contractors' mobilization. Inspect and evaluate the Contractor's establishments including in particular the laboratory facilities to ensure compliance with the terms and conditions of the Contract.
- Keep and maintain daily records of labor, equipment and weather conditions on the site along with records of activity, progress and other events happening on the site having relevance to the works.

c. Inspection, Monitoring & Evaluation (IM&E)

In spite of the following activities of the supervisory consultant the client may hire the 3rd party IT based Monitoring & Evaluation by developing Mobile App for prompt data sheet information sharing mechanism.

- Ensure that the Contractors have all necessary data for setting out and check the Contractors setting out including staking the right-of-way limits, centerline, and grade and confirm permanent monuments in the construction area.
- Dealing with site issues expeditiously to avoid delay, issuing supplementary drawings working drawings, issuing site instructions to ensure that the works are executed in accordance with Contract/ specifications/ standards.

- Adhere to the check request disposal within timelines as specified in the check request management system.
- Without relieving the Contractors of their obligations under the Contract, check and approve the contractors' Working Drawings, Shop Drawings, and Method Statements and Temporary Works proposals.
- Verify whether the progress charts in the Contractor's Monthly Progress Report reflect the actual progress and correspond to the latest revision of the Work Program and the cash flow estimate, and instruct the Contractor to correct the report, if required.
- Verify the Contractor's Monthly Progress Reports and notify the Contractor of any incorrect or inconsistent information.
- Daily data updating on the "Real Time Monitoring and Financial Management Portal", upon excess provided by the employer.
- Undertake project performance monitoring and evaluation in accordance with the Project Framework and ADB's Project Performance Management System (PPMS) Handbook including the baseline data survey and the following annual survey and reporting up to project completion.
- All activities in terms of volume will be duly verified by getting levels from benchmarks through DGPS surveys.
- Consultant will be responsible for uploading on daily basis the activities of contractors on monitoring dashboard including but not limited to the following:
 - Levels reading.
 - Tests performed with pictorial / video clip evidence.
 - Physical progress with location & pictorial evidence.

d. Payment

- Perform quantity take-offs from drawings to verify Bill of Quantities (BOQs).
- Issue regular notices to the Contractors of intended field measurements, measure the Works, compute the quantities for payment, and determine the amounts due to the Contractor within the period specified in the Contract.
- Establish and maintain throughout the works contracts a structured system of measurement records, supporting documents and calculations for the payment of all BOQs items, that is transparent for auditing purposes.
- Establish with the Contractor a standard format for the Contractor's Statement and the Interim Payment Certificates.
- Issue the interim certificates to PMU for payment to the Contractors in accordance with Clause 14 of the Conditions of Contract, having regard to any contractual provisions for advance payment, variation of price, and exchange rate fluctuation etc. Certify the completion of the Activities/Works or parts thereof and process final payments to the Contractors.
- Prepare and maintain the Estimates of Cost of Works to Completion continuously, update the Estimates after each Variation instruction or a Variation Order issue and after each IPC, and present the latest Estimate in the Consultant's Monthly Progress Reports.

e. QAQC

- Discharge fully the Engineer's obligations with respect to approval of materials and workmanship, approval and auditing of the Contractor's Quality Assurance System and the QA Personnel and the compliance testing by the Engineer.
- Inspect quarries and borrow pits, and crushing plants, and order tests of materials and ensure adherence to specifications and approve the sources of materials.
- Without relieving the Contractors of their obligations under the Contract, monitor the Contractors' laboratory testing, evaluate the Portland cement concrete and bituminous mixture designs prepared by the Contractors, and recommend improvements (if any) to ensure the desired performance, and accord approval thereof.
- Carry out independent testing in the field and/or in the laboratory of the "Engineer/Project Manager" and approve or disapprove and certify the works that conform with the specifications and maintain permanent records of results of all the tests made along with all Check Requests.
- Suggest / approve JMF for Asphalt Concrete Layers in consultation with the PMU or PMU representative.
- Give notice to Contractors of any defects and deficiencies, and issue instructions for the removal and substitution of the improper works, where provided under the contract. If required, order suspension of the work(s) and/or recommend to PMU other recourse available under the Contract

f. Insurance

- Verify whether the form and substance of the evidence of the Contractor's insurances is satisfactory, whether insurance premiums have been paid and the required insurances are effective on the dates required by the Contract.
- Verify that the terms of the Contractor's insurance policies fully comply with the requirements of the Contract including:
 - whether both the Employer and the Contractor are adequately covered as insured Principals.
 - amounts insured and currencies of payment, validity of the insurance policies, special conditions.
 - limits of insurance per event and in aggregate, deductibles, excess, conditions related to locations; and
 - Whether and which subcontractors are covered by the insurances, and whether additional insurances will be required if the Contractor engages new subcontractors.
- Monitor whether the Contractor maintains adequate insurance in the course of performance of the Contract, particularly if the Contractor provides insurances for a fixed period which is shorter than the period required under the Contract.
- Advise the Employer on the appropriate action and contractual remedies in case the Contractor does not perform its insurance obligations in accordance with Contract.

g. Reporting

- Daily data updating on the “Real Time Monitoring and Financial Management Portal”, upon excess provided by the employer.
- Submit semi-annual reports during construction and annual reports thereafter with separate environmental and social Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected people promptly upon submission.
- Report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the SSEMP or the LARP promptly after becoming aware of the breach. Provide C&WD with a written notice of any unanticipated environmental, or resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the EIA, the CEIA, the EMP, the SSEMP or the LARP.
- Report in the Consultant’s Monthly Report the work progress against the Contractor’s Work Program and the cash flow estimate.
- Prepare standard Daily Diary forms and ensure that all supervision staff maintain daily diaries of Contractor's and its own activities.

h. Environment Health and Safety (EHS)

- Without relieving the Contractors of their obligations under the Contract, review and approve the traffic management and safety plan, and ensure compliance such that the Works are carried out at all times in a safe and secure manner and damage or injury to persons or property is avoided.
- If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA, the CEIA, the EMP, the SSEMP or the LARP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan.
- Carry out the following duties related to environmental management with particular reference to the technical requirements of sound environmental standards on the basis of the Environmental Assessment and Review Framework (EARF), the Initial Environmental Examinations (IEEs), and the Environmental Management Plans during construction: (i) review and endorse site specific Environmental Management Plans (EMPs) for the projects sections, prepared by the Contractors; (ii) ensure that all the environmental mitigation measures required to be implemented are incorporated into the contract documents; (iii) ensure that the Contractors comply with the measures and requirements relevant to the contractors set forth in each IEE and EMP, and any corrective or preventative actions set out in Environment Monitoring Reports; (iv) conduct environmental monitoring and ensure that the day-to-day construction activities are carried out in an environmentally sound and sustainable manner; (v) prepare and submit semi-annual environmental monitoring reports on the implementation of the ‘Environmental Management Plan (EMP) to PMU within 14 days after a completion of the monitoring period; (vi) Prepare additional environmental impact assessments, if required, compliant with ADB SPS, 2009 and ensure that all required mitigation measures are identified and acceptable in accordance with the Punjab

EPA in addition to the requirement of the ADB; (vii) in the event of unanticipated environmental and/or social risks and impacts, that were not considered in the applicable IEE, or EMP, promptly inform PMU and ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; (viii) report to ADB/PMU of any actual or potential breach of compliance with the measures and requirements set forth in the applicable EMP promptly after becoming aware of the breach.

- With respect to the prevention of COVID-19, HIV/AIDs and Human Trafficking, monitor that the contractors comply and carry out required actions as provided in the respective contract documents, such as awareness and education of laborers and workers.
- Ensure that the contractors do not involve child labor for the execution of the civil works contracts in accordance with the provisions of the contract agreement.
- Ensure that the Contractor(s) provide a safe workplace for their workforce, supervisory personnel and for members of the public requiring access through the sites in full conformity with Health and Safety regulations including the ones related to coronavirus disease (COVID-19).
- Ensure that the contractor(s) provide a safe workplace for their workforce, supervisory personnel and for members of the public requiring access through the sites in full conformity with Health and Safety regulations.
- Ensure that the contractor(s) comply fully with contractual obligations relating to care of the environment (both specified and legislated) and provide all reports and obtain all permits and permissions required in relation to spoil areas, borrow areas quarries and the like.
- Provide any other specialist services requested by PMU under conditions to be mutually agreed ensure that the construction methods as proposed by the contractor for carrying out the works are satisfactory, inspection of contractor's construction equipment; and safety of the works, property, personnel, and general public; the schedule of mitigation measures for adverse environmental impacts.
- Road Safety Awareness Program. The Construction Supervision Consultants will design road safety awareness campaigns for communities living along the project road and provide these to the PMU-C&WD for dissemination to the Construction Supervision Consultants.
- HIV/AIDs, COVID-19 and Human Trafficking Awareness Program. The civil works contractor will be required to design HIV/Aids, COVID-19 and Human Trafficking Awareness program, for the Consultant's review and approval. The Construction Supervision Consultants will facilitate and monitor implementation of the programs.
- The Contractor(s) will prepare and submit Health and Safety COVID-19 Management Plan, in accordance with Standard Operating Procedures (SOPs) issued by the Government of Pakistan from time to time on COVID-19 prevention and controls, and with international good practice guidelines [World Health Organization, Considerations for public health and social measures in the workplace in the context of COVID-19. Geneva. Available here: <https://www.who.int/publications-detail/considerations-for->

public-health-and-social-measures-in-the-workplace-in-the-context-of-covid-19.]. The Contractor(s) should demonstrate in the Plan the health and safety measures they will put in place on site in relation to COVID-19 prevention and controls, including but not limited to, PPE requirements, site set up, training, induction and mobilization of new personnel, equipment and plants cleaning and other hazard management measures while undertaking site work activities, site visitors health and safety protocols, as well as the approach to the monitoring and reporting of the Plan. The Plan should be fit for purpose for the particular construction works of this contract and be aligned with Standard Operating Procedures (SOPs) issued by the Government of Pakistan from time to time on COVID-19 prevention and controls, as well as workplace safety requirements, with international good practice guidelines [World Health Organization, Considerations for public health and social measures in the workplace in the context of COVID-19. Geneva. Available here: <https://www.who.int/publications-detail/considerations-for-public-health-and-social-measures-in-the-workplace-in-the-context-of-covid-19>]. The Construction Supervision Consultant will review and monitor that the approved Health and Safety COVID-19 Management Plan should be adopted and complied by the labors and others involved in the construction of the subprojects and also the staffs of the Construction Supervision Consultant should adopted the same for their own safety.

- The consultant will be responsible for their own health and safety in relation to this assignment and shall comply with the country specific requirements and regulations in relation to COVID-19.
- Review the Site-Specific Health and Safety Management Plan (SSHSMP) for the Project that is prepared and submitted by the Contractor. Then, make recommendation to the Employer in relation to the approval of the SSHSMP. Communicate the approved SSHSMP to all consultants and contractors throughout all project stages. Should any unforeseen events occur, review the updated SSHSMP and make recommendation to the Employer in relation to the approval of the SSHSMP.
- In addition to the obligation to maintain safety on site, the Construction Supervision Consultant will be required to undertake formal monthly safety audits throughout all stages of the Project.
- Prepare the Project Execution Plan, which inter alia, includes how management of SSHSMP is to be addressed throughout all stages of the Project.

i. LARP

- Ensure that all land and all rights-of-way required for the Project and all Project facilities are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the Borrower relating to land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the LARP, and any corrective or preventative actions plan set forth in a Safeguards Monitoring Report.

- Assist the PMU in notifying the contractors on LAR and non-LAR sections and ensuring that works are conducted only in LAR-free areas and areas where LARP implementation has been completed.

j. Records

- Establish and maintain an effective documents management system in the Engineer's office, which provides for separate filing of incoming and outgoing correspondence and documents, as well as the filing by subject matter.
- Ensure the receipt of and maintain as permanent records of all warranties required under terms and conditions of the Contract for materials including their source and equipment accepted and incorporated in the project.

k. Capacity Building

- Develop training programs for EA staff and develop on the job training on innovative construction methods, project management and value engineering.

l. Indemnification

- For any laps in design review, quality / workmanship, quantity, or financial irregularity related to the performance of the Consultancy Services and subsequently health of project works, the Consultants shall indemnify the Client (PMU-C&WD).

m. Audit

- Head office of the consultant is responsible for the audit report, observation and will make the necessary replies, report, and presentation to defend the department interest up to settlement of Audit paras.
- Provide all necessary assistance to the Employer and external auditors for conducting regular quarterly audits of the measurement records, supporting documents and calculations for the payment of all BOQ items.
- Maintain consolidated project accounts and assist C&WD for settlement of Audit Para's and objections raised, prepare replies related to project, and provide the entire relevant documents / papers / letters etc. to support the replies-until 1 year after completion of works. The cost to be incurred may be built in the rates/ Contract Price (no additional cost will be granted in this account).

n. Completion of Work

- When the works are completed in accordance with the Contract, issue a Taking over Certificate to the contractor(s).
- Consultant will perform test on completion along with pavement distress & IRI through laser Profilometer
- Undertake an inspection of the works at the completion of the respective road sections and certify the contractor(s)' final accounts or issue Punch List / defects to be rectified.

C- POST EXECUTION (Defect Notification Period)

- Carry out detailed inspections of the works after notice to engineer for final inspection and performance certificate.

- Prepare detailed recommendation reports / Punch List and improvement since last inspection, for the Employer after each inspection.
- Issue performance certificate and process final statement and final payment certificate thereafter.

D- PROJECT CLOSURE

- The consultant is responsible to prepare all reports to satisfy the requirements of the ADB as well as Government of Punjab.

E- GENERAL RESPONSIBILITY

- Advise PMU on need for effective liaison with local authorities, police, landowners, utility owners, complainants, the public and other organizations affected by the Works in order to minimize or avoid unnecessary delays or disputes.
 - a. Based on the design data provided, prepare revised PC-1 (if required) for the project including economic analysis and Environmental Impact Assessment (EIA) on Proforma of PC-1 prescribed by Planning Commission.
 - b. The Consultants will assist the PMU-C&WD with holding stakeholder outreach meetings in the project area to update local communities with project progress. Specific communications materials will be provided to community members in Urdu and English and other languages as appropriate, describing the project, relevant governing ADB policies and procedures, benefit entitlements (for AP), grievance redress mechanism, HIV/AIDs, COVID-19, safe working conditions, etc. A basic tracking system will be maintained to record consultation activities, the provision of project information, to register concerns and/or complaints received, and to track follow-up action.

F- Consultant Performance Evaluation

- To achieve Sustainable performance Quality, the Performance of the Consultant will be measured, evaluated, and controlled through CPE proforma provided as **appendix-A** of the ToR. The CPE proforma is designed keeping in view the ToR of the Consultant and will be improved time to time. This consultant performance evaluation proforma will be pre-requisite to consultant's monthly invoice.

4. Staffing and Deployment

4.1 Staffing

The total person-months (national) key experts are 747 and non-key experts are 122 as detail provided in the table below. The construction supervision consultants are required to carry out design Review / cognizance, construction supervision / contract administration, financial management, safeguard compliance, test on completion, taking over, statement at completion, project closure phase and issuance of performance certificate. The consultancy services would be required for a period of 55 months.

The civil work contracts comprises on 6 lots which are planned to float for bidding in different phases (after clearance of site). This procedure may takes 18 months. It is therefore, the consultant is required to deploy the team accordingly. The total project

supervisory team has been provided in the table below, therefore, the consultant is required to deploy minimum necessary team to undertake the tasks / activities of all 6 lots of civil works from start to project closure phase.

4.2 Deployment

There will be Four “site supervision teams”, for the two (02) packages i.e **(i) Rehabilitation of Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari and (ii) Rehabilitation of Hasilpur – Bahawalnagar**, comprising on 6 Lots/contracts.

4.2.1 Project Management / Administration and Advisory Team

The consultant team for the purpose of project management, contract administration, troubleshooting and specifically for operation of Contract Management Plan (CPM) for each civil work contract. The CPM should include risk analysis and risk management plan, identifying resources, communication management, contract administration procedure, quality management, managing payments, record management, managing changes, claim & disputes and finally handling DNP and issuance of Performance Certificate and Project Closure procedure & requirement etc. The updated contract management reports should be satisfying ADB as well as Government of Punjab requirements. The CPM should be prepared before signing of each civil work contract or within two months after the commencement of the consultant (as the case may be). The team will comprise on the following team members for all 6 lots during supervisory phase.

- Chief Resident Engineer/Team Leader
- Deputy Team Leader / Coordinator
- Contract Specialist
- Senior Structural Design Engineer
- Resident Engineer
- Planning Engineer
- Environmental Specialist
- Social Development / Resettlement Specialist
- External Monitoring Expert for Social Safeguard
- Gender Specialist
- Road Safety Specialist
- Chief Quantity Surveyor
- Chief Surveyor
- Land Architect
- Environment Associate
- Resettlement Associate

4.2.2 Supervisory Team Formation

Sr. No.	Staff	No. of Person
1	Resident Engineer (RE)	1
2	Material Engineer (ME)	1
3	Quantity Surveyor (QS)	1
4	Assistant Resident Engineer (ARE)	1 – 2
5	Highway Inspector	2

6	Surveyor	2
7	Lab Technician	2
8	Lab Attendant	2 – 3

Generally, one team will be capable to supervise one to two lots at a time.

4.2.3 Staff Deployment

4.2.3.1 Design Cognizance / Review, Preparation for Supervisory & Contract Administration Manual

The Team Leader of the Consultants alongwith its design cognizance and document preparation team is expected to be full time and be mobilized at least two months in advance of the commencement of the works. The team will work from its head office and expected to undertake Design Cognizance / Review, Preparation for Supervisory & Contract Administration Manual for all 6 lots at a time and to assist PMU with activities leading up to mobilization of the Contractors, for 1st phase.

4.2.3.2 Project Site Supervisory Team

The supervisory team is expected to mobilize at the project site on the date of actual commencement of works by the contractors. The formulation of the team is proposed in para 4.2.1 and 4.2.2 above.

The team will continuously work upto issuance of “*taking over certificate*” to the contractor and continue with the minimum required team upto the issuance of “*statement at completion*”.

4.2.3.3 Defect Notification Period (DNP) Plan

After issuance of “Statement of Completion” of a certain lot / civil contract, the consultant team will be demobilized except team leader. The PMU field staff (concerned Deputy Director (Construction) and its team) will support the team leader during the Defect Notification Period (DNP). One month prior to expiry of DNP, the minimum required consultant team will be mobilized on the project site for inspection and getting completion of outstanding work and remedying defects and contract administration accordingly; on intermittent period.

4.2.3.4 Defect Notification Period (DNP) and Performance Certificate

The consultant team provided in this phase is comprising on 10 Key experts for intermittent period of 3 Months. The team of 5 key experts and 2 Non key experts and 14 support staff members are expected to carry out this assignment for 2 lots within one month period (Intermittently). The team will be mobilized (with minimum necessary staff) one month prior to end of DNP till issuance of performance certificate. The size of team will vary in accordance with the quantum of work. The contractor will get approval of staff deployment schedule by the Project Director, PMU.

4.2.3.5 Project Closure Team

The consultant team in this phase comprising of 7 key experts and 5 supports staff for 2 months for preparation of all reports to satisfy the requirements of the ADB as well as

Government of Punjab. It is expected that this team will provide complete deliverable for all 6 lots in given time frame i.e 60 days (Intermittently). It is planned that this team is capable to handle 1 lot in 10 days simultaneously. However, the consultant is required to get approval of deployment plan prior to mobilization of the team.

The general instructions for deployment of staff is as under:

- Consultant will submit staff deployment schedule every month for the period of next two months.
- This deployment schedule will be pre-requisite to the consultant monthly invoice.
- Client is entitle to amend the deployment schedule and can demobilize the surplus staff any time.
- For deployment of staff provided on intermittent period, the consultant is required to provide deliverable with time line as justification of deployment schedule, prior to mobilization of staff.
- After completion of each phase of every lot, the surplus staff will be shifted to other lots where shortage of staff occurs or demobilize the surplus staff.
- The PMU will conduct consultant performance evaluation every month, for its Personnel's as well as performance of the team / firm. The consultant shall replace the low rated Personnel with the suitable and qualified ones, by the approval of the PMU.
- The consultant required to get attendance certification of deployed team on the certain month from the concerned Deputy Director (Construction) of PMU for field staff and from PMU representative for the rest of the staff.

The tentative complete supervisory team for all ten lots is as below:

Sr. No.	Name of Position	Position	Person-Months	Total Person-Months
	Team for Design Cognizance / Review, Preparation for Supervisory & Contract Administration Manual			
	Key-Experts (National)			
1	Chief Resident Engineer/Team Leader	1	1.50	1.50
2	Senior Structural Design Engineer	1	1.50	1.50
3	Senior Pavement Design Engineer / Pavement Specialist	1	1.50	1.50
4	Senior Geotechnical Design Engineer	1	1.50	1.50
5	Senior Geometric Design Engineer	1	1.50	1.50
6	Hydraulic Design Engineer	1	1	1
	Non Key-Experts & Support Staff (National)			
1	Chief Surveyors	1	1.50	1.50
2	Surveyors	4	1.50	6
	S.Total - A [Design Cognizance / Review Team]	11	12	16
	Project Supervisory Team			

Sr. No.	Name of Position	Position	Person-Months	Total Person-Months
	Key-Experts (National)			
1	Chief Resident Engineer/Team Leader (42 months included 6 months for DNP intermittently)	1	42	42
2	Deputy Team Leader / Coordinator	1	30	30
3	Contract Specialist [(1x27)+(1x30)]	2	28.50	57
4	Senior Structural Design Engineer (Intermittent Period)	1	4	4
5	Resident Engineers	4	30	120
6	Material Engineer	4	30	120
7	Planning Engineer / Primavera Expert	1	27	27
8	Assistant Resident Engineers	8	30	240
9	Environmental Specialist	1	12	12
10	Social Development/Resettlement Specialist	1	12	12
11	Social Safeguard Expert (Intermittent Period) (Preparation of External Monitoring Social Safeguard Reports)	2	6	12
12	Gender Specialist	1	12	12
13	Road Safety Specialist	1	6	6
	Non Key-Experts (National)			
1	Chief Quantity Surveyor	1	30	30
2	Chief Surveyors	1	30	30
3	Landscape Architect (Intermittent Period)	1	9	9
4	Environment Associate	1	27	27
5	Resettlement Associate (Intermittent Period)	1	12	12
	Support Staff (National)			
1	Office Manager	1	30	30
2	Quantity Surveyors	4	30	120
3	Surveyors	8	30	240
4	Inspector (Highways)	8	30	240
5	Lab. Technician	8	30	240
6	Lab. Attendant	14	30	420
7	Computer Operator *(One in PMU)	6	30	180
8	AutoCAD Operator	3	30	90
9	Senior Documents Controllers	1	30	30
10	Documents Controllers	1	30	30
11	Office Boy	10	30	300
12	Security Guards	10	30	300
13	Cook	6	30	180
14	Sweeper *(One in PMU)	6	30	180
	S.Total - B [Supervisory Team]	119	798	3382
	End of Defect Notification Period (DNP) and Performance Certificate			
	Key-Experts (National)			
1	Chief Resident Engineer/Team Leader	1	3	3
2	Contract Specialist	1	3	3
3	Resident Engineers	2	3	6

Sr. No.	Name of Position	Position	Person-Months	Total Person-Months
4	Material Engineer	2	3	6
5	Assistant Resident Engineers	4	3	12
	Non Key-Experts (National)			
1	Chief Quantity Surveyor	1	3	3
2	Chief Surveyors	1	3	3
	Support Staff (National)			
1	Office Manager	1	3	3
2	Quantity Surveyors	2	3	6
3	Surveyors	2	3	6
4	Inspector	1	3	3
5	Lab. Technician	4	3	12
6	Lab. Attendant	6	3	18
7	Computer Operator *(One in PMU)	3	3	9
8	AutoCAD Operator	1	3	3
9	Senior Documents Controllers	1	3	3
10	Documents Controllers	1	3	3
11	Office Boy	4	3	12
12	Security Guards	8	3	24
13	Cook	2	3	6
14	Sweeper *(One in PMU)	4	3	12
	S.Total - C [Project Handing / Taking Over Team]	52	63	156
	Key-Experts (National)			
1	Chief Resident Engineer/Team Leader	1	2	2
2	Resident Engineers	2	2	4
3	Environment Expert	1	2	2
4	Road Safety Specialist	1	2	2
5	Gender Specialist	1	2	2
	Support Staff (National)			0
1	Computer Operator *(One in PMU)	3	2	6
2	Senior Documents Controllers *(One in PMU)	2	2	4
	S.Total - D [Project Closure]	12	16	24
	Total (A+B+C+D)	194	888	3578

**Station at PMU and work with the concerned Deputy Director as per instruction of the Project Director, PMU.*

POSITION BASED TERMS OF REFERENCE AND QUALIFICATIONS:

KEY EXPERTS

1. Title: Chief Resident Engineer (CRE) / Team Leader

Experience:

15 years' experience as Resident Engineer and 10 years as Chief Resident Engineer / Team Leader on major road projects. Preferably minimum 5 years having International Experience.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in civil engineering / Highway Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

Overall responsibility for the organization, conduct and delivery of consultancy services and reporting to PMU-C&WD. The CRE / Team Leader will head the Consultants' team and will work directly to manage the project and will maintain liaison with PMU-C&WD. Responsibilities of the CRE / Team Leader will include, but is not limited to the following:

- i) The CRE/Team Leader is responsible to ensure compliance of all ToRs as prescribed in the para 3.2 of the ToRs and all deliverables and reports specified in the reporting requirements.
- ii) Assist the PMU in Project implementation.
- iii) Assume full responsibility for the consulting team and performance of services under the consultancy contract.
- iv) Review and update / improve the Contract Administration Manual yearly.
- v) As a mentor – make continuous improvement in team building through perpetual training programme.
- vi) Ensure that the consulting team undertakes comprehensive review of the designs and specifications which were prepared by the design consultant.
- vii) Ensure that the consulting team undertakes comprehensive construction supervision and contract administration of the civil works.
- viii) Oversee the consultants' activities ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications.
- ix) Oversee and supervise construction of works in accordance with details provided in the construction drawings ensuring strict adherence to construction specifications.
- x) Ensure preparation of detailed and quantitative progress reports to support the contractor's requests for progress payments.
- xi) Keep the Employer informed of technical issues and progress of all works both by informal and formal meetings and correspondence and assist in any project issue which the Employer may require.
- xii) Participate in the Dispute Board meetings to explain and discuss issues raised by the Contractor/Employer or dispute board.
- xiii) Ensure implementation of environment and social safeguards requirements.
- xiv) Assist the Employer in preparing responses to audit objections and queries of the financiers or other Government Authorities.

- xv) Coordinate with all concerned Employer's organizations on project issues.
- xvi) At the end of the construction activities, guide and ensure that the team prepares a comprehensive Construction Completion Report inclusive of "as-built drawings" as appropriate.
- xvii) Perform any other tasks / assignment that may be assigned by PMU or ADB etc

2. Title: Senior Contract Specialist

Experience:

15 years' experience as Contract Specialist out of which minimum 5 years having experience on major road projects based on FIDIC conditions of contract. Proven credentials in contract administration, evaluating contractor's claims and dispute resolution, preferable experience/track record of an arbitrator, mediator, adjudicator and/or dispute resolution adviser.

Qualification:

Bachelor's degree with a major in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer, Law, Contracts, Purchasing, or Management – preferably master's in civil engineering, Law, or Contracts / Procurement, or equivalent.

Responsibilities:

Responsible for assistance in contract administration of works contracts, taking timely contractual actions related to cost, time and quality controls and closure of the contracts, and in case of dispute its referral to the adjudication and arbitration in case of dispute.

He/she will be responsible for assisting the EA and Team Leader in all the activities pertaining to contract management, early warning of key contractual actions, schedule and document contract management meetings and evaluating/resolving contractor's claims and contractual disputes.

Responsibilities of the Senior Contract Specialist (SCS) will include, but not limited to the following:

- i) Assist Employer and TL in coordinating contract management and planning activities for the work package with Engineering, Project Controls and Construction.
- ii) Assist to organize meetings for negotiating and resolving technical and contract completion issues.
- iii) Assist Employer and TL in effect the timely distribution of reports and pertinent commercial information to and from Contractors in accordance with agreed schedule.
- iv) Assist in schedule turnover meetings with Site Personnel, where required.
- v) Assist to check timesheets for contract conformance (rates, backup and extensions).
- vi) Assist in review of Contractors' invoices and prepare Progress Payment Certificates with Cost Control.
- vii) Assist in review of Contractors' costs, forecasts and requests for extras.
- viii) Assist in review and issue for approval and post Substantial Performance documents.
- ix) Participate in contract cost review meetings and regular Project progress and assist with preparation of monthly contracts and Project progress reports.

- x) Assist in procurement and contracts administration and assistance actions such as contracts solicitations, modifications, delivery schedules, plans and coordination with relevant departments.
- xi) Assist in preparation of procurement and contract documents.
- xii) Assist in the review of procedural aspects of contract actions. Participate in contracts administration sufficient to ensure contract terms and conditions are met and that the contractor delivers the required services in a timely manner to achieve the objectives of the project.
- xiii) Assist in the termination of contracts for the convenience of the Project by the contractor. The incumbent is responsible for the preparation of all documentation necessary to support and defend termination decisions.
- xiv) Recommend actions when the contractor is not in compliance with contract provisions.
- xv) Coordinate with contractors to determine and recommend alternative courses of action, such as extension of delivery schedule.
- xvi) Conduct contract reviews to evaluate contractor's performance and monitor contractor activity to assure compliance.
- xvii) Monitor such matters as payments, claims, and contractual changes to ensure requirements of the contract are met.
- xviii) Review completed contract file to ensure routine administrative matters are resolved or completed; and
- xix) Support to TL in drafting, for submittal to ADB through Employer, any requests for consent to extension of time/variation orders.
- xx) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

3. Title: Deputy Team Leader

Experience:

15 years' experience as Deputy Team Leader / SRE on major road projects.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer - preferably master's in civil engineering / Highway Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

Responsible for construction supervision and ensuring that the project is implemented in accordance with the required specifications and approved drawings. Assist Team Leader for issues relating to Highway Geometry etc. when required.

Responsibilities of the Deputy Team Leader/ SRE will include, but are not limited to the following:

- i) The Deputy Team Leader / Coordinator is responsible to assist CRE/Team Leader for compliance of all ToRs as prescribed in the para 3.2 of the ToRs and all deliverables and reports specified in the reporting requirements.
- ii) Prepare/draft PMP, PQP, ITP, review & update/improve "Construction Supervision Manual" yearly.
- iii) Review PMP, PQP and ITP of the contractor and approve with the consent of employer.
- iv) Update data on "Real Time Monitoring & Financial Management Portal" regularly.

- v) Report any event may cause for EOT/Variation in Qty/Additional Payment under the contract.
- vi) Inform promptly if found any variation (addition/reduction) from the quantities provided in the engineering estimate/BOQ/contractor's agreement/contract in result of joint survey/existing condition of road/design Review / cognizance etc.
- vii) Certifying that all pre-requisite documents/data to the IPC/EPC/Claim have been appended with the contractor invoice, such as built drawings, backup, calculation of quantities (x-section etc), quality record (RD wise passed check requests) etc.
- viii) Certifying on the invoice that there is no over payment and that the works have been executed strictly in accordance with the approved design / drawings / specifications.
- ix) Review/prepare working drawings with respect to geometric design/approves the shop drawings, as-built drawings supporting will all setting-out data, recording hard and soft copy of the project and providing the same to the PMU.
- x) Act as the Team Leader during the absence of Team Leader.
- xi) Assist the Team leader in ensuring that the consulting team undertakes comprehensive design Review / cognizance and specifications and carries out construction supervision and contract administration of the civil works for the Project assuming the role of "the Engineer" and undertake all tasks as defined under FIDIC General Conditions of Contract for Construction.
- xii) Assist the team leader in overseeing the consultants' activities ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications.
- xiii) Assist the Team Leader in overseeing quality control methodology put in place, confirming its adequacy, and ensuring that its employment is satisfactorily carried out.
- xiv) Render necessary advice and assist the Team leader in contract administration and procurement issues/assignments/contractual claims.
- xv) Assist the Team Leader in resolving any contractual issues.
- xvi) Determine extension of time for completion and other claims in accordance with the conditions of contract in consultation with the CRE / Team Leader.
- xvii) Provide technical assistance to the Employer in dispute resolution as per provisions in the conditions of contract.
- xviii) Assist the Team Leader in keeping the Employer informed of contractual and claims issues by direct contacts and through discussions or correspondence.
- xix) Assist the CRE/Team Leader in holding meetings with the Contractor on contract and claims issues.
- xx) Assist the team leader in preparing a comprehensive Project Completion Report (PCR) and any other duty/ assignment the Team Leader may entrust.
- xxi) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

4. Title: Contract Specialist

Experience:

12 years' experience as Procurement/ Contract Specialist on major road projects based on FIDIC conditions of contract, Experience, and knowledge of ADB's procurement procedures is essential. Proven credentials in contract administration, evaluating contractor's claims and dispute resolution; preferably having experience of preparing and interpreting of the procurement and contract documents besides making response on behalf of the Employer to settle Audit Para's.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer, law, contracts, purchasing, or management – preferably master's degree in Civil Engineering, law, contracts / procurement, or equivalent.

Responsibilities:

Responsible for assistance in procurement and contract administration, taking timely contractual actions related to cost, time and quality controls and closure of the contracts, and in case of dispute its referral to the adjudication and arbitration.

He/she will be responsible for assisting in all the activities pertaining to procurement and contract administration, early warning of key contractual actions, scheduling and documenting contract management meetings and evaluating/resolving contractor's claims and contractual disputes.

Responsibilities of the Contract Specialist will include, but not limited to the following:

- i) Act as SCS in his absence.
- ii) Assist in coordinating procurement and contract administration and planning activities for the work package with Engineering, Project Controls and Construction.
- iii) Assist to organize meetings for negotiating and resolving technical and contract completion issues.
- iv) Assist in effect the timely distribution of reports and pertinent commercial information to and from Contractors in accordance with agreed schedule.
- v) Assist in scheduling turnover meetings with Site Personnel, where required.
- vi) Assist to check timesheets for contract conformance (rates, backup and extensions).
- vii) Assist in review Contractors' invoices and prepare Progress Payment Certificates with Cost Control.
- viii) Assist in reviewing Contractors' costs, forecasts, and requests for extras.
- ix) Assist in review and issue for approval of post Substantial Performance documents.
- x) Participate in contract cost review and regular Project progress meetings and assist in preparation of monthly contracts and Project progress reports.
- xi) Assist in procurement and contracts administration and assistance actions such as contracts solicitations, modifications, delivery schedules, plans and coordination with relevant departments.
- xii) Assist in preparation of procurement and contract documents.
- xiii) Assist in the review of procedural aspects of contract actions. Participates in contracts administration sufficient to ensure contract terms and conditions are met and that the contractor delivers the required services in a timely manner to achieve the objectives of the project.
- xiv) Assist in the termination of contracts for the convenience of the Project if required; responsible for the preparation of all documentation necessary to support and defend termination decisions.
- xv) Recommend actions when the contractor is not performing in compliance with contract provisions.
- xvi) Coordinate with contractors to determine and recommend alternative courses of action, such as extension of delivery schedule.

- xvii) Conduct contract reviews to evaluate contractor's performance, and monitors contractor activity to assure compliance.
- xviii) Monitor such matters as payments, claims, and contractual changes to ensure requirements of the contract are met.
- xix) Review completed contract file to ensure routine administrative matters are resolved or completed.
- xx) Support to CRE/ TL in drafting, for submittal to ADB through Employer, any requests for consent to extension of time / variation orders.
- xxi) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

5. Title: Resident Engineer (RE)

Experience:

12 years' experience as Resident Engineer on Highways or major road projects.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in civil engineering / Highway Engineering / Structure Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

RE will be responsible for construction supervision of the road and ensuring that the subject project is implemented in accordance with the required specification and approved drawings.

He will be responsible for construction supervision and review and approval of contractor's bills. RE will assist the Deputy Team Leader / Coordinator in the performance of his tasks. The main responsibilities of the position will include but not limited to the following:

- i) Inspect the site and collect the condition data for the design Review / cognizance and necessary changes if any.
- ii) Perform joint land survey with contractor representative, design consultant surveyor and PMU representative prior to execution of work.
- iii) Preparation of technical details such as specifications and estimates.
- iv) Provide details about existing pavement, damages, and assessment.
- v) Inform promptly if found any variation (addition/reduction) from the quantities provided in the engineering estimate/BOQ/contractor's agreement/contract in result of joint survey/existing condition of road/ design Review / cognizance etc.
- vi) Review/prepare working drawings with respect to geometric design/approves the shop drawings, as-built drawings supporting will all setting-out data, recording hard and soft copy of the project and providing the same to the PMU.
- vii) Assist the Deputy Team Leader / Coordinator and recommend approval of contractor's work program, method statements, material sources, etc.
- viii) Assist the Deputy Team Leader / Coordinator in preparing and issuing reports as defined subsequently.
- ix) Review and recommend approval and/or issuing working drawings/shop drawings, approval of the setting out of the works, and instruction to the contractor.
- x) Taking measurements and keep measurement records.

- xi) Maintaining records, correspondence, and diaries, maintenance of quality record including photographs, video clips showing location/RDs.
- xii) Certifying work volume and recommending interim certificates for progress payments.
- xiii) Assist in maintaining consolidated project accounts and preparing of financial statements and withdrawal applications for submission to the ADB.
- xiv) Provide feedback to the Deputy Team Leader / Coordinator on the certification of completion of part or all of the works.
- xv) Processing the contractor's possible claims.
- xvi) Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to PMU and the ADB on the monthly progress reports.
- xvii) Certifying that all pre-requisite documents/data to the IPC/EPC/Claim have been appended with the contractor invoice, such as built drawings, backup, calculation of quantities (x-section etc), quality record (RD wise passed check requests) etc.
- xviii) Certifying on the invoice that there is no over payment and that the works have been executed strictly in accordance with the approved design / drawings / specifications.
- xix) Providing the employer with complete records and reports and approves the contractors' as - built drawings for the works.
- xx) Assist in the compilation of a Project completion report data, providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimates.
- xxi) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

6. Title: Material Engineer

Experience:

12 years' Project-related Experience Minimum 8 years' experience of Material Engineering in highway construction projects with various experiences in sample collection, material testing, mixes such as Granular Subbase (GSB), Water Bound Macadam (WBM), JMF of Bituminous mixes & concrete mixes, etc.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably Masters in Geotechnical Engineering.

Responsibilities:

The major responsibility of the material engineer to supervise the material testing lab with respect to quality and efficiency of the test results; calibration of the lab equipment; conduct and discipline of the quality team.

He/she will also supervise the Lab testing against the check request of the contractor. He/she is responsible for the operation and quality function of Batching Plant and also be responsible for reviewing slope stabilization needs of the project roads. He/she should have experience in designing and implementing cost effective slope stabilization and erosion control measures.

He/she will be responsible for quality of materials used in construction by performing field and laboratory tests and certifying their acceptance based on recommended

specifications for the materials, will also identify the sources of material and quarry sites. Coordinate with Geotechnical Engineer and support to the Deputy Team Leader / RE and the Client with respect to the following: Main responsibilities of the position will include but not limited to the following:

- i) Review project quality plan submit by the contractor and advise accordingly.
 - ii) Prepare ITP wherein specify their testing frequency of material at source, material at site and composite item of work as per BOQ, etc.
 - iii) Undertake overall management of quality control related to Construction Work Lot wise.
 - iv) Provide protocols for material testing; assist with test formats, procedures of quality control tests required by the project.
 - v) Overall quality control and quality administration/ assurance.
 - vi) Approve / disapprove contractor check request after performing standard necessary tests.
 - vii) Stipulate material testing procedures and specifications.
 - viii) Identify sources of materials, quarry sites and borrow areas.
 - ix) Confirm the suitability and availability of material in the borrow pits and quarries for pavement.
 - x) If required, identify, and evaluate additional sources of materials.
 - xi) Undertake field and laboratory testing of the materials to determine their suitability for various components of the work.
 - xii) Prepare mass haul diagram for haulage purposes giving quarry charts indicating the location of selected borrow areas, quarries, and the respective estimated quantities.
 - xiii) Make suitable recommendations regarding making good the borrow and quarry areas after the exploitation of materials for construction of works.
 - xiv) Prepare JMF and its real time implementation on each mockup reaches.
 - xv) Maintain the check request register showing conformance or non-conformance of each reach.
 - xvi) Supervision of slope stabilization works.
 - xvii) Proposing measures to control erosion and siltation at construction sites.
 - xviii) Providing advice on proper disposal of construction debris to avoid side-casting of excavated materials, ensuring compliance with environmental standards.
 - xix) Approve unsuitable material in subgrade/earthwork and better fill material if required.
 - xx) Be responsible for material testing and specification and certification of material quality.
 - xxi) Preparation and testing of concrete mixes of different design mix grades using suitable materials (binders, aggregates, sand filler, etc.) as identified during material investigation to conform to specification applicable in Pakistan.
 - xxii) Shall use different techniques to determine asphalt thickness (ABC & AWC), laying of asphalt (Asphalt temperature at plant before and after laying), rejection of over burnt asphalt material, will check calibration of asphalt pavers, pneumatic type roller, vibratory rollers, rate of spray of prime/tack coat etc.
 - xxiii) Shall prepare register showing date/time, detail showing weight of each dumper with asphalt, time of laying etc.
 - xxiv) Shall carry out hot bin test, calibration of asphalt paver, qualification of plant operator, JMF implementation, bitumen extraction test at site lab etc.
 - xxv) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.
-

7. Title: Planning Engineer / Primavera Expert

Experience:

15 years' experience as Planning Engineer, Planning Manager, Lead Planner, Project Control lead etc.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer or related disciplines, or Management – preference will be given to i) Masters in above field ii) Expert of Primavera (p6) iii) and further preference will be given to PMP/PMI Certified.

Responsibilities:

Responsible for Planning Engineer / Primavera expert responsible for preparing and reviewing for work program after uploading of resources in primavera software such as efficiency of equipment / machinery, efficiency of manpower and availability of material.

Responsibilities of the Planning Engineer / Primavera Expert will include, but not limited to the following:

1. Uploading of actual efficiency of resources and primavera software to determine real time work schedule.
2. Review lot wise work schedule prepared and submitted by the contractor and revise accordingly for management of resources to complete the work in agreed time frame.
3. Review the variation / claim of EoT of the contractor to determine whether the claimed VO / EoT falls in the critical path and revise RE / Deputy Team Leader / Team Leader accordingly.
4. Prepare work schedule presentation on dashboard pattern for presentation to the client.
5. Any other relevant duties assign by the Team Leader / Deputy Team Leader / RE or PMU office.

8. Title: Assistant Resident Engineer (Highways)

Experience:

10 years' experience as Highway Engineer in Highways or major road projects.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in civil engineering / Highway Engineering / Transportation Engineering or equivalent.

Responsibilities:

He/she will report to Resident Engineer (RE) and assist Resident Engineer (RE)/Chief Resident Engineer (CRE) and will be full time station on site of work for real time inspection and supervision of works and shall be responsible for execution of works strictly in accordance with the working drawings, shop drawings and specification. Assistant Resident Engineer (ARE) decide where to place traffic control systems, calculating slopes, and ensuring a safe transport system.

Main responsibilities of the position will include but not limited to the following:

- i) Undertake services within an engineering environment which may include (but not limited to); scheme investigation, site and structure inspections, data

- collection and analysis, traffic order making, works/construction inspection and supervision to progress scheme design, development, and construction.
- ii) The Assistant Resident Engineer (ARE) will be supported with Inspectors who will also full-time station on the site of work.
 - iii) Assist in preparing technical designs or drawings, documents and by using specialist software in accordance with approved design procedures and systems.
 - iv) Assist with the management delivery of small projects or a small program of work with minimal supervision.
 - v) Be a proactive and collaborative team member, work closely with colleagues and fit seamlessly into a delivery team.
 - vi) Be flexible and proactive and liaise with other teams from other engineering disciplines.
 - vii) Assist in the development of others.
 - viii) Shall use different techniques to determine asphalt thickness (ABC & AWC), laying of asphalt (Asphalt temperature at plant before and after laying), rejection of over burnt asphalt material, will check calibration of asphalt pavers, pneumatic type roller, vibratory rollers, rate of spray of prime/tack coat etc.
 - ix) Shall prepare register showing date/time, detail showing weight of each dumper with asphalt, time of laying etc.
 - x) Shall carry out hot bin test, calibration of asphalt paver, qualification of plant operator, JMF implementation, bitumen extraction test at site lab etc.
 - xi) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

9. Title: Assistant Resident Engineer (Structures)

Experience:

12 years' experience as Bridge/ Structure Engineer preferably on major road / bridge projects.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer - preferably master's in civil engineering / Highway Engineering / Structure Engineering / Transportation Engineering or equivalent.

Responsibilities:

He/she will be responsible for construction supervision of bridges/culverts and of structural components of the road and ensuring that the subject project is implemented in accordance with the required specification and approved drawings.

He will be responsible for construction supervision and review and approval of contractor's bills. He will assist the Resident Engineer (RE) in the performance of his tasks. He will be responsible for designing especially on cost effective, multi-hazard resistant design, design the structural elements of roads component and bridges/culverts, including detailed structural drawings and specifications. The main responsibilities of the position will include but not limited to the following:

- i) Inspect the site and collect the condition data for the design Review / cognizance and necessary changes if any.
- ii) Assist in preparation of technical details such as specifications and estimates.
- iii) Provide details about existing structures, damages and assessment.
- iv) Assist and recommend approval of contractor's work program, method statements, material sources, etc.

- v) Assist in preparing and issuing reports as defined subsequently.
- vi) Review and recommend approval and/or issuing working drawings, approval of the setting out of the works, and instruction to the contractor.
- vii) Taking measurements and keeping measurement records.
- viii) Maintaining records, correspondence, and diaries.
- ix) Certifying work volume and recommending interim certificates for progress payments.
- x) Inspecting the works at appropriate intervals during the defects notification period and issuing the performance certificate.
- xi) Processing the contractor's possible claims.
- xii) Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to PMU-C&WD and the ADB on the monthly progress reports.
- xiii) Providing the employer with complete records and reports and recommend the contractors' as-built drawings for the works.
- xiv) Assist in the compilation of a Project completion report data, providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimate.
- xv) Ensure execution of RCC with respect to concrete mix design/strength.
- xvi) Ensure cubes/cylinder filling for checking of strength.
- xvii) Temperature before, during and after laying of concrete will be recorded and he will ensure proper curing etc.
- xviii) Prepare and implement defect tracking system; In case of any defect, remove the poured concrete within no time and report the RE/Team Leader etc.
- xix) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

10. Title: Environmental Specialist

Experience:

15 years' experience as Environment Specialist supervising and monitoring environmental management plans on donor financed road projects and familiarity with the ADB's safeguard policies. Specific experience in a similar position on road projects in accordance with GOP and ADB's Environmental Guidelines will be preferred.

Qualification:

Bachelor's degree in Environmental Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in environmental sciences or equivalent.

Responsibilities:

Responsible for preparing Environmental screening check list and classifying sub projects that have not been yet classified, preparing and obtaining IEEs and Environmental management plans (EMP), ensuring prior clearance, monitoring, course correction, consultations, due diligence and disclosures.

Responsibilities of the Environmental Specialist will include but not limited to the following:

- i) Conduct monitoring at each subproject site where works are being conducted and ensure that the Environmental Management Plan (EMP) is implemented in

- its true letter and spirit and document the monitoring findings and submit to the PMU/ADB for review.
- ii) Maintain close liaison with ADB, Government of the Punjab, Construction Supervision Consultant with respect to implementation of Initial Environmental Examination / Environmental Impact Assessment (IEE/EIA) requirements and compliance to Punjab Environmental Protection Agency (EPA) No Objection Certificates (NOCs).
 - iii) Support the PMU in conducting the contract award process and reviewing the bidding documents to ensure that EIA/IEE/EMP requirements are incorporated. This task will also include capacity evaluation of bidders towards EMP implementation.
 - iv) Identify any gaps in compliance relating to EMP implementation and provide inputs to prepare a Corrective Action Plan (CAP) and monitor its implementation.
 - v) Monitor environmental safeguards compliance including review/preparation of environmental monitoring reports for submission to ADB and disclosure at EA's website.
 - vi) Oversee the implementation of the mitigating measures identified in the respective EMPs of the subprojects and implemented by project contractors as part of an environmental monitoring report to be delivered to ADB for review and approval.
 - vii) Ensure the Grievance Redress Mechanism (GRM) prepared as a part of the EIA(s)/IEE(s) is implemented in its entirety and is fully functional and any grievances are efficiently and effectively addressed and resolved.
 - viii) Support the PMU in providing any data from the project sites, in preparation of bi-annual environmental monitoring reports (BAEMR) for submission to ADB.
 - ix) Support CSC towards developing EMP implementation mechanism and ensure that the Contractors are executing the activities in compliance to EIA/IEE/EMP requirements.
 - x) Coordinate and facilitate third-party environmental audits of Category A sub-projects which relate to construction of landfill sites.
 - xi) Inform ADB project team and PMU on environmental non-compliance issues.
 - xii) Conduct consultations with stakeholders including project affected persons to obtain their views on implementation of environmental safeguards and mitigation measures.
 - xiii) Attend to comments/ suggestions made by ADB project team, PMU and Punjab EPA.
 - xiv) Provide any other additional support as requested by the PMU to ensure compliance with national safeguard regulatory requirements and ADB SPS 2009
 - xv) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

11. Title: Social Development / Resettlement Specialist

Experience:

12 years' experience in planning, preparation, implementation and monitoring of Social Safeguards (Involuntary Resettlement and Indigenous People) as Resettlement Specialist on IFI financed development projects and familiarity with ADB's Social Safeguard Policies.

Qualification:

Master's in social sciences or relevant field.

Responsibilities:

He/she will be responsible to support PMU in C&WD to ensure compliance to social safeguards (Involuntary Resettlement and Indigenous People) while planning, preparation, implementation and monitoring of resettlement plans for the sub-projects as required under Safeguard Policy Statement (2009). During event he/she will facilitate C&WD in screening of subprojects for IR/IP requirements, identify, assess, and update impact inventory linked to the Displaced Persons (DPs) based on design Review / cognizance; conduct consultations with project affected/displaced persons and update the resettlement plans as per marked construction limits; establish updated Land Acquisition and Resettlement (LAR) database and grievance redress system for social safeguards. Monitor day to day Resettlement Plan (RP) implementation and consolidate RP implementation progress in monthly progress reports, facilitate PMU-C&WD in recording and redress of grievances of project affected people and prepare Social Monitoring (internal monitoring) reports biannually or as provided in ADB cleared Land Acquisition and Resettlement Plans (LARPs) and project documents for ADB's review as well as final report on social safeguards implementation at completion of project.

Responsibilities will include but not limited to the following:

- i) Will be responsible for preparation and submission of all LARP/Resettlement Reports as per the format and requirement of ADB/Client.
- ii) Screen subprojects for involuntary resettlement impacts to determine IR/IP impact significance and eligibility of the subproject for social safeguards due diligence and preparation/updating of LARPs/IPPs under the project.
- iii) For subprojects with involuntary resettlement impacts, prepare/update Resettlement Plans in accordance with provisions outlined the Resettlement Framework for the Project.
- iv) Coordinate with design Review / cognizance team during review of detailed design to discuss and explore design measure/options to avoid/minimize the resettlement impacts of subprojects and ensure involuntary resettlement impacts are minimized, if not avoided.
- v) Based on detailed design Review / cognizance, prepare social safeguards due diligence reports conforming sub-projects/project road sections with and without LAR impacts including linear plans with clearly marked LAR and non-LAR sections and assist PMU and the Engineer in notifying the LAR sections to contractors that are not open for construction.
- vi) Assist and supervise in conducting detailed measurement survey of impacted assets, updating of the impact inventory, census of DPs and shall prepare updated Land Acquisition and Resettlement Plans for ADB's review and clearance in accordance with provisions outlined in the Resettlement Framework for the Project.
- vii) Assist in organizing and conducting meaningful consultations with affected/displaced people to ensure the concerns raised are adequately addressed during design Review / cognizance, the Land Acquisition Resettlement Plans have been fully disclosed and the DPs are informed on the eligibility criteria, entitlements, compensation payment mechanism and project-based grievance redress system.
- viii) Assist PMU and field staff to maintain updated LAR database and in implementation of Resettlement Plans in the subproject areas before physical or economical displacement and subsequent commencement of works.
- ix) Assist PMU to establish and operationalize the project-based grievance redress system and coordinate (on regular basis) with the Grievance Redress Committee (GRC) and assist the GRC in delivery of its functions including but not limited to

- recording, review and tracking of progress on complaints, information dissemination and consultations with the complainants during complaints resolution process.
- x) Assist PMU in review of LAR issues that may emerge during execution of civil works, prepare, and implement corrective actions/measure consistent with project safeguards requirements as outlined in the LARF and LARPs.
 - xi) Track and monitor day to day LAR implementation progress and make adjustments in implementation schedule to achieve the targeted timelines and provide safeguards related input in project implementation monthly progress reports.
 - xii) Develop and conduct training sessions for PMU staff involved in project LAR management to improve their understanding on the ADB's safeguards requirements and ensure proper understanding and implementation of Resettlement Plans.
 - xiii) Monitor implementation of Resettlement Plans, consolidate LARP implementation progress and prepare quality social monitoring reports periodically (biannual or as provided in the ADB cleared LARPs and other project documents) and share with ADB for review, clearance, and disclosure.
 - xiv) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

12. Title: Social Safeguard Expert

Experience:

12 years' experience in monitoring and evaluation of development projects with demonstrated social safeguards monitoring work undertaken for IFIs funded projects. Preference will be given to a candidate who possesses substantial safeguards monitoring work in the ADB funded projects. The candidate must also demonstrate sufficient resources and skilled personnel to undertake the monitoring and evaluation assignment.

Qualification:

Master's degree in social sciences (e.g. economics, sociology, anthropology, development studies, etc.)

Responsibilities:

The purpose of external monitoring expert is to review and assess as a third party the implementation and evaluate (i) the achievement of resettlement objectives, (ii) the adequacy of budget and timely and full disbursement of compensation package to DPs including all allowances, (iii) the effectiveness, sufficiency, impact and sustainability of the proposed entitlements and income restoration program, (iv) Pre and post project changes in living standards and livelihood restoration of DPs, (v) any non-compliance in implementation of LARPs and corrective action plan (if any) needed, (v) review and analyze the institutional arrangements and capacity to implement and comply with safeguard requirements, Meaningful consultations and grievance management, and strategic lessons learnt for improved LAR practice for future projects.

Expert's responsibilities include, but are not limited to, the following:

- i) Provide guidance to the PIU, KP-PRIP, C&W Department and PKHA in improving the LAR management system of PIU and internal monitoring of LARPs;

- ii) Review internal monitoring reports of LARPs, and assess / verify the information / progress provided in these reports in term of compensation payment to DPs by conducting independent field monitoring;
- iii) Carry out the DPs satisfaction survey (through interview or focus group discussions) for obtaining their views about the LARPs, its preparation and implementation, the timing and adequacy of compensation and consultations with DPs;
- iv) Assess the participation of DPs in LARP implementation through the adequacy of information disclosure and consultation activities in meeting the disclosure and meaningful consultation requirements as per ADB;
- v) Monitor and assess whether resettlement objectives of enhancing, or at least restoring the livelihoods of all DPs in real terms relative to pre-project levels and improving the standards of living of the displaced poor and other vulnerable groups have been met;
- vi) Assess if the required Grievance Redress Mechanism (GRM) for the project is existing and functional. Assess the adequacy of actions taken on grievances received and recommend measures for improvements, if required;
- vii) Identify additional involuntary resettlement impacts caused during construction activities that were not considered in the approved LARPs and prepare Corrective Action Plans (CAPs) as and where necessary;
- viii) Prepare independent / external monitoring reports based on the field monitoring, consultations with project stakeholders and DPs, identify any gaps or deviations in implementation and recommend timed corrective or remedial actions to address the gaps;
- ix) Review and verify the effective implementation of LARPs according to requirements of the loan covenants and ADB involuntary resettlement safeguards;
- x) Identify lessons learned and maintain a database of independent surveys;
- xi) Suggest remedial actions with time-based outputs;
- xii) Consultant's deliverables include, but are not limited to:
 - Inception Report (submitted within 15 Days after NTP);
 - 2 Quarterly Monitoring Reports (one submitted after each quarter);
 - 2 Biannual External Monitoring Report
 - Project Completion Report;
 - Social Audit Reports (submitted as and when required by the project based on compensation payments).

13. Title: Gender Specialist

Experience:

Preferably 10 years in the field of Gender Mainstreaming. Well versed with environmental concerns with transport sector dynamics as well as applicable government regulations. Preference will be given to those who possess relevant experience with Donors (ADB and WB) or their funded projects and overseas relevant experience / relevant experience with international organization and Government Institutions.

Qualification:

Bachelor's degree in Social Sciences or equivalent qualification. Master's degree preferred.

Responsibilities:

The gender specialist will be responsible for the development & implementation of gender mainstreaming features in the project. Gender Specialist will perform the following functions, including but not limited to:

- i) Prepare gender analysis and collate baseline data (gender disaggregated) relevant to the scope and nature of the sub-projects.
- ii) Inform the projects' design about the key gender features which could maximize women's access to the benefits from the investments in the targeted areas and provide them an opportunity to exercise their abilities as “active players in the system”;
- iii) Conduct stakeholder consultations/limited household surveys in the targeted cities on the challenges and issues faced by both men and women particularly vulnerable groups including elderly, women headed households, minorities, people with disabilities and transgender to inform the projects' design.
- iv) Update the gender mainstreaming strategy and gender action framework for the project.
- v) Assess the capacity of the executing and implementing agencies in gender-inclusive planning and implementation; based on the assessment, develop a capacity building program for the EAs and IAs.
- vi) Assist in planning and scheduling Project work plan and identify gender specific aspects and needs in individual projects.
- vii) Assist in managing technical assistance so that the projects are designed keeping in mind the ADB's policy on Gender and Development (GAD) such that these outputs are achieved.
- viii) Conduct FGDs and consultations with the relevant stakeholders in the selected cities to collect information on the existing challenges faced by the cities in relation to urbanization (in general) and pertaining to the scope of project.
- ix) He/she will carry out an assessment of institutional capacity of organization.
- x) Facilitate and assist in gender analysis of proposed projects, prepare reports for subprojects.
- xi) Utilize systems for planning (including gender equality), design (including gender responsive features), and implementation, according to required guidelines) and incorporate current thinking on gender and development issues.
- xii) Develop and deepen innovative approaches to gender integration, gender equality, and inclusive development, and participate actively in relevant professional (formal and informal) communities.
- xiii) Assist in development and monitoring of project specific Gender Action Plans (GAP);
- xiv) Liaison with the relevant provincial, district administration for managing GAP in each of the subprojects.
- xv) Assist in ensuring project monitoring and compliance with donor reporting requirements for GAP.
- xvi) Assist in generating increase in women involvement in community surveys, feedbacks and impact evaluations; and
- xvii) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

14. Title: Road Safety Specialist

Experience:

12 years' relevant experience with proven credential as safety specialist on major road projects.

Qualification:

Bachelor's degree in civil engineering and registration with Pakistan Engineering Council as Professional Engineer preferably master's in civil engineering / Transportation Engineering / Highway Engineering / Traffic Engineering and a certified safety specialist or equivalent.

Responsibilities:

- i) The Road Safety Specialist is part of the services team who will prepare SOPs/templates for implementation of EHS Standards and will be providing all necessary assistance to the construction supervision team with respect to all safety, health and environmental issues. He will review and approve the safety plans of the contractor and he will monitor the safety health and safety of workers, safety of works and the safety of the traffic diversions and ensure compliance with the regulations.
- ii) Road Safety Specialist will also identify hazardous location(s) and conditions, conduct a highway safety study, collect, and analyses preliminary data, identify and collect field data, select and conduct appropriate detailed studies, evaluate study results, determine safety and operational deficiencies, identify potential safety and operational improvement and to select appropriate improvements. He / She will also be responsible to prepare the road safety report of the design/ design Review / cognizance. Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

15. Title: Senior Structural Design Engineer**Experience:**

12 years' experience as Designer and/or Design reviewer of Structures with proven credentials in Bridge Designing.

Qualification:

Master's in civil engineering/Structural Engineering/Highway Engineering or equivalent and registration with Pakistan Engineering Council as Professional Engineer, preferably PhD in Structural Engineering or equivalent.

Responsibilities:

He/she will be responsible for Design and design Review / cognizance of structural elements of road components and bridges Design and Specifications on cost effective multi hazard resistant design.

He/she will be responsible for designing especially on cost effective, multi-hazard resistant design, design the structural elements of roads component and bridges, including detailed structural drawings and specifications.

If required by the Client, he / she will be responsible for construction supervision and of structural components of the road and ensuring that the subject project is implemented in accordance with the required specification and approved drawings.

He will be responsible for construction supervision and review and approval of contractor's bills. He will assist the Resident Engineer (RE) in the performance of his tasks. He will be responsible for designing especially on cost effective, multi-hazard resistant design, design the structural elements of roads component and bridges,

including detailed structural drawings and specifications. During the construction supervision, responsibilities of the position will include but not limited to the following:

- i) Inspect the site and collect the condition data for the design Review / cognizance and necessary changes if any.
- ii) Assist in preparation of technical details such as specifications and estimates.
- iii) Provide details about existing structures, damages, and assessment.
- iv) Assist and recommend approval of contractor's work program, method statements, material sources, etc.
- v) Assist in preparing and issuing reports as defined subsequently.
- vi) Review and recommend approval and/or issuing working drawings, approval of the setting out of the works, and instruction to the contractor.
- vii) Taking measurements and keep measurement records.
- viii) Maintaining records, correspondence, and diaries.
- ix) Certifying work volume and recommending interim certificates for progress payments.
- x) Assist in maintaining consolidated project accounts and preparing of financial statements and withdrawal applications for submission to the ADB.
- xi) Provide feedback on the certification of completion of part or all of the works.
- xii) Inspecting the works at appropriate intervals during the defects notification period and issuing the performance certificate.
- xiii) Processing the contractor's possible claims.
- xiv) Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to PMU-C&WD and the ADB on the monthly progress reports.
- xv) Providing the employer with complete records and reports, and recommend the contractors' as-built drawings for the works; and
- xvi) Assist in the compilation of a Project completion report data, providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimate; and
- xvii) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

16. Title: Senior Pavement Design Engineer / Pavement Specialist

Experience:

12 years' experience in major road construction works with a focus on pavement design engineering and materials testing. Relevant experience should include: (i) supervising the Contractor's compliance with material specifications and testing; (ii) providing input to the design team to source suitable materials; (iii) engineering design of flexible Asphaltic Concrete (AC) pavements, (iv) coordinating and supervising the work of field teams in supervising and certifying construction in accordance with contract conditions including acceptance standards of materials, approval of source supply, establishing QA/QC procedures, setting up laboratories, mix designs and testing procedures.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in civil engineering / Highway Engineering / Transportation Engineering or equivalent.

Responsibilities:

He/she will be responsible for designing JMF and its real time implementation on mockup reaches. He will also be responsible for pavement design, designs for road features and road safety/traffic control features, drainage designs, rehabilitation and repair plan, traffic plans and amenities including detailed drawings and specifications and JMF.

Responsibilities of the Pavement Design Engineer will include, but not limited to the following:

- i) Coordination of design Review / cognizance and construction supervision of all Project pavements, including the management of the Materials/Pavement engineering team in coordination with the Team Leader and the other senior officials of the Consultant Team.
- ii) Lead the design Review / cognizance of pavement works in the Detailed Engineering Design (DED) including proposed material specifications and sources and asphalt and concrete mix designs.
- iii) Review and approve the Contractor's proposed geotechnical investigations for pavements and pavement materials.
- iv) Liaise with the Bridge/Structural Engineer on the geotechnical requirements for bridge design.
- v) Design Review / cognizance and construction supervision of all Project pavements.
- vi) Design Review / cognizance of pavement works, proposed material specifications and sources and asphalt and concrete mix designs.
- vii) Review the construction schedule for all pavement works.
- viii) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

17. Title: Senior Geotechnical Design Engineer**Experience:**

12 years' experience as Resident Geotechnical Engineer on major road projects; knowledge of soil bioengineering/biotechnical applications for slope stabilization.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's or PhD in Geotechnical Engineering.

Responsibilities:

He/she is responsible for the operation and quality function of Batching Plant and also be responsible for reviewing slope stabilization needs of the project roads. He/she should have experience in designing and implementing cost effective slope stabilization and erosion control measures.

He/she will be responsible for function of consultant's Lab and its quality. He/she will also supervise the Lab testing against the check request of the contractor.

In addition to the above, the duties of Geotechnical Engineer may also include but not limited to the following:

- i) Prepare JMF and its real time implementation on each mockup reaches.
- ii) Supervise the testing of material with respect to contractor's check request.

- iii) Maintain the check request register showing conformance or non-conformance of each reach.
 - iv) Supervision of slope stabilization works.
 - v) Proposing measures to control erosion and siltation at construction sites.
 - vi) Providing advice on proper disposal of construction debris to avoid side-casting of excavated materials, ensuring compliance with environmental standards.
 - vii) Approve unsuitable material in subgrade/earthwork and better fill material if required.
 - viii) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc.
-

18. Title: Senior Geometric Design Engineer

Experience:

10 years in roads (geometrics) and bridges design experience; strong background in access management and traffic control systems is highly desirable.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer - preferably master's in civil engineering / Highway Engineering / Structure Engineering / Transportation Engineering or equivalent.

Responsibilities:

He/she will be responsible for designing especially in pavement geometric design. Responsibilities of the Geometric Design Engineer will include, but not limited to the following:

- i) Agree upon the category of road to be developed to make sure relevant design standards are applied and relevant guidelines are followed during the design process. It could be any category ranging from motorway to rural access roads or mountainous roads in rural settings and urban freeways, primary roads, secondary roads, laterals, and access roads in case of urban situation.
 - ii) Provide design plans for various road segments including links (sections between road crossings) and road crossings. In case of motorways/expressways, only grade separated crossings and interchanges are involved whereas in case of lower order roads multiple choices are available requiring option analysis for selection of relevant form of road crossings.
 - iii) Review/prepare working drawings with respect to geometric design/approves the shop drawings, as-built drawings supporting will all setting-out data, recording hard and soft copy of the project and providing the same to the PMU.
 - iv) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc
-

19. Title: Senior Hydrologist

Experience:

10 years' experience in hydrological design of roads and bridges.

Qualification:

Bachelor's degree in Civil Engineering and registration with Pakistan Engineering Council as Professional Engineer - preferably Masters in Hydrology or equivalent.

Responsibilities:

Responsibilities of the Hydrologist will include, but not limited to the following:

- i) He/ she will perform its duties under the guidance of the Team Leader.
- ii) Work in the survey and design team and will be responsible for collecting and assessing the hydrological data, finalizing the design discharges for the required drainages, cross drainages, sub surface drainages.
- iii) Provide assistance to the design team in designing the appropriate and cost-effective design/ design Review / cognizance of drainage structures.
- iv) Shall collect relevant field data and estimate the design discharges for various drainages structure for the design/ design Review / cognizance purpose.
- v) Field visits to assess site conditions
- vi) He / She will be responsible to assess hydrological data of the area of road alignment.
- vii) Evaluate the Topography and gradients, water formation of the area. Analyze existing side/cross drainage conditions along the road alignment.
- viii) He /She will be responsible for vetting the condition of drainage crossing structures keeping in view the past available data of floods and rains.
- ix) To provide expert technical advice in respect of drainage proposals; undertake flood risk assessments

NON-KEY EXPERTS (NATIONAL)**1. Title: Chief Quantity Surveyor****Experience:**

15 years' experience as Quantity Surveyor on road mega projects that administered under FIDIC contract conditions, preference will be given to those who has working experience with ADB or Loan Aided Projects. Familiarity with international and National design standards. Hands-on experience in using various quantity-estimation software. Preference will be given to those who has hands on experience on Civil-3D for extraction of quantity reports.

Qualification:

Shall hold bachelor's degree in civil engineering and registration with Pakistan Engineering Council as Professional Engineer / highway engineering / structure engineering / transportation engineering / construction management / project management or equivalent. Preferably master's degree in the said relevant field.

Responsibilities:

Responsibilities of the Chief Quantity Surveyor will include, but not limited to the following:

- i) He will be responsible for preparation and reviewing of engineering estimate by fulfilling all codal and legal formalities of the Client Department.
- ii) He will be responsible for measurement of all type of quantities and preparation of measurement sheet in accordance with approved drawings for the purpose of reviewing interim and final payment certificates.
- iii) He will be responsible for preparing of revised PC-I if required.
- iv) The quantity surveyors shall review detailed estimates for quantities (considering designs and mass haul diagram) and project cost for the entire project (Lot wise), including the cost of environmental and social safeguards proposed and market rate for the MRS or the local schedule of rates.

- v) He will ensure correctness of documentation, IPCs and quantities during the construction and confirming the computation and processing of interim payment certificate, producing details of the final bill and total quantities consumed during the project.
- vi) The quantity surveyors prepare quantitative estimates for any suggested variation with its cost impact on the project.
- vii) Maintain a permanent record of all measurement for the work quantities.
- viii) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

2. Title: Chief Surveyor

Experience:

15 years' experience as Land Surveyor on road mega projects by using total station, GPS, DGPS and RTK Rover.

Qualification:

Shall hold bachelor's degree in civil engineering and registration with Pakistan Engineering Council as Professional Engineer / highway engineering / structure engineering / transportation engineering / construction management / project management or equivalent. Preferably master's degree in the said relevant field.

Responsibilities:

Responsibilities of the Chief Quantity Surveyor will include, but not limited to the following:

- i) Obtain the benchmarks and other information from the C&WD as required for review of survey work by the designer prior to commencement of construction activities.
- ii) He will be responsible to establish suitable number of permanent benchmarks at suitable place & point preferably at employer's subordinate office or estate building in each corridor by using DGPS duly verified by the employer's representative.
- iii) He will be responsible for joint survey prior to execution of earthwork with the designer representative, contractor representative and employer representative/Deputy Director Construction PMU – C&WD.
- iv) Inform the employer promptly regarding any variation established during the joint survey from the basic survey data received from the designer.
- v) All levels and references will be referred to permanent benchmarks.
- vi) Establish a system for validation of data both levels and RD's through RTK Rover and DGPS, by employer or 3rd party.
- vii) Assist the resident engineer in checking the correctness of layout drawn at site by the contractors during executing for the road construction.
- viii) Maintain all documentation on survey works, record of control points and benchmarks and ensure that works commences according to the working drawings approved by the resident engineer.
- ix) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

3. Title: Land Landscape Architect

Experience:

12 years relevant experience specially landscape architect in the design and preparation of plans of landscape architectural on road / highway projects.

Qualification:

Shall hold bachelor's degree in Architect with major course work in landscape architecture or related field. Preference will be given to master's degree in Architect and certificate of registration as professional landscape architect.

Responsibilities:

Responsibilities of the Land Scene Architect will include, but not limited to the following:

- i) Prepare landscape design and construction plans and cost estimates for proposed alignment.
- ii) Respond to citizen inquiries and complains on landscape requirement.
- iii) Recommend and assist in the implementation of goals and objectives approved policies and produces along the proposed route.
- iv) Perform related duties as required.
- v) To calculate angular, linear and area measurements shall identify the problematic areas in specific to landslide area and suggest proper mitigation measures.
- vi) Identify problematic areas as regard to deposition of sand dunes and to address shifting of sand dune with cost effect remedial measure.
- vii) Prepare architectural drawing of toll plaza associated building and rest area.
- viii) Landscaping of intersections.
- ix) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

4. Title: Environment Associate**Experience:**

12 years' experience as Environment Specialist supervising and monitoring environmental management plans on donor financed road projects and familiarity with the ADB's safeguard policies. Specific experience in a similar position on road projects in accordance with GOP and ADB's Environmental Guidelines is required.

Qualification:

Bachelor's degree in Environmental Engineering and registration with Pakistan Engineering Council as Professional Engineer – preferably master's in environmental sciences or equivalent.

Responsibilities:

Responsible for preparing Environmental screening check list and classifying sub projects that have not been yet classified, preparing and obtaining IEEs and Environmental management plans (EMP), ensuring prior clearance, monitoring, course correction, consultations, due diligence and disclosures.

Responsibilities of the Environmental Specialist will include but not limited to the following:

- i) Assist Environmental Specialist and Team Leader in reviewing the site-specific environmental management plan (SSEMP) for each sub-project and ensure its effective implementation.

- ii) Assist Environmental Specialist in preparing and executing required appropriate actions to mitigate any negative environmental impacts associated with construction activities in collaboration with PMU and all concerned stakeholders.
- iii) Ensure that any environmental impact assessments, if required, fully comply with ADB Guidelines Safeguards Policy Statement (SPS, 2009) and ensure that all required mitigation measures are identified and acceptable.
- iv) Besides assisting in finalizing the biannual environmental monitoring report, assist the PMU in finalization of environmental part of quarterly progress report, annual progress report and any specific report asked by the PMU.
- v) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

5. Title: Resettlement Associate

Experience:

10 years' experience in planning, preparation, implementation and monitoring of Social Safeguards (Involuntary Resettlement and Indigenous People) as Resettlement Specialist on IFI financed development projects and familiarity with ADB's Social Safeguard Policies.

Qualification:

Master's in social sciences or relevant field.

Responsibilities:

He/she will be responsible to support PMU in C&WD to ensure compliance to social safeguards (Involuntary Resettlement and Indigenous People) while planning, preparation, implementation and monitoring of resettlement plans for the sub-projects as required under Safeguard Policy Statement (2009). During event he/she will facilitate C&WD in screening of subprojects for IR/IP requirements, identify, assess and update impact inventory linked to the Displaced Persons (DPs) based on design Review / cognizance; conduct consultations with project affected/displaced persons and update the resettlement plans as per marked construction limits; establish updated Land Acquisition and Resettlement (LAR) database and grievance redress system for social safeguards. Monitor day to day Resettlement Plan (RP) implementation and consolidate RP implementation progress in monthly progress reports, facilitate PMU-C&WD in recording and redress of grievances of project affected people and prepare Social Monitoring (internal monitoring) reports biannually or as provided in ADB cleared Land Acquisition and Resettlement Plans (LARPs) and project documents for ADB's review as well as final report on social safeguards implementation at completion of project.

Responsibilities will include but not limited to the following:

- i) Screen subprojects for involuntary resettlement impacts to determine IR/IP impact significance and eligibility of the subproject for social safeguards due diligence and preparation/updating of LARPs/IPPs under the project.
- ii) For subprojects with involuntary resettlement impacts, prepare/update Resettlement Plans in accordance with provisions outlined the Resettlement Framework for the Project.
- iii) Coordinate with design Review / cognizance team during review of detailed design to discuss and explore design measure/options to avoid/minimize the resettlement impacts of subprojects and ensure involuntary resettlement impacts are minimized, if not avoided.

- iv) Based on detailed design Review / cognizance, prepare social safeguards due diligence reports conforming sub-projects/project road sections with and without LAR impacts including linear plans with clearly marked LAR and non-LAR sections and assist PMU and the Engineer in notifying the LAR sections to contractors that are not open for construction.
- v) Assist and supervise in conducting detailed measurement survey of impacted assets, updating of the impact inventory, census of DPs and shall prepare updated Land Acquisition and Resettlement Plans for ADB's review and clearance in accordance with provisions outlined in the Resettlement Framework for the Project.
- vi) Assist in organizing and conducting meaningful consultations with affected/displaced people to ensure the concerns raised are adequately addressed during design Review / cognizance, the Land Acquisition Resettlement Plans have been fully disclosed and the DPs are informed on the eligibility criteria, entitlements, compensation payment mechanism and project-based grievance redress system.
- vii) Assist PMU and field staff to maintain updated LAR database and in implementation of Resettlement Plans in the subproject areas before physical or economical displacement and subsequent commencement of works.
- viii) Assist PMU to establish and operationalize the project-based grievance redress system and coordinate (on regular basis) with the Grievance Redress Committee (GRC) and assist the GRC in delivery of its functions including but not limited to recording, review and tracking of progress on complaints, information dissemination and consultations with the complainants during complaints resolution process.
- ix) Assist PMU in review of LAR issues that may emerge during execution of civil works, prepare and implement corrective actions/measure consistent with project safeguards requirements as outlined in the LARF and LARPs.
- x) Track and monitor day to day LAR implementation progress and make adjustments in implementation schedule to achieve the targeted timelines and provide safeguards related input in project implementation monthly progress reports.
- xi) Develop and conduct training sessions for PMU staff involved in project LAR management to improve their understanding on the ADB's safeguards requirements and ensure proper understanding and implementation of Resettlement Plans.
- xii) Monitor implementation of Resettlement Plans, consolidate LARP implementation progress and prepare quality social monitoring reports periodically (biannual or as provided in the ADB cleared LARPs and other project documents) and share with ADB for review, clearance and disclosure.
- xiii) Perform any other tasks / assignment that may be assigned by CSC, PMU or ADB etc

SUPPORT STAFF (NATIONAL)

1. Title: Office Manager

Experience:

10 years' experience in office administration including HR of support staff, management of resources including vehicles and IT equipment, arrangement and maintenance of office and residential accommodation for the consultant. Procurement of stationary and consumable items in according with the ADB and PMU instructions.

Qualification:

Master's in management or Social Sciences or equivalent.

Responsibilities:

Responsibilities of the Office Manager will include, but is not limited to the following:

- He is responsible to assist Team Leader for establishment of his office as well as offices of the Resident Engineers through utilization of provisional sum and out of pocket expense strictly in accordance with instructions / guidelines of ADB and will prior approval of the Client.
- He is further responsible to assist Team Leader for establishment of material testing laboratories under each Resident Engineer accordingly.
- Liaison between Team Leader Office, Site Offices and Head Office of the Consultant.
- He will support the Document Controller to perform his duties effectively.
- Responsible to manage inventories for moveable, immovable and consumable articles.
- He is responsible for good office environment with respect to cleanliness, health & safety.
- Perform any other tasks / assignment that may be assigned by PMU or ADB etc.

2. Title: Research Assistant (Bitumen)**Experience:**

10 years' Project-related Experience Minimum 8 years' experience of Research Assistant (Bitumen) in highway construction projects with various experiences in sample collection, material testing, JMF of Bituminous mixes etc.

Qualification:

Bachelor's degree in Geology – preferably Masters in relevant field.

Responsibilities:

Responsibilities of the Research Assistant (Bitumen) will include, but not limited to the following:

- i) Will prepare Asphaltic JMF mentioning thickness of Asphaltic Base Course (ABC), Asphaltic Wearing Course (AWC) upper & lower limits of different aggregate with respect to particles sizes, type of bitumen penetration, grade, JMF with bitumen content in %age and by weight with +/- tolerance, if feasible also show laying temperature etc.
 - ii) While preparing JMF the necessary inputs shall be reviewed/evaluated such as traffic count, economic analysis, road structure/pavement evaluation, expected load of traffic etc.
 - iii) Shall carry out test through Labs for assessment of CBR value of existing embankment, crust and thereafter same will be considered for purpose of JMF.
 - iv) Calculate ESALs based on data collected through aforesaid information.
 - v) Propose design based on various AASHTO, Overseas Road Note strictly in accordance with predefined parameters.
 - vi) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.
-

3. Title: Research Assistant (Mix Design)

Experience:

10 years' Project-related Experience Minimum 8 years' experience of Research Assistant (Mix Design) in highway/bridge construction projects with various experiences in sample collection, material testing, JMF of concrete mixes etc.

Qualification:

Bachelor's degree in Geology – preferably Masters in relevant field.

Responsibilities:

Responsibilities of the Research Assistant will include, but not limited to the following:

- i) Shall carry out all the tests regarding quality of aggregate, cement, sand etc and testing of water.
- ii) Slump value, water cement ratio (WCR), to ensure workability, for any kind of structural member like, beam, slab, column, transom, and pile etc.
- iii) Shall prepare concrete mix design (CMD) in the light of design/structural member strength.
- iv) Shall ensure if the procured material i.e., crushed stone from approved quarry such as Sargodha / Margalla / Sakhi Sarwar etc.
- v) Shall prepare concrete mix design (CMD) based on properties of material being used in mix with respect to quarry source and type. Concrete mix design will clearly mention layer of laying concrete, its temperature, slump, W.C.R etc.
- vi) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

4. Title: Research Assistant (Plant Pre-mixed Bituminous Asphalt -QA)

Experience:

10 years' Project-related Experience Minimum 8 years' experience of Research Assistant (Asphalt-QA/QC) in highway construction projects with various experiences in sample collection, material testing, JMF of Bituminous mixes etc.

Qualification:

Bachelor's degree in Geology – preferably Masters in relevant field.

Responsibilities:

Responsibilities of the Research Assistant will include, but not limited to the following:

- i) Shall obtain sample from site of work and core of asphaltic layer for determination of all specified tests in the Road Research & Material Testing Lab Lahore or as desired by the PMU representative.
 - ii) Shall carry out all tests regarding quality of bitumen whether it is feasible/suitable or not, grade of bitumen and other properties etc.
 - iii) Asphalt GMB (bulk specific gravity of compacted mixture)/compaction test should be strictly implemented as per AASHTO etc.
 - iv) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.
-

5. Title: Research Assistant (Concrete -QA)

Experience:

10 years' Project-related Experience Minimum 8 years' experience of Research Assistant (Concrete QA/QC) in highway/bridge construction projects with various experiences in sample collection, material testing, JMF of concrete mixes etc.

Qualification:

Bachelor's degree in Geology – preferably Masters in relevant field.

Responsibilities:

Responsibilities of the Research Assistant will include, but not limited to the following:

- i) Shall obtain sample from site of work and core of concrete structure for determination of all specified tests in the Road Research & Material Testing Lab Lahore or as desired by the PMU representative.
- ii) Shall obtain sample of material from site of work such as aggregate, sand and cement, type of steel reinforcement with respect to grade (40/60), twisted/deformed/round bars etc.
- iii) Will check calibration of all equipment's/plants, like concrete batching plant, computer software, transit mixer, hydraulic/mechanical cranes, concrete pump its boom length, concrete vibrators, steel plate shuttering/formwork its true alignment/verticality etc.
- iv) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

6. Title: Quantity Surveyor

Experience:

10 years' experience as Quantity Surveyor on road mega projects that administered under FIDIC contract conditions, preference will be given to those who has working experience with ADB or Loan Aided Projects. Familiarity with international and National design standards. Hands-on experience in using various quantity-estimation software.

Qualification:

Shall hold bachelor's degree in civil engineering / highway engineering / structure engineering / transportation engineering / construction management / project management or equivalent. The person holding B-Tech (Hons) Degree required further 5-year experience.

Responsibilities:

Responsibilities of the Quantity Surveyor will include, but not limited to the following:

- i) He will be responsible to assist Chief Quantity Surveyor and support to the Team Leader, Deputy Team Leader / Coordinator and Resident Engineers for performance of their duties related with the Quantity Surveyor.
- ii) He will be responsible for preparation and reviewing of engineering estimate by fulfilling all codal and legal formalities of the Client Department.
- iii) He will be responsible for measurement of all type of quantities and preparation of measurement sheet in accordance with approved drawings for the purpose of reviewing interim and final payment certificates.
- iv) He will be responsible for preparing of revised PC-I if required.

- v) The quantity surveyors shall review detailed estimates for quantities (considering designs and mass haul diagram) and project cost for the entire project (Lot wise), including the cost of environmental and social safeguards proposed and market rate for the MRS or the local schedule of rates.
 - vi) He will ensure correctness of documentation, IPCs and quantities during the construction and confirming the computation and processing of interim payment certificate, producing details of the final bill and total quantities consumed during the project.
 - vii) The quantity surveyors prepare quantitative estimates for any suggested variation with its cost impact on the project.
 - viii) Maintain a permanent record of all measurement for the work quantities.
 - ix) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.
-

7. Title: Surveyors

Experience:

12 years' experience as Land Surveyor on road mega projects by using total station, GPS, DGPS and RTK Rover.

Qualification:

Shall hold bachelor's degree in civil engineering and registration with Pakistan Engineering Council as Professional Engineer / highway engineering / structure engineering / transportation engineering / construction management / project management or equivalent. The person holding B-Tech (Hons) Degree required further 5-year experience, in case of DAE Civil the incumbent required further 8-year experience in addition of 12-year.

Responsibilities:

Responsibilities of the Surveyor will include, but not limited to the following:

- i) He will be responsible to assist Chief Surveyor and support to the Team Leader, Deputy Team Leader / Coordinator and Resident Engineers for performance of their duties related with the Survey work.
- ii) Obtain the benchmarks and other information from the C&WD as required for review of survey work by the designer prior to commencement of construction activities.
- iii) He will be responsible to establish suitable number of permanent benchmarks at suitable place & point preferably at employer's subordinate office or estate building in each corridor by using DGPS duly verified by the employer's representative.
- iv) He will be responsible for joint survey prior to execution of earthwork with the designer representative, contractor representative and employer representative/Deputy Director Construction PMU – C&WD.
- v) Inform the employer promptly regarding any variation established during the joint survey from the basic survey data received from the designer.
- vi) All levels and references will be referred to permanent benchmarks.
- vii) Establish a system for validation of data both levels and RD's through RTK Rover and DGPS, by employer or 3rd party.
- viii) Assist the Chief Surveyor and Resident Engineer in checking the correctness of layout drawn at site by the contractors during executing for the road construction.

- ix) Maintain all documentation on survey works, record of control points and benchmarks and ensure that works commences according to the working drawings approved by the resident engineer.
- x) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

8. Title: Inspector (Highways)

Experience:

10 years' experience in highway or road construction works, must have good knowledge and experiences of NHA specifications and work methodology. Preference will be given to those who has experience of basic field test used to ensure conformance with the standards.

Qualification:

Shall hold degree of B-Tech (H) in Civil Technology and in case of DAE Civil incumbent must have further 5-year experience in addition of 10-year for B-Tech (H).

Responsibilities:

Responsibilities of the Inspector (Highways) will include, but not limited to the following:

- i) The Inspector (Highways) will station at site of work all the time for the supervision of ongoing construction activities and report to ARE (Highway).
 - ii) Undertake overall site management of one lot of road contract or as assign by the concerned Resident Engineer.
 - iii) Supervise the work and ensure compliance of the specifications, drawings and agreed working methodology; and coordinate with the survey team and ensure given design level of each layer of pavement structure and other finish level of road structure; coordinate with Mobile Lab Testing unit and ensure standard specifications.
 - iv) Supervise and guide the contractor.
 - v) Ensure environment compliance.
 - vi) Oversee implementation of quality assurance plans and quality control tests.
 - vii) Provide technical backstopping to contractors' construction team.
 - viii) Conduct joint measurement.
 - ix) Assist the Assistant Resident Engineer / Quantity Surveyor in bill verification.
 - x) Report to and take instructions from Resident Engineer and Material Engineering expert and Project Manager.
 - xi) Undertake daily measurements / record entries of completed work and tag with the approved check request.
 - xii) Report progress of construction works on daily basis to the ARE / RE.
 - xiii) Work in close coordination with the Project Management Team, experts and specialists.
 - xiv) Report to and take instruction from Resident Engineer and Project Manager.
 - xv) Shall use different techniques to determine asphalt thickness (ABC & AWC), laying of asphalt (Asphalt temperature at plant before and after laying), rejection of over burnt asphalt material, will check calibration of asphalt pavers, pneumatic type roller, vibratory rollers, rate of spray of prime/tack coat etc.
 - xvi) Shall prepare register showing date/time, detail showing weight of each dumper with asphalt, time of laying etc.
 - xvii) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.
-

9. Title: Inspector (Structures)

Experience:

10 years' experience in highway or road construction works, must have good knowledge and experiences of NHA specifications and work methodology.

Qualification:

Shall hold degree of B-Tech (H) in Civil Technology and in case of DAE Civil incumbent must have further 5-year experience in addition of 10-year for B-Tech (H).

Responsibilities:

Responsibilities of the Inspector (Structure) will include, but not limited to the following:

- i) The Inspector (Structure) will station at site of work all the time for the supervision and implementation of the working drawings/shop drawings at ongoing construction activities and report to ARE (Structure).
- ii) Coordinate with the Structure Engineer/RE for preparation of as built drawings.
- iii) Undertake overall site management of one package of structure work of each road contract or as assign by the concerned Resident Engineer.
- iv) Supervise the work and ensure compliance of the specifications, drawings and agreed working methodology; and coordinate with the survey team and ensure given design level of each component of bridges / culverts and coordinate with Mobile Lab Testing unit and ensure standard specifications.
- v) Supervise and guide the contractor.
- vi) Ensure environment compliance.
- vii) Oversee implementation of quality assurance plans and quality control tests.
- viii) Provide technical backstopping to contractors' construction team.
- ix) Conduct joint measurement.
- x) Assist the Assistant Resident Engineer / Quantity Surveyor in bill verification.
- xi) Report to and take instructions from Resident Engineer and Structure Engineering and Project Manager.
- xii) Ensure execution of RCC with respect to concrete mix design/strength.
- xiii) Ensure cubes/cylinder filling for checking of strength.
- xiv) Temperature before, during and after laying of concrete will be recorded and he will ensure proper curing etc.
- xv) Prepare and implement defect tracking system; In case of any defect, remove the poured concrete within no time and report the ARE/RE etc.
- xvi) Undertake daily measurements / record entries of completed work and tag with the approved check request.
- xvii) Report progress of construction works on daily basis to the ARE / RE.
- xviii) Work in close coordination with the Project Management Team, experts and specialists.
- xix) Report to and take instruction from Resident Engineer and Project Manager.
- xx) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

10. Title: Lab. Technician

Experience:

10 years' experience in highway or road construction works, must have good knowledge and experiences of NHA specifications and work methodology.

Qualification:

Shall hold degree of B-Tech (H) in Civil Technology and in case of DAE Civil incumbent must have further 5-year experience in addition of 10-year for B-Tech (H).

Responsibilities:

Responsibilities of the Lab. Technician will include, but not limited to the following:

- i) Report to Material Engineer on all matters relating to construction material testing.
- ii) Sample collection from site of work and performance of lab testing under the supervision of Material Engineer.
- iii) Undertake overall management of material lab testing to construction work lots/package.
- iv) Assist with test formats, procedures of quality control tests required by the project.
- v) Provide technical backstopping on designs, technical standards and specifications.
- vi) Specify and monitor quality assurance plans and quality control tests being conducted in lots/package.
- vii) Should be familiar with all tests (Sieve Analysis (Fine and Course), Liquid Limit/Plastic Limit, Proctor Test, CBR, Field density, Slump Test, Compression test, Specific gravity and water absorption, Marshall test, Tensile strength test, Mix designs and trial mixes and asphalt tests.
- viii) Work as a quality control team member and coordination with Inspector (Highway/Structure).
- ix) Shall carry out hot bin test, calibration of asphalt paver, qualification of plant operator, JMF implementation, bitumen extraction test at site lab etc.
- x) Perform any other tasks / assignment that may be assigned by Consultant, PMU or ADB etc.

11. Title: Lab. Attendant**Experience:**

5 years' experience working in material testing laboratory.

Qualification:

Shall hold Matriculation Certificate and physically fit to work in field or in lab.

Responsibilities:

Responsibilities of the Lab. Attendant will include, but not limited to the following:

- i) Report to Lab. Assistant.
- ii) Sample collection from site of work and performance of lab testing under the supervision of Lab. Assistant/Research Assistant/Material Engineer.
- iii) Preferably familiar with testing procedures (Sieve Analysis (Fine and Course), Liquid Limit/Plastic Limit, Proctor Test, CBR, Field density, Slump Test, Compression test, Specific gravity and water absorption, Marshall test etc.
- iv) Perform any other tasks / assignment that may be assigned by Consultant, PMU representative etc.

12. Title: Computer Operator**Experience:**

Minimum 8-Year Experience of preparing presentation, letter drafting, preparing of estimates on excel and data base management by using Access.

Qualification:

Minimum Bachelor's Degree / 14-year Qualification in IT, Computer Science, Mass Communication, Economics, Business Administration, Commerce, social sciences, Finance, or equivalent qualification. Preference will be given to master's degree / 16-Year Qualification in Information Technology, Computer Science.

Responsibilities:

Computer Operator will perform the following functions, including but not limited to:

- i) Preparing Draft / Letters / Notifications etc.
 - ii) Preparing Spread sheet on MS Excel.
 - iii) Preparing Meeting Notice.
 - iv) Recording Minutes of Meeting and Composing.
 - v) Preparing and maintaining Communication Tools such as Information of Stake holder office staff with respect to Email, Address Phone Numbers etc.
 - vi) Operation of Multimedia and Conference System.
 - vii) Record management soft and hard copies.
 - viii) Managing Diary incoming or outgoing letters, Notices etc.
 - ix) Any other duty assigned by the Concerned Officer.
-

13. Title: AutoCAD Operator**Experience:**

Minimum 8-Year Experience of preparing drawings using computer-aided design (CAD) software, preferably Civil-3D under the supervision of design Engineer.

Qualification:

Shall hold Intermediate Certificate preferably DAE (Civil) and hold AutoCAD certification.

Responsibilities:

AutoCAD Operator will perform the following functions, including but not limited to:

- i) Prepare technical drawings of structure work, cross section, L-section and print out by using plotter/printer.
 - ii) Area/volume computation.
 - iii) Maintain a database of drawings
 - iv) Prepare supporting documentation that includes product materials and dimensions.
 - v) Any other duties assign by the ARE/RE.
-

14. Title: Senior Documents Controller**Experience:**

15 years' overall experience after minimum required qualification and minimum 10 years working experience associated with the Punjab Highways Department.

Qualification:

Bachelor's degree in Commerce, Management, IT or equivalent.

Responsibilities:

Senior Documents Controller will station at PMU-C&WD and another one report to Deputy Team Leader / Coordinator and will be responsible for the following duties but not limited to.

- i) Maintain electronic document management system for quick retrieval of documents and maintain backup recovery system.
 - ii) Archive of documents (Soft & Hard) for all Communications Project wise / Lot wise, specifically for those documents / records / letters / notices related to claim / VO / EoT and Payment Certificate.
 - iii) Document Controlling.
 - iv) Sorting, storing, and retrieving electronic and hard copy documents on behalf of clients and industry professionals
 - v) Installation/ Deployment, Monitoring and commissioning of necessary Hardware, Software, and other Equipment.
 - vi) Operations of Equipment including Multimedia Projectors, Video & Audio-Conferencing System.
-

15. Title: Documents Controller

Experience:

10 years' overall experience after minimum required qualification and minimum 5 years working experience associated with the Punjab Highways Department.

Qualification:

Bachelor's degree in Commerce, Management, IT or equivalent.

Responsibilities:

Documents Controller will station in PMU-C&WD and another one report to Senior Documents Controller and will be responsible for the following duties but not limited to;

- i) Assist Senior Documents Controller for maintenance of electronic document management system for quick retrieval of documents and maintain backup recovery system.
 - ii) Archive of documents (Soft & Hard) for all Communications Project wise / Lot wise, specifically for those documents / records / letters / notices related to claim / VO / EoT and Payment Certificate.
 - iii) Document Controlling.
 - iv) Sorting, storing, and retrieving electronic and hard copy documents on behalf of clients and industry professionals
 - v) Installation/ Deployment, Monitoring and commissioning of necessary Hardware, Software, and other Equipment.
 - vi) Operations of Equipment including Multimedia Projectors, Video & Audio-Conferencing System.
-

5. Reporting Requirements & Time Schedule for Deliverables

5.1 Table below sets out the Construction Supervision Consultant reporting requirements. All reports will be submitted in English in hard copy to the PMU-C&WD and ADB (5 copies and 2 copies respectively) and in electronic form as PDF files through an appropriate large file transfer application. The PMU-C&WD and ADB will agree on suitable formats for the progress reports prior to the submission of the first such report.

Table: Reporting Requirements

MONITORING AND PROGRESS REPORT:

Reports	Content	Submission date
Inception Report	<p>Report will contain consultant's supervision, & contract administration manuals, detailed work program, a brief description of the updated work methods proposed for carrying out the services in accordance with the Terms of Reference. The report will also identify any major issues and problems likely to be encountered as well as staff plan with supporting CVs of professional staff and projected monthly billing.</p> <p>Summary:</p> <ul style="list-style-type: none"> ➤ Detailed work program and staffing schedule. ➤ Updated methodology (where appropriate) in line with the TOR. ➤ Baseline data on project expected outcomes and outputs. ➤ Identification of major likely issues and problems, and proposition of recommendations. ➤ Format is to be agreed with ADB and the PMU-C&WD. 	4 weeks after commencement of services
Monthly Reports	<p>Monthly Report to summarize the following progress of the project.</p> <ul style="list-style-type: none"> • The work accomplished. • Any problems encountered during the month. • Environmental and resettlement status. • A work plan for the next month. • Minutes of site meetings. • The report will present progress information in graphical form, relative to the contractors' approved contract schedules. 	At the end of each month till 10 th of each month.

Reports	Content	Submission date
	<p>(i) Monthly Contract Administration Reports: The Consultant will, no later than the 10th of each month, prepare a narrative progress report summarizing:</p> <ol style="list-style-type: none"> a. Construction progress during the month and cumulative to date for each individual contract drawing specific attention to any major causes of delay (administrative, technical, or financial) with details of remedial action taken or recommended to the Employer. b. A comparison of actual and forecast expenditure both during the month and cumulative to date for each individual contract, and a record of the status of payment of the Contractors' monthly invoices, of all claims for cost or time extensions, and of actions required of PMU-C&WD to permit unconstrained works implementation. The Consultant will also advise on the final estimated cost for each individual contract and draw attention to any major changes in the project budget including details of remedial action taken or recommended to the Employer. c. Brief on all correspondence exchanged with the contractors particularly relating to contractual clauses, with financial and time implications. d. Summary of check request register showing RD wise and each layer wise quality test results and test performer Engineer/Manager. e. For quality calculation reflecting levels on x-sections and Avg. thickness of each layer. f. Technical appreciation of any design or quality control problems for each individual contract including details of remedial action taken or recommended to the Employer. 	

Reports	Content	Submission date
	<p>g. Status of compliance with the Environmental & Resettlement gender, health & safety implementation plan.</p> <p>Summary:</p> <ul style="list-style-type: none"> ➤ Summary in graphical form to the extent possible of project progress (physical, financial, safeguards), work accomplished, and any problems encountered during the month. ➤ Proposition of work plan for next month with recommendations to achieve the objectives. ➤ Format is to be agreed with ADB and the PMU-C&WD. 	
<p>Quarterly Reports</p>	<ul style="list-style-type: none"> ➤ Summary of project progress (physical, financial, safeguards), work accomplished, and any problems encountered during the quarter. ➤ Summary of financial management action plan. ➤ Proposition of work plan for next quarter with recommendations to achieve the objectives. ➤ Format is to be agreed with ADB and the PMU-C&WD 	<p>At the end of each quarter till 10th of each quarter</p>
<p>Annual Management Information Report at the end of each Financial Year</p>	<p>The Consultant will prepare a comprehensive report summarizing all activities under the services at the end of each Financial Year, and also at other times when considered warranted by either the Consultant or PMU-C&WD because of delay of the construction works or because of the occurrence of technical or contractual difficulties. Such reports shall summarize not only activities of the Project Engineer / Manager but also the progress of the Contracts including all contract variations and change orders, the status of the Contractor claims, and brief descriptions of the technical and contractual problems being encountered and other relevant information for each of the ongoing contracts. This will present the overall status of all aspects of the project to include progress achieved by project outputs measured against the targets of the design and monitoring framework, updated procurement plan, compliance with grant covenants, etc.</p> <p>Summary:</p> <ul style="list-style-type: none"> ➤ Summary of project progress (physical, financial, safeguards); work accomplished, 	<p>Within 21 days after the end of the contract year to which the report refers</p>

Reports	Content	Submission date
	<p>and any problems encountered during the year.</p> <ul style="list-style-type: none"> ➤ progress achieved by project output measured against the targets of the design and monitoring framework. ➤ Key implementation issues and solutions. ➤ Updated procurement plan. ➤ Updated implementation plan for the next 12 months ➤ Format is to be agreed with ADB and with the PMU-C&WD 	
Mid-Term Review Report	<ul style="list-style-type: none"> ➤ Comprehensive review of project progress, achievements, and problems at mid-term review stage. ➤ Description of any revisions made or estimated to be made to the project design. ➤ Format is to be agreed with ADB and with the PMU-C&WD 	At least 21 days prior to the ADB mid-term review Mission
Draft Completion Report / Interim Contract Completion Reports	<p>The report will be based on the standard ADB format for project completion reports and will provide additional information relevant to the overall project implementation. The Consultant will prepare completion report for each contract after issuance of Taking-over-Certificate / Certification of Completion. This report shall summarize the implementation and financial history of the project. The defects list provided to the contractor and all outstanding claims pending resolution.</p>	Not later than 3 months prior to completion of the civil works contract.
Final Project Completion Report (Statement at completion)	<p>The Consultant will prepare a comprehensive final Completion Report within 84 days after Issuance of the Taking-over-Certificate of the last civil works contract. The Consultant will prepare a comprehensive final Completion Report for the project including each of the contracts and shall summarize the method of construction, as built drawings/record showing the location and details of all works carried out, all defects and certification of the satisfactory correction of such defects for each of the construction contracts, the construction supervision performed, and recommendations for future projects of similar nature to be undertaken by PMU-C&WD. A safeguards implementation completion (final) report will also be included as appendix to the final project completion report. This report will update the draft report with contract completion information and will reflect comments provided on the draft completion report.</p>	Within 84 days after receiving the Taking-Over Certificate for the Works

SPECIFIC REPORTS AND DELIVERABLES:

Reports	Content	Submission date
Consultant's Quality Assurance Manual	<ul style="list-style-type: none"> ➤ Procedures and Systems for construction supervision with respect to QAQC showing SOPs of material testing and Lab management including equipment calibration; check request register and check request management system. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	<p>Within 60 days after commencement of services but at least 15 days prior to commencement of Civil Works.</p>
Road Safety Audit Reports	<ul style="list-style-type: none"> ➤ Detailed findings of the road safety audit. ➤ Recommendations for making good any defects or omissions identified in the road safety audits. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	<p>Within 120 days after commencement of services (pre-construction audit)</p> <p>At least 15 days before taking over the works (post-construction audit)</p>
Guidelines on Safe Arterial Roads Design	<ul style="list-style-type: none"> ➤ Guidelines on safe arterial roads design. ➤ Material for training of C&WD and other relevant staffs. ➤ Material for public awareness-raising. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	<p>To be agreed with ADB and the PMU-C&WD</p>
Financial Management Systems and Procedures	<ul style="list-style-type: none"> ➤ Detailed assessment of the current financial management and reporting systems. ➤ Manuals and procedures for the new systems. ➤ Materials for training programs. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	<p>To be agreed with ADB and the PMU-C&WD</p>
Resettlement Monitoring Reports	<ul style="list-style-type: none"> ➤ LARP implementation compliance report ➤ A semi-annual social monitoring report highlighting the progress on implementation of resettlement and monitoring any unanticipated LAR issues during construction, documenting all activities including restoration of temporarily used land, grievance redress, formal and informal consultation, gender issues, socioeconomic 	<p>After completion of disbursement of compensation as per the approved LARP</p> <p>Within 15 days after the end of each 6-month reporting period</p>

Reports	Content	Submission date
	<p>aspects, child labor, drug trafficking, hygiene and safety, and other social aspects.</p> <ul style="list-style-type: none"> ➤ LARP completion report 	Upon completion of the civil works
Land Acquisition and Resettlement Plan Update, LARP Addendum or Corrective Action Plan	<ul style="list-style-type: none"> ➤ Final impacts, APs, and compensation payments based on detailed design or design changes resulting in LAR impacts. 	After completion of design or changes in design
Environmental Safeguards Monitoring Reports	<ul style="list-style-type: none"> ➤ Environmental monitoring report to include status of compliance with the project SEMP, records of related activities, status of grievance redress mechanism, issues and solutions, and results of environmental baselines and monitoring. ➤ Bi-annual review of implementation of the Contractor's SSEMPs. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	Within 15 days after the end of each 6-month reporting period, i.e. Each six month after commencement of contract implementation until contract completion.
Inspection Report during Defects Notification Period	<ul style="list-style-type: none"> ➤ Detailed inspection findings. ➤ Detailed technical and contractual recommendations. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	Monthly basis after issuing the Taking-over-Certificate till issuance of performance certificate
Performance Certificate	<ul style="list-style-type: none"> ➤ The team will be mobilized one month prior to end of DNP till issuance of performance certificate. ➤ After detailed inspection / findings, the consultant shall ensure that the no liability left on the part of the contractor. ➤ Format is to be agreed with ADB and with the PMU-C&WD. 	Within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as provided in the condition of contract of civil work.
Project Closure	<ul style="list-style-type: none"> ➤ Consultant shall prepare final reports lot wise / package wise in accordance with the ADB requirement as well as to satisfy the requirement of Government of Punjab. 	Within 30 days after issuance of performance certificate.
Technical Reports	The Consultant will produce as necessary technical / due diligence reports and position papers dealing with project matters during implementation	As and when necessary

Reports	Content	Submission date
Project Documentary Report	<p>The Consultant has to make documentary of all major activities during constructions as well as that of completed project sections to be submitted towards the end of the project. These should also pertain all events may cause for EOT/VO/additional cost:</p> <ul style="list-style-type: none"> ➤ Laying and compaction of various pavement layers ➤ Operation of Asphalt and concrete Plants ➤ Quarry sites and laboratory activities ➤ Road after completion showing road furniture ➤ Various important stages in construction of structures ➤ Any other major activity involved requiring specific mention 	
Roughness Survey Report	<p>The roughness surveys will be carried out at substantial completion in coordination with C&WD by using laser Profilometer (if provided) before the end of the defect notification period. The consultant is required to submit his findings along with data in this report.</p>	Will be agreed at later stage
Documents & Manuals Required	<p>The consultants will prepare following documents to be approved by the Employer for efficient contract administration & construction supervision:</p> <ul style="list-style-type: none"> ➤ Contract Administration Manual included but not limited to the following: ➤ Quality Control & Assurance Manual included but not limited to the following: ➤ Laboratory Manual ➤ Environmental Monitoring Checklist ➤ Safeguard Monitoring Check list 	Within 2 months after commencement of services but at least 15 days prior to commencement of Civil Works.
Traffic Diversion Plan and Safety measures	<p>The Construction Supervision Consultant will make ensure to finalize the proper traffic diversion plan of contract and to provide proper guidelines to contractor to maintain smooth traffic flow and to make ensure proper safety measures to save human life during construction activities of the contractor and to avoid any traffic accident during construction</p>	
Revised PC-1	<p>The Consultant shall prepare the revised PC-1 of the project, before completion of the project, if required by incorporating all changes in the scope of work and prepare completion report (PC-IV), at the completion of the project</p>	As when required by C&WD

5.2 The consultant must obtain the Employer's specific approval before taking any of the following actions:

- Taking any action under a civil works contract designating the consultant as “The Engineer”, for which action, pursuant to such civil works contracts, the written approval of the Client as “Employer” is required.
- Approval or removal of contractor’s personnel from work.
- Any variation under the contract, other than those that are within the Engineer’s authority as defined in the contract.
- Suspension of the contract works.

5.3 Location of Services

It is anticipated that for the duration of the project, the locations for the Construction Supervision Consultant office(s) establishments will be as follows:

- (i) Team Leader – Construction Supervision Consultant office in Lahore.
- (ii) Site Team / Resident Team – principal location in suitable location near the project roads, i.e., (i) *Chichawatni – Kamalia – Pir Mahal – Shorkot – Garh Maharaja – Chowk Azam – Layyah*; (ii) *Chiraghabad Interchange at M-4 – Jhang Bypass – Shorkot*; (iii) *Depalpur – Pakpattan Sharif – Arifwala – Burewala – Vehari*; and (iv) *Hasilpur – Bahawalnagar* or the contractor’s compound, to be decided later.

5.4 Schedule

The civil works contract period will be between 27 to 36 months with 12 months Defect Notification Period from the commencement date. The commencement date is anticipated to be in early 2022.

6. Support, Counterpart Personnel, and Information

- 6.1 All the requirements will be part of the CSC contract and PMU-C&WD expects that the firm(s) will quote their prices for all the items mentioned in RFP under Out-of-Pocket Expenses like: Rental of Office/Residence; Vehicles, IT Equipment etc.
- 6.2 The PMU-C&WD will provide counterpart staff to work with the Construction Supervision Consultant. The counterpart staffs are to be trained by the Construction Supervision Consultant to gain hands-on experience in all aspects of project management and contract supervision. The counterpart staff will not work as members of the Construction Supervision Consultant team for delivering the services and they will be paid salaries by the Government. The cost of these counterpart staff will not be included in the Consultant’s proposal and subsequent contract agreement.
- 6.3 The PMU-C&WD will provide all relevant existing reports (*which are but not limited to, Detailed Engineering Design Reports, BOQs, Specifications, Contract Agreements, Employer’s Requirements, IEE, LARPs Reports etc*) and available documents to the Construction Supervision Consultant during the implementation of the services. The PMU-C&WD will assist with facilitating access by the Construction Supervision Consultant to other government agencies for communications, collecting of relevant information, data, documents, etc. and other activities required for the services. These documents can be download from below weblinks:

7. CLIENT'S INPUT AND COUNTERPART PERSONNEL

7.1 The Employer will provide the following assistance to the Consultant:

- Services, facilities, and property to be made available to the Consultant by the Employer: Design Reports, Drawings and related data for the sub-projects will be shared with the consultants.
- Professional and support counterpart personnel to be assigned by the Employer to the Consultant's team: The Employer shall establish a functional Project Management Unit for support and liaison with the Consultants
- Provide assistance to obtain the necessary visas, work permits and to comply with any other requirements for the purpose of undertaking the consultancy services.
- Provide liaison with other Government offices and departments as required for facilitating the consultant's work.
- Furnish all necessary data, documentation and information relevant to the Project.

7.2 Employer's Staff:

- The Employer has nominated a Project Steering Committee to provide guidance and oversight to the Project Management Unit, Communication and Works Department Punjab. The PMU will be established under a Project Director, assisted by other technical and social / environmental safeguard staff, and will be located in the field.

7.3 The Consultants are encouraged to familiarize with Construction Work before submitting their proposals. Draft sample documents regarding EMP, Resettlement, and Environment as per the instruction of the Client.

7.4 After completion of the services the consultant will hand over to the Employer all vehicles, equipment and furniture provided under this Project.

Appendix to TOR

- **Consultant Performance Evaluation Proforma – Appendix –A**
- **Template of Construction Supervision Manual – Appendix –B**
- **Template of Contract Administration Manual – Appendix -C**

The above appendixes will be provided to the highest ranked consultant and will be discussed during negotiation meeting. Thereafter these appendixes will be made a part of contract documents.