

Title	Hydrologist/Hydraulic Senior Specialist
Vacancy Number	MoPW/SRTAP/PSC/1400-58
Ministry	Ministry of Public Works
Organization	Program for Service life enhancement and construction cost reduction of roads (PSC)
Project	Sustainable Reform & Technical Assistance Project
Duty Station	Kabul
Duration	1 year (with the possibility of extension)
No of Jobs	1
Nationality	Afghan
Sex	Male/Female
Salary Range	NTA Salary Scale (Grade B3 – B5)
Announcing Date	22 May 2021
Closing Date	03 June 2021
Job Type	Engineering
Shift	Full Time (chances of homebased or part time contract is also available, based on negociation)
Job Status	Sourcing
Experience	Specific 2 years, General 8 years

Background:

The Ministry of Public Works (MoPW) is responsible for the planning, design, procurement, implementation, monitoring, and maintenance of the various transportation infrastructure projects such as roads, bridges, and its relevant drainage and retaining/protection structures in the government of the Islamic Republic of Afghanistan.

On a mission to reduce project costs and extend the service life of road infrastructures in Afghanistan, the MoPW aims to embark on a project to ***develop a set of new criteria for the design of roads and highway infrastructures*** in compliance with national and international standards, country's climatic and environmental conditions, economic situation, safety requirements, and the available construction technology. The adoption of newly developed design criteria will enhance safety, mobility, and sustainability when designing.

For the effective accomplishment of this purpose, the ministry intends to establish a team of well-versed and highly experienced professionals that will work together to revise the available *Interim Road and Highway Standard* and substituting it with the newly developed design criteria for roadways and highway infrastructures with sufficient quality to be adopted by the MoPW and other relevant highway agencies and contractors functioning in Afghanistan. The developed design criteria will encompass the essential design criteria, including but not necessarily limited to road functional/administrative

classification system, sets of design references, guidelines for traffic characteristics, sight distance, horizontal/vertical alignment, cross-sectional elements, rest/parking facilities, ramps, drainage facilities, and structures, retaining structures, intersection types, pavement types, pavement markings, traffic signs, and road furniture, etc.

Scope of Work/Job Summary:

The MoPW is actively seeking an engineering professional with proven experience in the design and construction of hydraulic structures/ drainage facilities, including culverts, culvert end treatments, causeways, scour protection and culvert inlets, longitudinal drainage lined and unlined channels, bridges, ditches along the roadway alignment, who will function as a member of the Design Criteria Team. The incumbent will work under the direct supervision, guidance, and direction of the International SME and leadership of the Team Leader/ Project Manager. The position should utilize their qualifications and sound knowledge in modeling, designing of cross-drainage, other surface drainages, and subsurface drainage structures facilitating, to work as a member of expert engineers in developing a comprehensive and well-compiled set of design criteria for road projects in Afghanistan that is aligned with both the country's needs and the regional/international standards. The ideal candidate must perform advanced level hydrological studies and should demonstrate high-level skills in reviewing and developing procedures that consider factors such as rainfall intensity, flood plains, catchment areas, ground cover, and ground/surface run-off with the use of computer-aided technology. Besides, the role will ensure that the economically and qualitatively optimized standard procedures for hydraulic/drainage structures are incorporated in the newly developed design criteria and thereby ensure quality highway infrastructures.

The potential candidate will remain active through all project phases and should work in close coordination with the senior management in the MoPW. He/ She must directly report to the Team Leader/ Project Manager of the team.

Duties & Responsibilities:

The selected Hydrologist/Hydraulic Engineer will focus on the development of Design Criteria whose duties and responsibilities will include but not be limited to:

- Optimize the hydraulic design of highway drainage systems and exercise sound judgment in the evaluation, selection, and modification of standard techniques, procedures, and criteria for hydraulic analysis and design of road drainage structures;
- Prepare and incorporate the methodology of hydrological analysis and report preparation method in the design criteria;
- Work in design criteria development team and assist the team in collecting and assessing the hydrological data, finalizing the design discharges for the required drainage, cross drainages, and subsurface drainages;
- Establish hydraulic design values for individual projects or groups of projects;
- Establish criteria to help minimize the hydraulic impacts of erosion and sedimentation on bridges;
- Conduct advanced level of hydrologic/hydraulic studies and revise existing standards, regional special provisions, and standard plans;
- Establish the procedure for planning and collecting surface and subsurface water data, and conducting watershed and stormwater studies;
- Communicate with the Afghanistan Meteorological Department and other relevant authorities to collect available rainfall data and information about flood plains, ground and surface runoff;
- Review watershed areas for drainage structure of existing and new road designs (including culverts, canals, and bridges) located along road alignments;
- Demonstrate experience in determining the location and extent of the catchment area of river/stream up to the bridge/culvert crossings;
- Set procedures for obtaining information on high flood level (HFL), low water levels (LWL), discharge velocity, etc. from available records, local inquiries, and visible signs if any, on the structural components and embankments to check the design of the bridges and road structures;
- Able to perform AutoCAD, GIS, hydrologic and hydraulic modeling, and stormwater planning;

- Willing to travel all over Afghanistan for data collection;
- Perform needs assessments and discover problems in current practices through field studies and regular meetings with provincial engineers and stakeholders;
- Ensure the adherence of new design criteria with internationally recognized design standards and with the consideration of local conditions and regional/international standards;
- Plan and coordinate the activities for the development of design criteria to ensure compliance to procedures and regulations as required by the MoPW;
- Assist the team in disseminating and publishing the finalized design criteria draft;
- Successfully interface with experts from a range of other disciplines (civil, design, surveying, planning, geotechnical, etc.) to compile a comprehensive set of design criteria;
- Assist the Project Manager in reviewing/preparing the progress reports (weekly, monthly, quarterly);
- Convene and attend technical meetings with stakeholders and team members on regular basis;
- Assist the team in drafting the criteria and oversee the writing quality;
- Ensure that the language used in draft design criteria is clear, simple, and focused; and
- Perform other functions related to developing design criteria required or assigned by the senior management.

Skills & Competencies:

- Ability to perform hydrology and hydraulic design calculations for water flows, drainage systems, culverts, bridge openings, stormwater management for roads, erosion and sediment controls;
- Demonstrate the experience of working with a multi-discipline highway design team including developing drainage-related construction drawings, construction cost estimating, writing construction specifications, and developing/revising design standards;
- Able to assess available data on topography (topographic maps, stereoscopic aerial photography), storm duration, rainfall statistics, topsoil characteristics, vegetation cover, etc. so as to assess the catchments area and hydraulic parameters for all existing and proposed drainage provisions for road projects;
- Demonstrate extensive experience with key technical strengths in stormwater systems design, hydrologic and hydraulic modeling, flood plain management, and bridge scour, and calculation of the structure's foundations;
- Demonstrate onsite and offsite experience in all aspects of technical work, including the design of drainage, hydrology, and hydraulic projects;
- Demonstrated experience in hydrologic and hydraulic studies and scour analyses;
- Experience with commonly-used drainage design and plan production software such as In-Roads, Civil 3D, ArcGIS, HEC-RAS, HEC-1/HEC-HMS, HY-8, CulvertMaster;
- Able to draft and develop specifications/ guidelines and write clear, concise, and accurate technical/ non-technical reports;
- Acquaintance with regional and international standards for drainage systems and knowledge of relevant AASHTO and Indian Road Congress / MoRTH guidelines;
- Highly motivated and enthusiastic team player with a strong desire to succeed;
- Able to manage conflicting priorities; and
- Demonstrate leadership in handling and working with multidisciplinary teams.

Job Requirements:

- A bachelor's degree holder in Civil engineering or a master's degree in Civil/Hydraulic Engineering (preferred) with specialization in the design of drainage, hydrology, and hydraulic projects;
- Knowledge of ArcGIS, HEC-RAS (1D, 2D, Steady, Unsteady), HEC-2, HEC-1, HEC-HMS

would be a plus;

- Having 8 years of general experience focused on the analyses and designs of hydrology, bridge hydraulics, culvert hydraulics, storm drains, causeways, spillways, and other hydraulic structures;
- Having at least 2 years of experience in preparing technical documents and developing standard manuals is highly preferable;
- Must be fully familiar with the currently practiced standards for designing drainage structures in Afghanistan and have the knowledge of methodology concerning design criteria development;
- Must have served in a similar role in several high-profile transportation projects in well-renowned organizations;
- Must demonstrate robust technical writing and English communication skills;
- Proven organizational and problem-solving skills;
- Able to travel to the remote area all over Afghanistan and work as part of a team; and
- Perform any other job-related duties and tasks as assigned by the senior management.

Required Documents:

- CV with a cover letter for the relevant position;
- Copy of verified Degree by the Ministry of Higher Education;
- Copy of verified Afghan ID Card (Tazkera) or Passport;
- Copy of verified last Posting Contract; and
- Copy of other relevant documents that support the application.

Submission Guideline:

Interested candidates are requested to forward their applications, detailed CV and other required documents to jobs.mopw@yahoo.com indicate the vacancy number (**MoPW/SRTAP/PSC/1400-58**) and the post title (**Hydrology/Hydraulic Senior Specialist**) in the subject line when applying by email to the Human Resource Unit – Sustainable Reform and Technical Assistance Project of Ministry of Public Works (MoPW) at Kabul, Afghanistan.

Address: SRTAP Office, Railway Building, Kabul-Jalalabad Rd., opposite KMTC, MoPW, Kabul, Afghanistan.

Note: Only short-listed candidates will be contacted.