



هيئة الأشغال العامة
PUBLIC WORKS AUTHORITY

PREQUALIFICATION DOCUMENT FOR

Pre - Contract Professional Consultancy
Services for New District of Doha
Pumping Station and Outfall
and South of Wakrah Pumping Station
and Outfall

PROJECT ID: IA 2016 D001 G & IA 2016 D002 G

PART 2: PROJECT BRIEF

Authority

**Public Works Authority
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1 INTRODUCTION

1.1 General

- 1.1.1 The State of Qatar is a peninsula located on the northeast coast of the much larger Arabian Peninsula with a total land area of approximately 11,500 square kilometres. The population is approximately 2.1 million inhabitants with almost 83% of the inhabitants residing in Doha and its main suburb Al-Rayyan.
- 1.1.2 The State of Qatar has experienced rapid economic growth over the last several years. This economic growth has resulted in increased demand for the State to construct and provide first-class infrastructure such as government buildings (hospital, schools, and the like) transportation networks (harbours, airports, highways, pavements etc.) and services (power, water, sewerage, waste disposal etc.).
- 1.1.3 This increased demand has consequently placed unprecedented requirements on the relevant government entities and their resources. It has become necessary to enhance the capacity of these government entities in order to deliver the required infrastructure.
- 1.1.4 The Public Works Authority (PWA) also known as ASHGHAL, hereinafter referred to as the “**Authority**” is responsible for the planning, design, procurement construction, assets management, and delivery of infrastructure and building works in the State of Qatar.
- 1.1.5 The Authority contributes to the economic and social development of the State of Qatar through implementing public projects in accordance with the approved plans of the State. In coordination with other agencies in the State, the Authority implements and programs the execution of public projects consistent with the approved State objectives and allocated budget.
- 1.1.6 The Authority’s tasks also include preparation of studies, designs, and technical specifications for the public projects, contracting for implementation of public projects and overseeing the work, implementing major maintenance projects according to the plans, programs and studies developed as well as implementation, management, operation and maintenance of drainage, groundwater, surface water and wastewater treatment projects.
- 1.1.7 Through its major departments, the Authority strives to develop the State’s infrastructure and public amenities to the level of International standards achieved by developed countries and communities and in general, it contributes to the overall sustainable development of the State in both economic and social areas.
- 1.1.8 The Authority consists of administrative units set out below:
- First: Administrative units under the Minister of Municipality and Urban Planning (MMUP); The Internal Audit Unit.
 - Second: Administrative units under the President including the Office of the President, Public Relations and Communication Unit, Legal Affairs Department and Corporate Development & Planning Department.
- 1.1.9 The Authority’s major business unit consists of five major sectors as below:
- Asset Affairs
 - Buildings Affairs
 - Infrastructure Affairs
 - Technical Support Affairs
 - Shared Services Affairs
- 1.1.10 **Asset Affairs:** This sector handles operation and maintenance of assets through two departments namely, Drainage Operation and Maintenance (O&M) Department and Road Operation and Maintenance (O&M) Department.

- 1.1.11 **Buildings Affairs:** This sector is subdivided into Designs and Projects Departments; dedicated to government building projects such as schools, ports, recreational facilities, healthcare facilities and other government buildings.
- 1.1.12 **Infrastructure Affairs:** This sector is subdivided into Local Roads and Drainage Designs and Projects Departments and, the Expressway Department.
- 1.1.13 **Technical Support Affairs:** this sector consists of three departments:
- Contracts Department which is responsible for procurement, process and procedures in the delivery of the Authority Projects.
 - Engineering Business Support Department which provides technical support for the Projects in terms of project planning, estimating, tracking and documentation.
 - Quality, Safety and Environment Department which is responsible for the quality control of projects, environmental protection and safety at work sites and offices.
- 1.1.14 **Shared Services Affairs:** All other departments that deal with technical support come under this sector including Administration and Finance Department, Human Resources Department, General Services Department and Information Services Department.
- 1.1.15 In addition to internal departments, the Authority has appointed a number of Program Management Consultants (PMC), General Engineering Consultants (GEC) and some Management Consultants (MC) to deliver their services on behalf of Infrastructure Affairs, Asset Affairs and Building Affairs sectors.

2 PROJECT VISION

2.1 Overview

- 2.1.1 Adhering to the Qatar National Vision 2030, the Authority contributes to the economic and social development of the State of Qatar, with a capital investment of QAR100 billion to be delivered within the next five to seven years.
- 2.1.2 The Authority has employed a powerful model of strategic outsourcing and partnerships with world leading establishments that will bring capacity and capabilities to Qatar at par with the most developed nations in the field of infrastructure.
- 2.1.3 With high aspirations for the future, the Authority is committed to undertake a huge infrastructure development that will support the future socio-economic growth of the country. Their contribution to the overall sustainable economic and social development of the State is pivotal to the future enhancement of Qatar.
- 2.1.4 The Authority operates in alignment with its Corporate Strategy that outlines its direction and the operational procedures which need to be followed in order to achieve the organization's mission and vision. In line with its strategies and objectives, the Authority works to deliver projects that deploy the best practices in infrastructure development and management.

2.2 The Authority

- 2.2.1 The Authority's mission is to deliver and manage state-of-the-art and sustainable world class buildings and infrastructure that will fulfill the Qatar National Vision 2030.
- 2.2.2 The Authority's vision is to be a dynamic, responsive and customer centric organisation that creates shared values for all stakeholders through outsourcing and partnerships with the world's best.

2.3 The Authority's Plans For The Provision of Drainage

2.3.1 The State suffers from a number of drainage specific issues related to both surface water runoff caused by rainfall and rising groundwater levels.

- Currently in Doha, the Capital, there is inadequate provision of drainage collection systems to intercept and dispose of the surface water runoff generated by rainfall events from increasingly urbanized catchments. Therefore, Doha City suffers from surface water flooding events during times of rainfall.
- Equally, there is currently little drainage collection infrastructure available for the rising ground water problem. Groundwater has risen near to surface in many localities. It is creating new (or exacerbating existing) problems such as flooding of basements and surface ponding of stagnant water in localized depressions. The ongoing continual rise in groundwater levels is related primarily to anthropogenic effects such as the provision of watermains and landscaping irrigation etc.

2.3.2 In response to these ongoing problems, and as part of the Qatar Vision for 2030, the Authority developed an Integrated Drainage Master Plan for addressing both the long term collection and disposal of stormwater runoff and the rising groundwaters. The Final Master Plan was published in December 2013. Since then there have been two further Masterplan updates, Year 1 – 2014 and Year 2 - 2015.

2.3.3 Under the Master Plan the primary long term collection and disposal routes for the surface waters and rising ground waters are via a combination of local drainage and interceptor drains connected to large diameter deep collector tunnels which flow into pumping stations discharging directly to the sea.

2.3.4 Three such strategic deep tunnel drainage systems are contained within the Final Master Plan:

- The Abu Hamour/Musaimeer System - Tunnels, Pumping Station and Long Sea Outfall
- The New District of Doha System – Tunnels, Pumping Station and Long Sea Outfall
- Al Wakrah System - Tunnels, Pumping Station and Long Sea Outfall

2.3.5 The first of these three strategic deep tunnel drainage systems, the Abu Hamour/Musaimeer System, is currently under construction.

2.3.6 The remaining two strategic deep tunnel drainage systems are now at the planning and development stage – and form the basis of this current Prequalification process.

3 PROJECT OBJECTIVES

3.1 The Authority now wish to:

- Appoint a Consultant under a Professional Services Appointment to bring a significant portion of The New District of Doha System project through to the appointment of a Design and Build Contractor to construct the Works.
- Appoint a Consultant under a Professional Services Appointment to bring a significant portion of The Al Wakrah System project through to the appointment of a Design and Build Contractor to construct the Works.

- 3.2 The Authority intends to procure the construction of the proposed tunnels, pumping stations and outfalls by a Design and Construct approach. This will involve two stages:
- Firstly to engage Design Consultants to prepare Environmental Impact Assessments (EIAs) and obtain approval from the MoE. This will include significant surveys and computer modelling of the marine receiving water environments, as well as drainage network hydraulic modelling, concept design, preliminary engineering design to prepare a reference design for the proposed tunnels, pumping stations and marine outfalls plus the preparation of contract document/s, including a preliminary Construction Environmental Management Plan (CEMP), for the follow on construction works.
 - The outputs from the first stage will then enable The Authority to seek competitive tenders for construction of the various proposed facilities (Number of construction packages yet to be determined). The appointed Construction Contractor/s will be responsible for finalising the detailed design, preparing a Construction Stage Environmental Management Plan (CSEMP) and obtaining approval from the MoE, together with all other necessary approvals from related Stakeholders. The Construction contractor/s will be responsible for constructing the works in accordance with the requirements of the approved EIA and the approved CSEMP.
- 3.3 This Prequalification process will result in The Authority preparing a select list of Design Consultants. Design Consultants included on the select list will be invited through a subsequent Invitation to Tender stage to submit tenders for the two projects.
- 3.4 For each of the two projects the successful Design Consultant will be appointed under a Professional Services Agreement, to provide the necessary professional design services as described in the first of the two bullet points above.
- 3.5 The overall objective is to implement the necessary design work, environmental studies and other investigations so that all affected Stakeholders have confirmed that they have no objections in principle and to ensure that The Authority can proceed with the award of future D&C Contract/s for construction of all or parts of the infrastructure including the tunnels, pumping stations and marine outfalls, plus supporting infrastructure, to handle the inflows expected to arrive at the pumping stations.
- 3.6 The preliminary details of these two projects, which are still in development – and therefore subject to further modification, are detailed in the following sections:
- The New District of Doha System – Supporting infrastructure, Tunnels, Pumping Station and Long Sea Outfall – Figure 1
 - Approximate Catchment Area – 220 km²
 - Peak Flow during rainfall event – 26 m³/s
 - Base Flow - 2 m³/s
 - Major Marine Sea Outfall - Approx internal diameter range 3 m – 4.5 m
 - Major pumping station 1 into marine outfall – Approx flow range 2 – 14 m³/s
 - Major pumping station 2 into inland lagoon/wetland balancing pond - Approx flow range 2 – 7 m³/s
 - Major upstream tunneling works – Approx length 25 – 35 km / Approx depth ranges 15 – 35m / Approx internal diameters 2.5 m – 4.5 m
 - Major inland lagoon/wetland inlet balancing pond

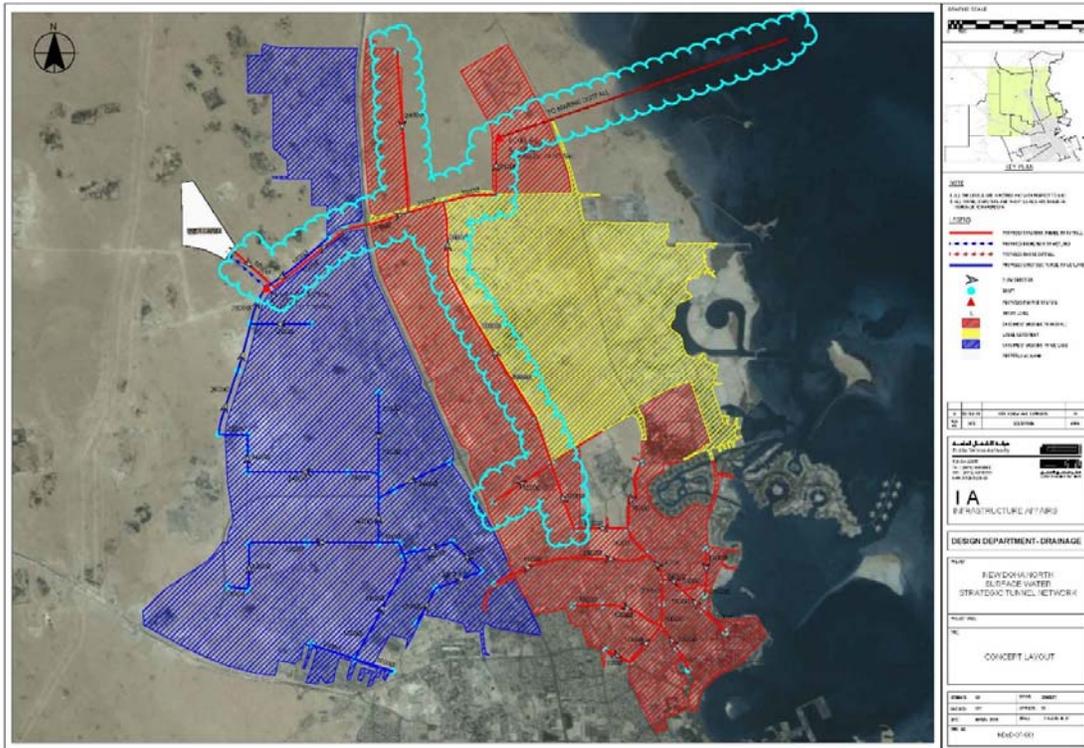


FIGURE – 1

- Al Wakrah System – Supporting Infrastructure, Tunnels, Pumping Station and Long Sea Outfall – Figure 2
 - Approximate Catchment Area – 150 km²
 - Peak Flow during rainfall event – 20 m³/s
 - Base Flow - 2 m³/s
 - Major Marine Sea Outfall - Approx internal diameter range 2.75 m – 3.5 m
 - Major pumping station into marine outfall – Approx flow range 2 – 18 m³/s
 - Major upstream tunnelling works – Approx length 20 – 30 km / Approx depth ranges 15 – 35m / Approx internal diameters 2.5 m – 4.5 m



FIGURE - 2

4 CURRENT PROJECT STATUS

- 4.1 Significant project development work has been completed and other work is ongoing.
- 4.2 The sites for the pumping stations have been secured in principle and the PIN numbers are awaited from the Ministry of Municipality and Environment (MME).
- 4.3 An Environmental Scoping Study to identify the environmental scope and requirements for the required EIAs is ongoing and due for completion in Q2 2016.
- 4.4 The range of flows to be transmitted by the strategic deep tunnel systems have been provisionally defined.

5 SCOPE OF SERVICES

5.1 Overview

Preliminary details of the two projects are provided in Section 3.6 previously. The preliminary design for the supporting infrastructure, tunnel, pumping station and marine outfall for each of the two projects, and the Baseline Tender Reference Design development for each are to proceed on the basis that a range of Design and Construct (D&C) Contract/s will be awarded to construct the same.

In each case the discharge locations for the outfalls are to be determined such that the outfall lengths are the most cost effective and shortest lengths necessary, to avoid unacceptable adverse impacts on water quality, particularly at any sensitive receptors.

In general, the successful Consultant shall be expected, under the Project Brief, to provide all Professional Services as prescribed in the Professional Services Agreement (PSA) 2010 including, but not limited to, the following major tasks and components. *(It should be noted that the detailed Project Brief is still under development and therefore, the following are not intended to represent the full Project Brief which will be formally issued to prequalified Applicants at the Invitation to Tender Stage)*

- Data review and gap analysis
- Utilities searches and data capture
- Engineering Studies
- Environmental Studies
- Modelling Studies, Infoworks, Marine 3D, CFD, Cormix etc
- Preparation of Environmental Impact Assessment (EIA) for the proposed tunnels, pumping stations, any downstream pressure/rising mains and the marine outfalls
- Onshore Field Investigations, field surveys and site investigations and monitoring – procure, tender and manage.
- Offshore Field Investigations, field surveys and site investigations and monitoring - procure, tender and manage.
- Management and supervision of terrestrial and marine geotechnical investigations.
- Surveys - Topographical Surveys/Geotechnical Investigations/Geophysical and Geo-environmental Investigations/Baseline Air Quality Monitoring (BAQM)/Baseline Groundwater Quality Monitoring (BGWQM)
- Optioneering and options development
- Concept engineering designs
- Preliminary engineering designs
- Baseline Reference Designs
- Stakeholder Consultation and Liaison to obtain Stakeholder approval / letters of no objection
- Contract Procurement Strategy
- Contract Document Preparation
- Tender document preparation (including drawings, bills of quantities & specification to the latest Qatar Construction Specification)
- Tender stage professional support during the tender period – Including all query handling
- Tender analysis of returned tenders
- Tender Recommendations Report
- Contract appointment stage professional support – including preparation of conformed contract document
- Cost estimating
- Permitting - DC1 Building Permits/KAHRAMAA Approvals & Permits/Environmental Permits (EP)
- No Objection Certificates (NOC) from all other relevant utility providers and Stakeholders as and when required, during the project implementation period.
- Project Whole Life Costing, NPV Calculations, Budget Cost Estimates, CESSM3 format Bill of Quantities (BoQ) and the Schedule of Prices (SoP), etc. for the proposed Works prepared in accordance with the prevailing Authority requirements, in order to secure financial approvals for the contract procurement.

- Pre Contract Project Management and Reporting
- Project Deliverables
- Quality Assurance

5.2 Expected Time for Completion of PSA Services

5.2.1 The time for completion of PSA services has not yet been fully determined at this stage. However, the Authority envisages that the engagement of the successful Consultant may span over a timescale of approximately 20 calendar months. The Applicant shall note that the Authority may set a different timescale to this at the time of invitation to tender.

5.3 Envisaged Design Team Constitution

5.3.1 At this stage it is envisaged that the typical project design team to be provided by the successful Consultants shall include most of the following:

- Project Manager (Team Leader) **
- Lead Civil Design Engineer **
- Lead Environmental Specialist **
- Lead Hydraulic Engineer / Hydraulic Modeller
- Lead Marine Modelling Specialist
- Lead Drainage Network Modelling Specialist **
- Lead Outfall Design Engineer
- Lead Pumping Station Design Engineer
- Lead Structural Engineer
- Lead Mechanical Engineer
- Lead Electrical Engineer
- Lead Instrumentation Controls & Automation (ICA) Engineer
- Lead Quantity Surveyor
- Lead Geotechnical Engineer **
- Lead Contracts Engineer
- Lead Operations, Management and Commissioning Engineer
- Lead Wetlands/Lagoon Specialist
- Lead Tunnelling Engineer **

5.4 Local Permanent Staffing Presence

5.4.1 Applicants are advised that those key staff asterixed ** above will be required to be permanently based in Qatar for the full duration of the Project.