

SCOPE OF CONSULTANCY SERVICES FOR NEW JETTY PROJECT (QP-2)

1.0 INTRODUCTION

- 1.1 Fauji Oil Terminal & Distribution Company Ltd. (FOTCO) owns and operates a marine oil terminal at Port Qasim, designed to accommodate vessels up to 75,000 DWT.
- 1.2 To cater for the anticipated increase in import/export of crude & petroleum products, FOTCO (owner) now desires to construct another jetty (QP-2) adjacent to the existing jetty (QP-1) and link it to QP-1 through a connecting trestle. The second jetty is envisaged to be identical to the existing QP-1 jetty.
- 1.3 FOTCO intends to award an EPC Contract for the construction of the new Terminal (hereinafter referred to as the "Project") and is inviting Technical Consultant to provide Engineering Consultancy Services for the Project.

2.0 PROJECT FACILITIES

- 2.1 The Bid Documents inviting bids for the construction of QP-2 Oil Terminal on EPC basis, divides the Works in two Contracts, viz.:
 - i) Offshore Works Contract which includes basic and detailed engineering and supply of materials and equipment, and
 - ii) Onshore Works Contract comprising inland transportation, local procurement (if any), construction, testing, commissioning etc.
- 2.2 Following works, to be performed by the EPC Contractor under the above two contracts, are to be considered for review of Engineering & Detail Design and supervision during execution of Works:
 - a) Engineering & Detail Design of all Works specified hereunder
 - b) Preparation and Submission of Quality Assurance Programme, Project Schedules and all other project documentations.
 - c) Procurement and Supply of all imported Equipment & Materials at Site required for Permanent Works
 - d) Mobilization of construction equipment, materials and personnel at site

- e) Construction of all temporary works / facilities including offices, storage warehouse, workshop etc. and its maintenance during the construction period up to Final Acceptance of Works.
- f) Required Survey, Geophysical, Geotechnical Investigations and Hydrographic Investigation etc for engineering and design of the Works.
- g) Dredging of berthing basin to -14.6 meters.
- h) Construction of QP-2 Jetty suitable for berthing of vessels up to 75,000 DWT fully laden comprising:
 - i) Loading platform of size 20 m x 46 m,
 - ii) 2 no's, Fender Piles
 - iii) 2 no's. Breasting Dolphins,
 - iv) 4 no's, Mooring Dolphins,
 - v) Connecting Trestle linking QP-2 Loading Platform to QP-1 Parking Area, suitable for vehicular access.
 - vi) Equipment bay.
 - vii) Personal bridges to interconnect loading platform, breasting dolphins and mooring dolphins.
- i) Installation of Fender System on Breasting Dolphins and Fender Piles.
- j) Installation of double quick-release mooring hooks on all Breasting and Mooring Dolphins and Mooring hooks on fender piles.
- k) Installation of two marine loading arms with emergency shutdown (ESD)
- l) Construction of 900mm ND HFO pipeline and 750mm ND HSD pipeline from QP-2 platform for tie in to existing QP-1 HFO & HSD pipelines respectively. In addition, construction of 750mm ND crude pipeline and 600 mm ND export pipeline from QP-2 platform to QP-1 Loading Platform and extended to on-shore Terminal Point (P-1) landward. Construction of second pipe manifold at QP-1, bypass at non-return valve for product, providing pig launchers & receivers, valves (MOVs), drain pumps & pipelines
- m) Construction of Slops system comprising slops tank, pumps and slops discharge pipeline
- n) Installation of Gangway and fire monitor tower with ship to shore pedestrian access gangway and telescopic hydraulic jib crane on the deck surface of the western Breasting Dolphin and fire monitor tower on the other Breasting Dolphin.

- o) Provide and install Impressed Current Cathodic Protection System
- p) Construction of complete pressurized Fire Protection system including one additional fire pump installed at the Equipment Bay of QP-2, distribution piping for firewater & foam, installation of fire monitors on the towers, foam concentrate tanks & pumps and deluge piping with sprinklers, etc.
- q) Construction of potable water system extended from QP-1
- r) Electrical Works including extension of 11 kV feeder from QP-1 to Electrical Room at Equipment Bay of QP-2 and distribution network including installation of Transformer, 11kV disconnect switch, MV switchgear, LV Switchgear & MCCs, security lighting system including emergency power supply network and its connection to Emergency Generator at QP-1;
- s) Demolition of existing Control Room and construction of new Control Room at the QP-1 Safe Refuge Area and reinstall complete QP-1 control system. Provide PLC based instrumentation & control system for QP-2, including SCADA based monitoring system with control / mimic panel, fire alarm and control panel, cargo system controls, fire water controls, foam system controls, ESD system, jetty head fire detection & alarms. Installation of CCTV security system and Public Address System to be operated and monitored from the Control Room
- t) Provide and install Telecommunication System comprising one land line connections and two extensions from existing exchange.
- u) Navigation Light (photocell controlled) to be provided and installed on the jetty head.
- v) Perform Completion Tests (Tests on Completion) for all Materials, Systems and Equipment of the Works and Commissioning Tests (Tests after Completion) for the complete Works.
- w) Demobilize at site including demobilization of all Equipment/ Machinery with operating personnel and demolition of temporary works, if so advised by the Employer.
- x) Carry out any dismantling and re-erection of existing equipment / structures, re-routing of existing service lines, demolition and similar works and construction of foundations and related civil works required for carrying out the above Works.

3.0 CONSULTANT'S SCOPE OF SERVICES

Consultant's scope of services is divided in two groups and shall include the following:

3.1 Review of Engineering and Detailed Design

Consultant's scope of services during this phase shall be as under:

- i) Review of procedures / methodology for execution of works including Procedures for Project Management & Administration, Procedures for Communications & Meetings, and Procedures for Procurements
- ii) Review of data sheets and utility detail system developed by EPC Contractor based upon utility requirement and levels given in EPC tender.
- iii) Validation of Project Quality Plan (QA/QC), Health Safety & Environment (HSE) Manual based on OWNER's specific requirements, if any, for incorporation by EPC Contractor
- iv) Summary of soil report generated by soil investigation agency shall be incorporated by EPC Contractor based upon Consultants' recommendation
- v) Revalidation of engineering design basis, during project implementation.
- vi) Review of detailed technical specifications of Works and materials (such as piping, valves material, welding, painting etc.).
- vii) Finalization of battery limit conditions along with coordinates elevations for all incoming/outgoing line for power supply, potable water supply, fire water supply etc. jointly with OWNER and EPC Contractor.
- viii) Finalization of list of codes, measurements etc.
- ix) Finalization of equipment list for bought-out and site-fabricated items, jointly with OWNER & EPC Contractor.
- x) Quality audit of EPC Contractor.
- xi) Review of all design calculations & drawings. Copies of all reviewed drawings shall be retained by the Owner for information and records.
- xii) Review of purchase specifications for critical equipment.
- xiii) Review of monthly and weekly progress reports generated by EPC Contractor.
- xiv) Review of functional schedules for execution of project.
- xv) Review of MTOs for Piping, Electrical and Instrumentation.
- xvi) Review and submit recommendations on contractual matters and claims by interpreting the EPC Contract.

3.2 Construction Supervision & Management Services. Consultants shall provide the construction management & supervision services for the project including:

- i) Review EPC Contractor's Works Schedules and submit recommendations to the OWNER.
- ii) Preparing catch-up plans wherever required.
- iii) Review of monthly & weekly progress reports.
- iv) Monitoring of the project activities as per the contractual schedules.
- v) Review and approval of work procedures.
- vi) Locating all reference points and checking of the setting out of the Works by the Contractor.
- vii) Monitoring construction work to ensure compliance with codes and design drawings.
- viii) Inspection / checking and witness testing where required, of work executed at site, materials & equipments received at site with recommended spares as per contract.
- ix) Organizing site meetings to review construction progress and HOLD status.
- x) Checking and measuring quantities of accepted items of Works and making recommendations for milestone payments to EPC Contractor.
- xi) Ensuring that the Contractor performs his works in a manner that does not obstruct operation of QP-1 Terminal.
- xii) Liaising with the OWNER with respect to relocation of existing services.
- xiii) Recommending to OWNER, any changes in the design or specifications which may be proven necessary or desirable during the course of the Contract.
- xiv) Notifying OWNER of any requirement for a variation and estimated cost of the Variation Order.
- xv) Providing all available information and support in assisting the OWNER in the assessment and resolution of claims of the Contractor.
- xvi) Supervise On-job training for OWNER'S staff, engineers & technicians, arranged by the Contractor during construction phase.
- xvii) Assistance during pre-commissioning & commissioning phase.
- xviii) Ensuring that all submittals / deliverables of the Contractor, upon completion of the Works, in the forms and numbers set out in the Contract, are well received by the OWNER.
- xix) Carrying out periodic visits and inspection of Works during the maintenance period.

4.0 Any additional work required for completion of the project, as directed by the owner.