SCOPE OF SERVICES

for

UNDERWATER INSPECTIONS AT HYDRAULIC STRUCTURES

November, 2023

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UNDERWATER INSPECTIONS AT HYDRAULIC STRUCTURES

Scope of Services

1. General

National Engineering Services Pakistan (NESPAK) is carrying out periodic inspections at two hydraulic structures (canal regulators) associated with a barrage along Indus River in Punjab. These hydraulic structures are used to regulate flows to the canal and mostly remain in submerged condition. The underwater inspections will be required at downstream and upstream of canal regulators. The condition varies between stagnant as well as flowing water conditions with high suspended sediment/ turbid water conditions. As of now, the regulator structures are functioning well, with no complain from the operators or any signs of damage. The underwater inspections will be required to monitor the submerged parts of a hydraulic structure (civil and mechanical) for identification of any damages such as cracks/aging of concrete along with physical condition of submerged components.

2. Hydraulic Structure Detail

The Firm/Contractor shall perform detailed underwater inspections at canal regulators in stagnant/ flowing conditions by recording and monitoring the visible/ submerged parts/ portions/ sections at unit inspected area of the hydraulic structure. The schematic layout plan and longitudinal section and salient geometric features of canal regulators are given in Figure-1 and Figure 2.

3. Scope of Services

The underwater inspections are being planned to be executed in two distinct phases. The **Phase-1** of inspection will be carried out for 1- unit area of each regulator. Based on the results, quality of images/videos of Phase-1 inspection, the Client will decide to start the **Phase-2** inspections (covering remaining unit areas of each regulator) in continuation of the Phase-1, without break.

Following shall be comprehensively inspected and observed during underwater inspections:

a) Noticeable cracks in the structure

b) Exposure of steel reinforcement in the structure

c) Complete/partial washing out of any integral component (e.g., stone pitching/impact block/apron etc.) of the structure

d) Damage to various structural components such as stilling basin, upstream floor, side/divide/guide walls, embankments etc.

e) Condition monitoring of sill beams, glacis and impact blocks

f) Extent of corrosion/rusting on submerged components of gates and gate parts such as sheaves, side guide rollers etc.

g) Jammed/partially jammed gate(s), submerged sheaves, side guide rollers

h) Condition of joints, sealant, seals etc.

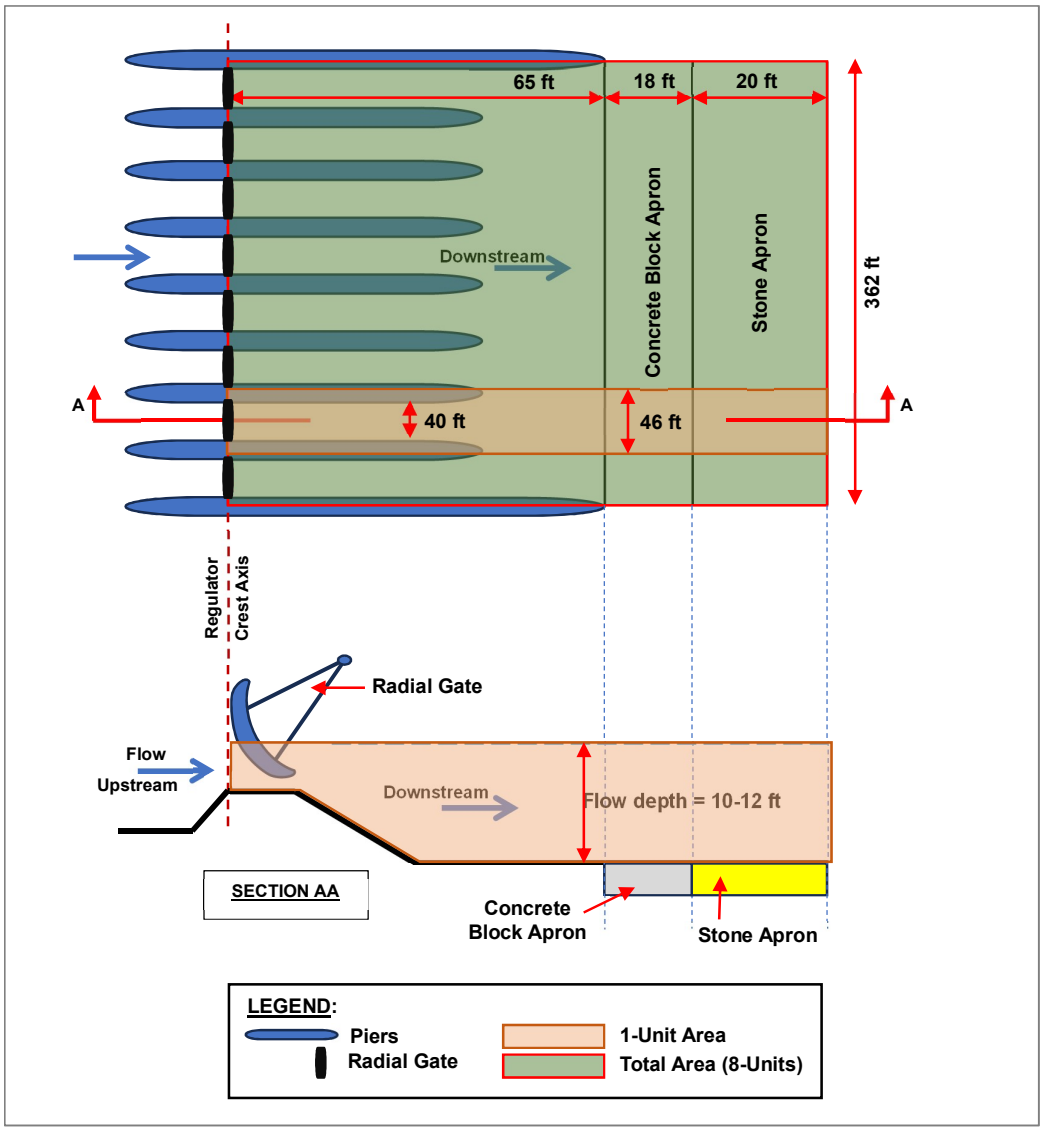

Figure 1: Schematic Plan & Section – Regulator-1

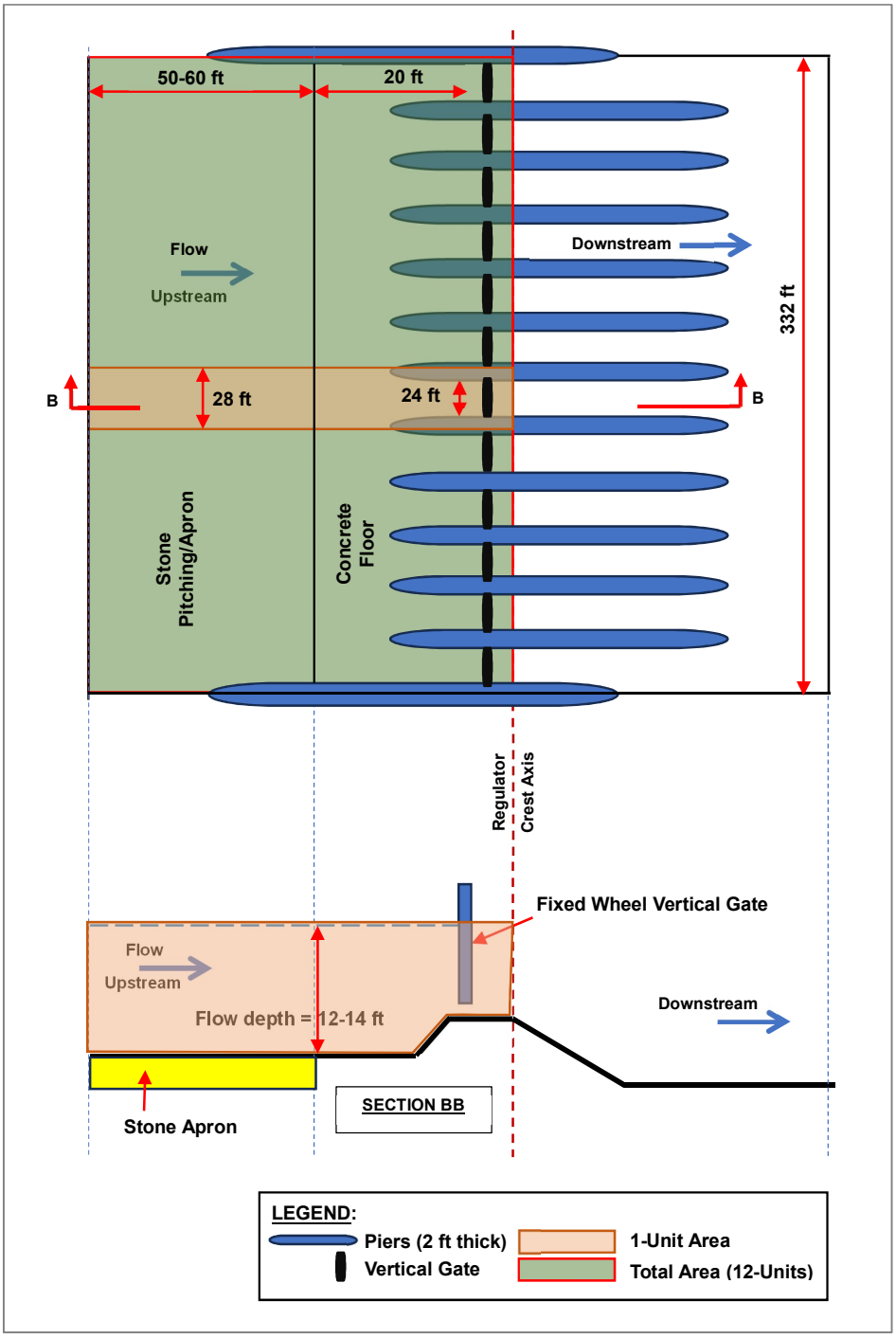

Figure 2: Schematic Plan & Section – Regulator-2

4. Technical Requirements

The Firm/Contractor shall comply to following technical requirements during underwater inspections:

i. Underwater inspections shall be carried out for complete unit area as detailed in this document

ii. Resolution of the videos and photography, acceptable to the Consultants, shall be high so that findings of the inspection can be translated in terms of technical findings of the existing structure

iii. Close Circuit Television (CCTV) footage should be provided for the unit inspected area

iv. The diver(s) shall also be taking high resolution pictures as per requirement of the Consultants

v. The diver(s) shall be guided by the expert(s) through live CCTV footage for detailed picturing/videos for any area requiring focus

vi. Digital copy of the images/videos, compatible with Microsoft platform, shall be provided in a DVD

5. Inspection Environment

The underwater inspections are to be carried out at hydraulic structures that face natural variation of river sediment concentrations from season to season. Underwater inspections are purposefully planned for lowest sediment season which is expected by end of December. Site data indicates that sediment concentrations and water temperature in the month of December will be about 500 ppm and 18^0C (approx). Flow depth expected at regulator-1 will be between 10-12 ft while at regulator-2 will be between 12-14 ft.

6. Duration

The duration of underwater inspection tasks is as follows:

a) Mobilization to site = Dec-26, 2023 (*tentative; after Contract award*)

b) Inspection activity at Reg-1 = 2-days (*for 1-unit area*)

c) Inspection activity at Reg-2 = 2-days (*for 1-unit area*)

d) Submission of report = 1 week

7. Proposal Requisites

The submitted proposals must include the following:

1- Company profile

2- Relevant experience details

3- List of technical persons

4- Details of all equipment available with the Company for performing said tasks

5- Details of specific instrument capable of capturing images under turbid water conditions (e.g., AquaVu HD7i pro, Cannon 600D DSLR, Olympus TG5, MARCUM VS485C, or other underwater cameras and housing, etc.)

6- Photographs / images/ Videos on DVD, if available, of previously carried out underwater inspections under turbid water conditions

7- Financial turnover of last 3-years

8. Payment Schedule

The schedule of payments against services shall be as follows:

Sr. No.	Description	Payment *
1	Advance Payment against Bank Guarantee	Up to 25%
2	On completion of inspections and providing digital files of videos/photographs[1]	50%[2]
3	Upon submission of the final report	25%

** All applicable taxes shall be deducted at source from all payments*

Following will be managed by the Firm/Contractor:

- Accommodation and messing during work duration will be borne by the Firm/Contractor

9. Insurances

The insurance of the equipment and diver(s) shall be the firm/ contractor responsibility who may arrange appropriate coverage. The Client shall not be responsible for any loss (equipment and/or life) during the inspection. No claim in this regard shall be entertained.

10. Bidding Documents

10.1 Bidding Procedure

Single-stage two envelop bidding procedure shall be followed for procurement of services. The bidders are required to submit their sealed original technical and financial bids inside a sealed envelope marked 'TECHNICAL BID' and FINANCIAL BID'.

The Technical Bid shall not contain any financial information otherwise the bid may be considered non-responsive and marked zero.

First, the technical bid of the bidders shall be evaluated against the given technical evaluation criteria. The financial bid of only the technical evaluated bidders shall be opened for further evaluation and remaining financial bids shall be returned 'unopened'.

The lowest evaluated bidder shall be considered for award of the contract.

[1] Within 10 days subsequent to completion of inspections
[2] Plus remaining of advance payment (if any)

10.2 Technical & Financial Evaluation Criteria

The bidder shall submit the required documents in support of the following criteria to be followed for evaluating the technical bid of the bidders.

1. The bidder(s) must have similar completed assignments or, in-hand assignments of underwater inspection of canal/barrage (The maximum marks are 30, each project will be given 10 marks, the firm/contractor having zero marks in this criterion shall be disqualified) **(30 Marks)**
2. The bidder(s) must demonstrate the availability of equipment for underwater inspection including details of specific instrument/ camera capable of capturing images under turbid water conditions, with sample images/ videos **(30 Marks)**
3. The bidder(s) must have relevant qualified/certified divers to fulfill the requirement of the assignment **(20 Marks)**
4. The bidder(s) must demonstrate the availability of the required equipment for oxygen supply for underwater inspection **(10 Marks)**
5. The bidder(s) must submit National Tax No., Sales Tax No. Certificates and Income Tax clearance certificate and the last income Tax return **(05 Marks)**
6. Non litigation certificate **(05 Marks)**

The minimum score for Technical Qualification of the bidder is 70 marks.

The Financial Bids will be opened only for firms/ contractors fulfilling minimum technical criteria.

The financial evaluation will be based on following criteria:

Total Bid Cost (exclusive of taxes) = A + B + D

where,

A = Mobilization & demobilization cost

B = Cost for underwater inspection at Reg-1 downstream (1-unit area)

D = Cost for underwater inspection at Reg-2 upstream (1-unit area)

The bidder with the lowest amount of financial evaluation (excluding taxes), after technical qualification, will be asked for contract signing. The form for submission of financial bid in a separate sealed envelope is given in **Appendix-A.**

10.3 Bid Submission and Opening

The Bid must be submitted on or, before **December 11, 2023 (1100 hrs)** at the following address:

OFFICE MANAGER

UNDERWATER INSPECTIONS AT HYDRAULIC STRUCTURES

Water & Agriculture Division
National Engineering Services Pakistan (Pvt.) Ltd.
NESPAK House, 1-C, Block-N, Model Town Extension
Lahore
Phone No. +92-42-9923194

The submitted Bids will be opened on **December 11, 2023 (1130 hrs)** at the above address.

Appendix A

FINANCIAL BID FORM

The financial bid for the services detailed in Scope of Services for the Project "UNDERWATER INSPECTIONS AT HYDRAULIC STRUCTURES" is as follows:

Table: Financial Breakup

Item No.	Item Detail	Amount exclusive of Taxes (PKR)	Estimated Tax (PKR)
A	Mobilization & demobilization cost		
B	Cost for underwater inspection at Reg-1 downstream (1-unit area)		
C	Cost for underwater inspection at Reg-1 downstream (total 8-unit areas)		
D	Cost for underwater inspection at Reg-2 upstream (1-unit area)		
E	Cost for underwater inspection at Reg-2 upstream (total 12-unit areas)		
	Total A + B + D =		
	Total C + E =		