

	Name of Contract Contract no [reference] of [year] Name of Employer Contact Address Tel/fax e-mail		Target Completion Date	Value of Existing Commitments and Works	
				Amount & Currency	BDT.....
3.5 Financial Resources available to meet the construction cash flow [ITT Sub Clause 12.2]					
	No	Source of financing	Amount available		
			Amount & Currency	BDT.....	
In order to confirm the above statements the JVCA Partner shall submit, as applicable, the documents mentioned in ITT Clause 28.					
3.6 Contact Details [ITT Clause 28]					
Name, address, and contact details of Tenderer's Bankers and other Employer(s) that may provide references if contacted by this Employer					
3.7 Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Clause 16.1]					
	Position Name Years of General Experience		Years of Specific Experience		
[Tenderer to complete details of as many personnel as are applicable. Each personnel listed above should complete the Personnel Information (Form PW7-5)]					
3.8 Major items of Construction Equipment proposed for carrying out the works [ITT Clause 17]					
	Item of Equipment		Condition (new, good, average, poor)	Owned, leased or to be purchased (state owner, leaser or seller)	
[Tenderer to list details of each item of Major equipment, as applicable]					

Signature  
(Name of Authorized Signatory of the JVCA Partner)



## Specialist Subcontractor Information (Form PW7A-4)

[This Form should be completed by each Subcontractor, preferably on its Letter-Head Pad]

Invitation for Tender No:

[indicate IFT No]

Tender Package No

[indicate Package No]

This Package is divided into the following Number of Lots

[indicate number of Lot(s)]

<b>1. Eligibility Information of the Subcontractor [ITT –Clauses 5 &amp; 19]</b>		
1.1	Nationality of Individual or country of Registration	
1.2	Subcontractor's legal title	
1.3	Subcontractor's registered address	
1.4	Subcontractor's legal status [complete the relevant box]	
	Proprietorship	
	Partnership	
	Limited Liability Concern	
	Government-owned Enterprise	
	Other (please describe)	
1.5	Subcontractor's year of registration	
1.6	Subcontractor's authorised representative details	
	Name	
	Address	
	Telephone / Fax numbers	
	e-mail address	
1.7	Attach copies of the following original documents	All documents to the extent relevant to ITT Clause 5 and 19 in support of its qualifications
The following two information are applicable for national Subcontractors		
1.8	Subcontractor's Value Added Tax Registration (VAT) Number	
1.9	Subcontractor's Tax Identification Number (TIN)	
[The foreign Subcontractors, in accordance with ITT Clause 5, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]		
<b>2. Key Activity(ies) for which it is intended to be Subcontracted [ITT Clause 19]</b>		
2.1	Elements of Activity	Brief description of Activity
2.2	List of Similar Contracts in which the proposed Subcontractor had been engaged	
	Name of Contract and Year of Execution	
	Value of Contract	
	Name of Employer	
	Contact Person and Contact details	
	Type of Work Performed	

Signature and Name of Authorized Signatory of the Proposed Sub-Contractor



## Personnel Information (Form PW7A-5)

*[This Form should be completed for each person proposed by the Tenderer on Form PW7-2 & PW7-3, where applicable]*

Name of the Tenderer:	[insert Title]
Invitation for Tender No:	[indicate IFT No]
Tender Package No	[indicate Package No]
This Package is divided into the following Number of Lots	[indicate number of Lot(s)]

<b>A. Proposed Position (tick the relevant box)</b>			
<input type="checkbox"/> Construction Engineer	<input type="checkbox"/> Prime Candidate	<input type="checkbox"/> Alternative Candidate	
<input type="checkbox"/> Key Personnel	<input type="checkbox"/> Prime Candidate	<input type="checkbox"/> Alternative Candidate	
<b>B. Personal Data</b>			
Name:			
Date of Birth:			
Years overall experience:			
National ID Number:			
Years of employment with the Tenderer:			
Professional Qualifications:			
1.			
<b>C. Present Employment [to be completed only if not employed by the Tenderer]</b>			
Name of the Employer:			
Address of the Employer:			
Present Job Title:			
Years with the present Employer:			
Tel No:	Fax No:	e-mail address:	
Contact [manager/personnel officer]:			
<b>D. Professional Experience</b>			
Summarise professional experience over the last twenty (20) years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.			
	From	To	Company / Project / Position / Relevant technical and management experience.
1			

(Name and Signature of the Proposed Personnel)



## Bank Guarantee for Tender Security (Form PW7A-6)

*[This is the format for the Tender Security to be issued by an internationally reputable Bank which has a correspondent Bank located in Bangladesh in accordance with ITT Clause 35 & 36]*

Invitation for Tender No:

Date:

Tender Package No:

To:

[Name and address of the Employer]

### TENDER GUARANTEE No:

We have been informed that [name of Tenderer] (hereinafter called "the Tenderer") intends to submit to you its Tender dated [date of Tender] (hereinafter called "the Tender") for the execution of the Works of [description of works] under the above Invitation for Tenders (hereinafter called "the IFT").

Furthermore, we understand that, according to your conditions, the Tender must be supported by a Bank Guarantee for Tender Security.

At the request of the Tenderer, we [name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of BDT..... [insert amount in figures and words] and/or <sup>Bangladesh Taka</sup> ~~delete if not appropriate~~ [insert amount in figures and words] upon

receipt by us of your first written demand accompanied by a written statement that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer:

- a. has withdrawn its Tender after opening of Tenders but within the validity of the Tender Security; or
- b. refused to accept the Notification of Award (NOA) within the period as stated under ITT; or
- c. failed to furnish Performance Security within the period stipulated in the NOA; or
- d. refused to sign the Contract Agreement by the time specified in the NOA; or
- e. did not accept the correction of the Tender price following the correction of the arithmetic errors as stated under ITT.

This guarantee will expire

- (a) if the Tenderer is the successful Tenderer, upon our receipt of a copy of the Contract Agreement signed by the Tenderer or a copy of the Performance Security issued to you in accordance with the ITT;  
or
- (b) if the Tenderer is not the successful Tenderer, twenty eight (28) days after the expiration of the Tenderer's Tender validity period, being [date of expiration of the Tender validity plus twenty eight (28) days].

Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Name and Signature

Name and Signature



## Notification of Award (Form PW7A-7)

Contract No:  
To:

Date:

[Name of Contractor]

This is to notify you that your Tender dated [insert date] for the execution of the Works for [name of project/Contract] for the Contract Price of BDT.....[insert amount in figures and words] and ~~delete if not appropriate-~~ <sup>Bangladesh Taka</sup> [insert amount in figures and in words], as corrected and modified in accordance with the Instructions to Tenderers, has been approved by [name of Employer].

You are thus requested to take following actions:

accept in writing the Notification of Award within seven (7) working days of its issuance pursuant to ITT Sub Clause 68.3

furnish a Performance Security in the form of a Bank Guarantee as specified and in the amount of BDT.....[insert amount in figures and words] and ~~delete if not appropriate-~~ <sup>Bangladesh Taka</sup> [insert amount in figures and words], within twenty eight (28)

days of issuance of this Notification of Award but not later than (specify date), in accordance with ITT Clause 69.2.

sign the Contract within twenty eight (28) days of issuance of this Notification of Award but not later than (specify date), in accordance with ITT Sub Clause 73.2.

You may proceed with the execution of the Works only upon completion of the above tasks. You may also please note that this Notification of Award shall constitute the formation of this Contract which shall become binding upon you.

We attach the draft Contract and all other documents for your perusal and signature.

Signed

Duly authorised to sign for and on behalf of  
[name of Employer]

Date:



## Contract Agreement (Form PW7A-8)

THIS AGREEMENT made on this [day] day of [month] [year] between [name and address of Employer] (hereinafter called "the Employer") of the one part and [name and address of Contractor] (hereinafter called "the Contractor") of the other part:

WHEREAS the Procuring Entity invited Tenders for certain works named [brief description of works] and has accepted the Tender submitted by the Tenderer for the execution of those works in the sum of bdt.....[insert amount] ~~and/or~~ <sup>Bangladesh Taka</sup> [insert amount] [Contract price in figures and in words] (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereafter referred to.
2. The documents forming the Contract shall be interpreted in the following order of priority:
  - (a) the signed Contract Agreement
  - (b) the Notification of Award
  - (c) the completed Tender and the appendices to the Tender
  - (d) the Particular Conditions of Contract
  - (e) the General Conditions of Contract
  - (f) the Technical Specifications
  - (g) the General Specifications
  - (h) the Drawings
  - (i) the priced Bill of Quantities and the Schedules
  - (j) any other document listed in the PCC forming part of the Contract.
3. In consideration of the payments to be made by the Procuring Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and to remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Bangladesh on the day, month and year first written above.

For the Procuring Entity

For the Contractor

Signature

Name

National ID No.

Title

In the presence

of

Name

Address



## Bank Guarantee for Performance Security (Form PW7A-9)

*[This is the format for the Performance Security to be issued by an internationally reputable Bank which has a correspondent Bank located in Bangladesh in accordance with ITT Clause 69, 70 & 71]*

Contract No: [insert reference number]

Date: [insert date]

To:

[insert Name and address of Procuring  
Entity]

### PERFORMANCE GUARANTEE No:

We have been informed that [name of Contractor] (hereinafter called "the Contractor") has undertaken, pursuant to Contract No [insert reference number of Contract] dated [insert date of Contract] (hereinafter called "the Contract"), the execution of works [description of works] under the Contract.

Furthermore, we understand that, according to your conditions, the Contract must be supported by a Bank Guarantee for Performance Security.

At the request of the Contractor, we [name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of bdt..... and/or

Bangladesh Taka  
delete if not appropriate-

[insert amount in figures and in words] upon receipt by us of your first written

demand accompanied by a written statement that the Contractor is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

This guarantee is valid until [date of validity of guarantee], consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Name and Signature

Name and Signature



## Bank Guarantee for Advance Payment (Form PW7A-10)

*[This is the format for the Advance Payment Guarantee to be issued by an internationally reputable Bank which has a correspondent Bank located in Bangladesh in accordance with GCC Clause 78]*

Contract No: [insert reference number]

Date: [insert date]

To:

[insert Name and address of the Procuring Entity ]

### ADVANCE PAYMENT GUARANTEE No:

We have been informed that [name of Contractor] (hereinafter called "the Contractor") has undertaken, pursuant to Contract No [insert reference number of Contract] dated [insert date of Contract] (hereinafter called "the Contract"), the execution of works [description of works] under the Contract.

Furthermore, we understand that, according to your Conditions of Contract under GCC Clause 78, the Advance Payment on Contract must be supported by a Bank Guarantee.

At the request of the Contractor, we [insert name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of BDT..... and/or <sup>Bangladesh Taka</sup> [insert amount in figures and in words] upon receipt by us of your first written demand accompanied by a written statement that the Contractor is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

We further agree that no change, addition or other modification of the terms of the Contract to be performed, or of any of the Contract documents which may be made between the Employer and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee is valid until [insert date of validity of guarantee], consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Name and Signature

Name and Signature



## Bank Guarantee for Retention Money Security (Form PW7A-11)

[This is the format for the Retention Money Guarantee to be issued by an internationally reputable Bank which has a correspondent Bank located in Bangladesh in accordance with GCC Sub Clause 75.3]

### Demand Guarantee

[Bank's Name, and Address of Issuing Branch or Office]

**Beneficiary:** [insert Name and Address of the Procuring Entity]

**Date:** [insert date]

**RETENTION MONEY GUARANTEE No.:** [insert number]

We have been informed that [insert name of Contractor] (hereinafter called "the Contractor") has entered into Contract Number [insert reference number of the Contract] dated [insert date] with you, for the execution of [insert name of Contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of [insert the amount of the second half of the Retention Money] which becomes due after the Defects Liability Period has passed and certified in the form of Defects Correction Certificate, is to be made against a Retention Money Guarantee.

At the request of the Contractor, we [insert name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of BDT..... and/or <sup>Bangladesh Taka</sup> ~~delete if not appropriate~~ [insert

amount in figures and words]) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor failed to properly correct the defects duly notified in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number [insert A/C no] at [name and address of Bank].

This guarantee is valid until [insert the date of validity of Guarantee that being twenty eight (28) days beyond the Defects Liability Period]. Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Name and Signature

Name and Signature



## Section 7. General Specifications

### 1.0 General:

#### 1.01 Scope and General Information

The term specification, wherever referred to in this or other sections, will indicate both General Specifications (GS) and Particular Specifications, if not particularly specified and shall be applicable in the practical situation in the field to complete the works most effectively. The contents of this article are given here in order to provide relevant information about the site condition, scope, extent and methods for satisfactory completion of the works.

#### 1.02 Location and Description of the Project

The Project "Dredging/Re-excavation of Bangali-Karotoa-Fuljor-Hurasagar River System & Bank Protection" has been programmed to dredge Bangali-Karotoa-Fuljor-Hurasagar River System from the confluence point of Alai River & Katakhal River at Rakhal Buruz union in Gaibandha district upto outfall of Hurasagar River at Shahjadpur upazilla in Sirajganj district/Bera upazila of Pabna district. It is aimed at streamlining the river flow through defined midstream channels and stabilizing the river banks which in turn will reduce extent of scour of riverbed and minimize the risk of bank protective work being threatened every year.

The river system is perennial but during winter the flow discharge decreases, and during November-December the flow tends to almost null. As a result, the navigation depth reduces gradually due to siltation. Bangali-Karotoa-Fuljor-Hurasagar river system is an acute meandering system. During monsoon upper Karotoa and Katakhal river system is fed from their catchment area. Due to presence of 3-vent Khulshi regulator at the off-take of Lower Karotoa River and raising of its river bed resulting from siltation, most of the flow from upper Karotoa and Katakhal river system discharges into Bangali River. In addition, a part of the Ghaghot flow discharge into Bangali River through Alai River.

Overall discharge in monsoon is far greater than the river systems carrying capacity. As a result, tremendous currents occur in the river, and consequently severe erosion takes place at the concave banks and bar formation takes place in the convex banks. The rate of erosion is increasing day by day. To mitigate risk of erosion and to prevent sufferings of the erosion affected people, it is necessary to take river bank protection measures. To increase the carrying capacity of the river and also to create a navigation route between Gaibandha to River Port at Baghabari project has been taken to dredge 217 km length of this river system by 18" cutter suction dredger under this project. Due to increase in flood water carrying capacity of the river system as well as 217 Km dredging work combining with River bank protection work on the concave bank will provide sustainable river erosion mitigation measures for the adjacent locality. Restoration of a sustainable river route through dredging will reduce the transportation cost of different goods for the adjacent districts.

The works to be done under the 4 Contract Packages:



a) Dredging/Re-excavation of Bangali River of Length 24 Km in Gaibandha district, b) Dredging/Re-excavation of Bangali-Karotoa River of Length 99 Km in Bogura district, c) Dredging/Re-excavation of Karotoa-Fuljor River of Length 67 Km in Sirajganj district & d) Dredging/Re-excavation of Karotoa-Hurasagar River of Length 27 Km in Sirajganj district.

The works also include transportation and safe disposal of the dredged earth up to a distance of 1500 metre and above at the specified area as are shown in the related drawings or as directed by the Engineer in Charge in conformation to the specifications. Management of dredged earth in proper way and its maintenance for at least 2(Two) year is one of main objective of the Dredging. The disposal of dredged earth is aimed at attainment of construction of Flood control embankment along the both bank of Korotoa-Fuljor river in Sirajganj district. Therefore, agricultural land and homestead areas, business centre, agriculture farm, industries etc. on the both bank of Korotoa-Fuljor river remains flood free during the monsoon.

The dredged earth to be disposed in a specific manner on both bank of Korotoa-Fuljor river on leased private land (payment for land leasing for dredged earth disposal has been included as separate item in the BOQ)/govt. own land as per direction of Engineer in Charge are to be protected from being washed out/eroded away by river current/rain water flow or by any other means with bamboo/bullah piling, dumping/placing geo-bags and synthetic bags, geo fabric sheeting etc. as per drawing and direction of Engineer in charge.

Dredging work have to be done by operation cutter suction dredger of diameter (maximum 18"), use of booster pump for safe disposal of dredged earth where necessary, Construction and dismantling of outlet for dumping and disposal of water from disposal area, Manufacturing and supplying C.C blocks in leanest mix, 1:2.5:5, with cement, sand ( $FM \geq 1.5$ ) and Stone Chips (40mm downgraded), to attain a minimum 28 days cylinder strength of 12 N/mm<sup>2</sup> including grading, dumping of CC blocks, Erection and maintenance of site office and removal of the same after completion of work.

The alignment and length of dredging as shown in the Index Map is an indicative one that has been predicted on the basis of pre-monsoon bathymetric data. Final alignment and length of dredging will be predicted after the post monsoon joint bathymetric survey. So, the length shown against each package is subjected to change depending on the result of post monsoon bathymetric survey which (length and chainages) will be finalised and adjusted after issuing the Work Order.

Volume of dredging will be implemented to the tune of 23.28 (Twenty Three Point Two Eight) million M<sup>3</sup> & 22.99 (Twenty Two Point Nine Nine) million M<sup>3</sup> respectively in Lot 1: DWKF/Sirajganj-ICT-02 and Lot 2: DWKH/Sirajganj-ICT-03 in 1st year & 2nd year. The volume for dredging in every lot may change depending upon post monsoon survey/bathymetric survey data.



The work also consists of foundation treatment of total 9 (Nine) nos of existing bridges under this lot no. DWKF/Sirajganj-ICT-02 constructed by different authorities such as Roads & Highways, Local Government Engineering Department & Railways. Quantity of required materials for foundation treatment of bridges under every package is included in the BoQ. Foundation treatment work will be executed simultaneously with river dredging work consulting with the concerned department & the Employer as per indicative design **shown in Section-9**. The indicative design may be revised as per consultation between Employer & concerned owner of the bridge. Quantity of required materials will be adjusted and cost will be provided accordingly.

Before shipping of dredgers from their original place proposed for the Project in the Tender Document as well, their readiness of shipping, non-engagement in other work/project, defect free all these features are to be checked by a Team of the Employer. Besides before shipping, the Contractor has to demonstrate the performance of the dredgers proposed for the Project physically to the effects that they meet the criteria specified in the Tender Document. So, the Contractor has to arrange an Inspection of a Team at the place of the country where the dredgers are existing and ready for shipping as shown in Appendix-C.

#### **1.03 Working Areas**

The dredging work will be executed on GoB owned land and it shall be made available to the Contractor free of charge. In case of non-availability of GoB land for disposal of dredged earth separate item for private land leasing has been included in the BoQ. Cost of land leasing for disposal of dredged earth on private land has been included in the above item. No cost of land leasing will be entertained without written approval from the Engineer in Charge. The Contractor shall make his own arrangements, obtain any necessary permission and be solely responsible for paying any costs, charges or compensation for the use of any areas outside the boundaries of the Site which he may need in connection with execution of the Work.

#### **1.04 Period of Work**

The dredging work is programmed to be carried out during the period of 2019-2020 & 2020-2021 for a time span of maximum 18 (Eighteen) months.

Dredging operation is estimated to carry on 16 hours a day (day means one complete day of 24 hours). The Contractor may carry on the dredging operation round-the-clock with prior permission from Engineer in Charge.

#### **1.05 Mobile Nature of River Bed**

This river system is a single channel meandering river system. In every flood season river erosion occurs on the concave bend and deposition occurs on the convex bend. Therefore, the contractor's attention is drawn to the bank shifting and the erodibility of the river bank.

#### **1.06 Notice to Mariners**

The Contractor shall arrange for the publication of all "Notice to Mariners" which may be required in respect of the Works, in accordance with the Bangladesh Inland Water Transport Authority's requirement.

#### **1.07 Navigation**

The Contractor shall ensure safe passage for other vessels and shall liaise with the Bangladesh Inland Water Transport Authority as necessary to maintain navigation, and shall provide all buoys,



markers, lights etc. that may be required.

**1.08 Low water level in  
Bangali-Karotoa-Fuljor-  
Hurasagar River**

The Contractor is cautioned that low water level will exist in River system Bangali-Karotoa-Fuljor-Hurasagar in month of December-March which may impede in shipping the dredgers and other vessel at proposed work site. The Contractor shall explore the route and proper time through which he can mobilise the dredgers and other vessels at work site and must take care this issue cautiously

**1.09 Quality Control &  
Workmanship in General**

(1) A Quality Control Team consists of BWDB Task force members nominated by Chief Engineer, Monitoring, BWDB will be engaged to carry out quality of dredging work and quantity of dredged earth in terms of pre-work and post-work measurement with the help of a third-party organization nominated by the Project director/BWDB. All related expenditure for pre-work & post-work measurement taken by the nominated third party will be borne by concerned contractor within his contract price. The Team will carry out regular cross section survey. The dredging work will be carried out according to the approved design.

(2) The Contractor must keep fulltime liaison with the Quality Control Team and extend all sorts of assistance in performing their (Team's) services uninterruptedly.

(3) All workmanship shall be of the best quality appropriate its category of works. Except otherwise stated or approved by the Project Manager, all materials and equipments used in the Works shall be of the best quality of the respective kinds as specified or described in the Specification, Drawings and Bill of Quantities.

**1.10 Existing Services**

(1) The Contractor shall consult all relevant authorities before commencing any excavations and shall satisfy himself as to the exact position of existing services which affect or may be affected by the Works and shall give written notification of the same to the Engineer.

(2) The Contractor shall execute the Works in such a manner that he does not damage or interfere with existing protective work, existing bridges over the river system or existing services on or near the Site. If damage or interference is so caused the Contractor shall make his own arrangement, to the approval of the Engineer and the relevant authority, to execute the repairs at his own cost.

(3) The Contractor shall make his own arrangements for any diversion or removal of services, which he may require for his own convenience or method of working, and shall obtain the prior approval of the Project Engineer to such arrangements. Such work shall be undertaken at the Contractor's own cost.

**1.11 Services for Site Use**

(1) The Contractor shall arrange at his own cost the supply of electricity, fresh water, telephone, compressed air and other services as necessary to the Permanent Works. Temporary works and his Site establishment and shall provide, maintain and remove on completion all pipes, cables and fittings which carry such services to his operations.



(2) The Contractor shall provide an adequate supply of safe drinking water on the Site. The Quality, number, capacity and location of the installations shall be to the satisfaction of the Engineer in Charge and conform to the requirement of the appropriate authority. The Contractor shall satisfy himself regarding the adequacy of any existing water supply facilities to the Site and shall provide such additional arrangements as are necessary to supplement the existing facilities.

(3) All electrical installation forming part of the Temporary Works shall comply with the relevant provisions of the standard safety regulations in force in Bangladesh.

**1.12 Safety of Adjacent Structures or Works**

In pursuance of Clause 1.10 here of the Contractor shall at his own expense provide and erect to the approval of the Engineer in Charge such supports as may be required to protect efficiently all structures or works such as river bank protection work or existing bridges over the river system which may be endangered by the execution of the works and he shall remove such supports on completion of the Works or otherwise take such permanent measures as may be required by the Engineer in Charge to protect the structure or Works.

**1.13 Interference with Existing Works.**

The Contractor shall not interfere in any way with any existing works whether the property of the Employer or of a third party and whether the position of such works is indicated to the Contractor by the Engineer or not, except where such interference is specifically described as part of the Works either in the Contract or in the Engineer's instructions.

**1.14 Liaison with Public Authorities**

The Contractor shall establish and maintain close liaison and attend regular meetings with public authorities and other concerned parties to ensure the smooth running of all aspects of construction which affect the public interest.

**1.15 Contractor's Accommodation**

The Contractor shall make his own arrangement for acquiring any land outside the Site required for establishing the office, housing, plant yard, stores, berthing, loading and unloading facilities, and other areas accommodation and camp for himself and his employees.

All hutments, buildings, fixtures and fittings provided under this Clause and all materials, plant, equipment or any debris shall be removed and site reinstated to the satisfaction of the Engineer in Charge at the end of the Contract.

**1.16 Contractor's Transport**

The Contractor shall make his own arrangement for the transport of his staff and workmen to and from the sites of the Works.

**1.17 Fences**

(1) The Contractor shall erect and maintain at his expense suitable and approved temporary fencing to enclose such areas of the Works to be carried out and all areas of land occupied by the Contractor within the Site as may be necessary to implement his obligations under Sub-Clause 17.1 of the General Condition of Contract. Where any temporary fence has to be erected alongside a public road, footpath etc. it shall be to the satisfaction of the authority concerned.



(2) The Contractor shall fence his housing and other compounds in a manner approved by the Engineer in Charge.

**1.18 Fire Protection**

The Contractor shall construct, equip and administer at his cost fire points in such positions and of such size as will provide and adequate service for the protection against fire of all buildings, store and property on Site or in his working area.

**1.19 Sanitary Conveniences**

Sanitary conveniences for the use of persons employed on the Works shall be provided and maintained by the Contractor in accordance with the appropriate regulations. All person engaged upon the Works shall be required to use them. The Contractor shall provide and maintain temporary arrangement for the proper disposal of sewage, waste and drainage from or in connection with the Works.

**1.20 Safety and Health**

(9) The Statement refers to measures and provisions with regard to human health and safety of persons, properties, installations which may be endangered by the execution of the Works, such as

- . preventive and protective measures
- . life saving measures and appliances
- . protective clothing and appliances
- . restricted access, enforcement

**1.21 Abatement of Nuisance**

The Contractor shall adopt such measures as the Engineer may consider reasonable and necessary to minimize nuisance from dust, noise or other cause.

**1.22 Accommodation for Engineer**

The Contractor shall provide a house boat as temporary office for the Engineer and his staff from the date of the start of work on site. The Contractor shall provide water supply, sanitary and electrical facilities in the house boat and provide 24 hours security.

**1.23 Assistance to the Engineer**

The Contractor shall provide for the exclusive use of the Engineer all instruments, which will be new or in proven good condition, appliances, protective clothing including rubber boots, and labour required for checking the setting out of the Works, testing, inspection and for any other attendance on the Engineer.

**1.24 Engineer's Transport**

The Contractor shall supply suitable road and water transport of the size and type stated in **Appendix-B** to the Specification for the exclusive and full time use of the Engineer and his staff.

The Contractor shall provide competent vehicle, drivers and boat men, maintain, clean and fuel the transports for the duration of the contract and have to handover the vehicles and boat to the Engineer in charge after completion of the contract. Allowance shall be made for personnel to work shifts.

**1.25 Protective Clothing and Equipment**

The Contractor shall provide and maintain all protective clothing and equipment, including safety nets and harnesses as required, and, where work is in progress in, on or near water, life preservers and rescue boats.

**1.26 Tele Communication**

The Contractor shall provide, install and maintain telecommunication facilities which shall serve both the Engineer's



and Contractor's facilities.

**1.27 Photographs &  
Video graphs**

Progressive photographs and video graphs shall be taken at such times and of such portion of the Works as the Engineer may require. For each progress photographs and video graphs the Contractor shall supply to the Engineer a set comprising one soft copy on DVD and five colour prints of an overall size 250 mm X 200 mm dated and suitably inscribed in English. The contractor shall provide suitable albums for mounting the prints. Each set shall be provided to the Engineer within 14 days of being taken. The soft copy on DVD of photographs and video graphs and all prints shall be the property of the Employer and no prints may be supplied to any person or persons except with the written authority of the Employer or Engineer in Charge.

**1.28 Contract Drawings**

As shown on the drawings listed in Section-9.

**1.29 Compliance with  
Regulations**

Pursuant to Clause 27.1(c) of General Conditions of Contract, the Contractor shall in particular take due cognizance of the following Act and Ordinances and any amendment or re-enactment thereof:

The Environmental Pollution Act  
Marine Pollution Ordinance  
The Inland Shipping Ordinance

The Contractor is responsible for obtaining licenses or permits required in connection with the dredging and disposal operation including the approval and payment to the land owners in disposal areas where the discharge pipe will be outside the boundary of the Site.

The Employer will, where possible, assist the Contractor in obtaining such licenses and permits but this will not relieve the Contractor of his responsibility of obtaining such licenses and permits.

**1.30 Reporting and  
Meeting**

Reporting in the form of Daily, Weekly, Monthly and final report shall be submitted to the Engineer on subjects and in formats as proposed in his Quality Assurance & Control (QA & C) Plan and as agreed with the Project Manager's QC Cell.

The reporting shall in particular pay attention to the sensitive items which form the basis of the Quality Plan.



## Section 8. Particular Specifications

### 1.0 General Information

The Contractor is instructed to follow the Particular Specifications provided herein along with the General Specifications provided in the section-7 in this tender document. General Specifications are abbreviated as GS and Particular Specifications are abbreviated as PS.

#### 1.01 Scope of Works

The Project "Dredging/Re-excavation of Bangali-Karotoa-Fuljor-Hurasagar River System & Bank Protection" has been programmed to dredge Bangali-Karotoa-Fuljor-Hurasagar River System from the confluence point of Alai River & Katakhal River at Rakhal Buruz union in Gaibandha district upto outfall of Hurasagar River at Shahjadpur upazilla in Sirajganj district/Bera upazila of Pabna district. It is aimed at streamlining the river flow through defined midstream channels and stabilizing the river banks which in turn will reduce extent of scour of riverbed and minimize the risk of bank protective work being threatened every year.

The river system is perennial but during winter the flow discharge decreases, and during November-December the flow tends to almost null. As a result, the navigation depth reduces gradually due to siltation. Bangali-Karotoa-Fuljor-Hurasagar river system is an acute meandering system. During monsoon upper Karotoa and Katakhal river system is fed from their catchment area. Due to presence of 3-vent Khulshi regulator at the off-take of Lower Karotoa River and raising of its river bed resulting from siltation, most of the flow from upper Karotoa and Katakhal river system discharges into Bangali River. In addition, a part of the Ghaghot flow discharge into Bangali River through Alai River.

Overall discharge in monsoon is far greater than the river systems carrying capacity. As a result, tremendous currents occur in the river, and consequently severe erosion takes place at the concave banks and bar formation takes place in the convex banks. The rate of erosion is increasing day by day. To mitigate risk of erosion and to prevent sufferings of the erosion affected people, it is necessary to take river bank protection measures. To increase the carrying capacity of the river and also to create a navigation route between Gaibandha to River Port at Baghabari project has been taken to dredge 217 km length of this river system by 18" cutter suction dredger under this project. Due to increase in flood water carrying capacity of the river system as well as 217 Km dredging work combining with River bank protection work on the concave bank will provide sustainable river erosion mitigation measures for the adjacent locality. Restoration of a sustainable river route through dredging will reduce the transportation cost of different goods for the adjacent districts.

The works to be done under the 4 Contract Packages: a) Dredging/Re-excavation of Bangali River of Length 24 Km in Gaibandha district, b) Dredging/Re-excavation of Bangali-Karotoa River of Length 99 Km in Bogura district, c) Dredging/Re-excavation of Karotoa-Fuljor River of Length 67 Km



in Sirajganj district & d) Dredging/Re-excavation of Karotoa-Hurasagar River of Length 27 Km in Sirajganj district.

The works also include transportation and safe disposal of the dredged earth up to a distance of 1500 metre and above at the specified area as are shown in the related drawings or as directed by the Engineer in Charge in conformation to the specifications. Management of dredged earth in proper way and its maintenance for at least 2(Two) year is one of main objective of the Dredging. The disposal of dredged earth is aimed at attainment of construction of Flood control embankment along the both bank of Korotoa-Fuljor river in Sirajganj district. Therefore, agricultural land and homestead areas, business centre, agriculture farm, industries etc. on the both bank of Korotoa-Fuljor river remains flood free during the monsoon.

The dredged earth to be disposed in a specific manner on both bank of Korotoa-Fuljor river on leased private land (payment for land leasing for dredged earth disposal has been included as separate item in the BOQ)/govt. own land as per direction of Engineer in Charge are to be protected from being washed out/eroded away by river current/rain water flow or by any other means with bamboo/bullah piling, dumping/placing geo-bags and synthetic bags, geo fabric sheeting etc. as per drawing and direction of Engineer in charge.

Dredging work have to be done by operation cutter suction dredger of diameter (maximum 18"), use of booster pump for safe disposal of dredged earth where necessary, Construction and dismantling of outlet for dumping and disposal of water from disposal area, Manufacturing and supplying C.C blocks in leanest mix, 1:2.5:5.5, with cement, sand ( $FM \geq 1.5$ ) and Stone Chips (40mm downgraded), to attain a minimum 28 days cylinder strength of  $12 \text{ N/mm}^2$  including grading, dumping of CC blocks, Erection and maintenance of site office and removal of the same after completion of work.

The alignment and length of dredging as shown in the Index Map is an indicative one that has been predicted on the basis of pre-monsoon bathymetric data. Final alignment and length of dredging will be predicted after the post monsoon joint bathymetric survey. So, the length shown against each package is subjected to change depending on the result of post monsoon bathymetric survey which (length and chainages) will be finalised and adjusted after issuing the Work Order.

Volume of dredging will be implemented to the tune of 23.28 (Twenty Three Point Two Eight) million  $\text{M}^3$  & 22.99 (Twenty Two Point Nine Nine) million  $\text{M}^3$  respectively in Lot 1: DWKF/Sirajganj-ICT-02 and Lot 2: DWKH/Sirajganj-ICT-03 in 1st year & 2nd year. The volume for dredging in every lot may change depending upon post monsoon survey/bathymetric survey data.

Before shipping of dredgers from their original place proposed for the Project in the Tender Document as well, their readiness of shipping, non-engagement in other work/project, defect free



all these features are to be checked by a Team of the Employer. Besides before shipping, the Contractor has to demonstrate the performance of the dredgers proposed for the Project physically to the effects that they meet the criteria specified in the Tender Document. So, the Contractor has to arrange an Inspection of a Team at the place of the country where the dredgers are existing and ready for shipping as shown in Annex-3.

The Contractor shall construct, at a location or locations to be approved by the Engineer in Charge, such accommodation, plant yard, workshops, offices, housing and camps for himself, his staff and employees as the Contractor Considers appropriate.

The Contractor shall provide practical training for selected members of the Employer's staff to enable them to undertake maintenance of the works after Taking Over and may be required to assist the employer in such maintenance during the Defect Liability Period.

#### **1.02 Access**

The Contractor shall be entirely responsible for providing all access to Site for personnel, Material supplies, vehicles, equipment/construction plant and for all other requirement for the execution of the Works.

Access to the Site can only be along the navigable channels of the River system Bangali-Karotoa-Fuljor-Hurasagar and public roads shown on the Drawings or approved by the Project Manager in writing. No access shall be permitted along the existing flood embankment unless specifically authorized by the Project Manager in writing.

The Contractor shall abide by all limitations, laws and regulations relating to the use of public roads and waterways.

The Contractor shall ensure that damage to any public roads, tracks, footpath and flood embankment used by any vehicles or plants proceeding to or from the Site is kept to a minimum and he shall be responsible for the cost of all repairs necessary to restore such roads, tracks, footpath and flood embankment to the satisfaction of the Engineer in Charge and Statutory Authorities.

The Contractor may improve and/or widen existing roads, repair or strengthen existing bridges or culverts, and widen and/or deepen existing waterway routes to meet his haulage requirements, provided that such works will be so scheduled and conducted as to minimize disturbance to other users, and subject to the approval of the Engineer in Charge and the Statutory Authorities.

The Contractor shall provide the Project Manager with full details in writing of any such improvements not less than 28 days prior to the date on which he intends to commence the work. The details shall include information on the Contractor's Equipment which will make use of the improved routes. Notwithstanding the provision, the Contractor shall solely responsible for obtaining the necessary approval from the relevant authority and for the proper



construction and maintenance of the works at his own cost.

If the Contractor requires any other form or route of access not provided for under the Contract, he shall make his own arrangement, obtain any necessary permission, and be solely responsible for payment of any cost, charges or compensation in connection thereof.

The provisions of this clause in no way limits or modify the employer's obligation to give possession of the Site in accordance with GCC Clause 13.1.

### 1.03 Dredging Method

(1) The Operational mode aims at making optimum use of the available dredging capacity in combination with the erosive forces of water flow, the latter especially in the earlier stage of the recession period. For this purpose, dredging is predominantly being done in downstream direction. The manner in which the dredging is executed shall be in accordance with Contractor's approved method statement.

(2) Deposition of dredged earth will take place in a specific manner on both bank of Korotoa-Fuljor river on leased private land (payment of land leasing has been included as separate item in BoQ)/government owned land as per direction of Engineer in Charge. In case of government owned land, it will be made available to the Contractor without charge and restrictions. Where the works by necessity would unavoidably infringe upon public interest, the Public Relations section of the contractor (Clause 1.14 of General Specifications, Section-7) shall be enforced.

(3) Deposition of dredged earth shall take place in manners as described below:

via floating and shore lines; the disposal of dredged earth is aimed at attainment of construction of Flood control embankment along the both bank Korotoa-Fuljor river in Sirajganj district. Therefore, agricultural land and homestead areas, business centre, agriculture farm, industries etc. on the both bank of Korotoa-Fuljor river remains flood free during the monsoon. Also, to fit the concept of filling low area at places such as shallow depressions, deep scour holes as shown in the drawing. The Contractor shall protect the deposited earth from being washed out/eroded away by rain water/river current with bullah/bamboo piling, placing of synthetic bags, Geo-textile fabrics sheeting etc as per drawing to be supplied by the Engineer in Charge before issuing Work Order (an indicative drawing is shown in Section-9).

At selected locations sand deposits for combating bank erosion may be placed if so required.

(4) The decision concerning mode of conveyance and location of earth-deposition shall be made by the Project Manager following tender drawing & specifications in consultation with the Contractor's representative nominated for this purpose.



(5) All locations where at lower water levels there is risk of earth returning to the channel, temporary bund shall be made ahead of the channel dredging operation whereby use is made of local river bed materials.

(6) Land pipelines where necessary be placed in assigned routings, placement will be such so as to reasonably avoid obstructions to traffic and hindrance/damages to the local interests. Land routing will, where necessary be properly marked and fenced, and leakage repaired forthwith.

Discharge terminals will be permanently guarded by watchmen connected with Contractor's approved (radio) communication system.

(7) All dredging and other floating equipment and discharge installations will show the required signals and lighting. Through coordination and good office of the Employer or other GoB Authorities waterborne traffic will be informed about ongoing operations; in case of obstructions such as survey, plant, cables, floating lines, discharge jet streams and other waterborne traffic upstream as well as downstream of the obstruction site shall be controlled and guided. Traffic control points shall be connected to Contractor's approved (radio) communication system.

#### **1.04 Dredging Method Statement**

Plant and equipment to be used for the Works shall be fully in accordance with the Contractor's approved Equipment Statement. The Dredging shall be executed by required number of cutter-suction dredgers. The dredgers shall be suitable for the boundary condition of climate, current, water depths, bridge clearance dimensions at prevailing water levels. Output capabilities shall be tuned to soil conditions, volumes to be excavated over the time pump-discharge requirement. The dredgers will have to be self-supporting with regards to logistics (such as fuel-lubs-water) propulsion and repair/maintenance. The method statement shall include:

- (a) the numbers, types and performance details of the equipment proposed,
- (b) length of floating and land pipelines proposed,
- (c) survey and position fixing systems to be used,
- (d) methods of removing underwater obstructions.
- (e) Working methods and sequence of dredging,
- (f) Methodology of dredging and safe disposal of dredged earth

Approval by the Project Manager of the Contractor's method statement shall not relieve the Contractor of his obligation to construct the Works in accordance with the Contract.

#### **1.05 Contractor's Statement**

(1) Statement under this heading will be submitted by the tenderer prior to Contract formation and will after possible modifications and subsequent approval of the Project Manager acquire the status of "Approved Statements". The Statement shall constitute part of the Contract.



The Statement shall cover all major aspects of the Works under the Contract.

The Statement shall cover the following subjects:

**1.06 Organization Statement**

The Statement outlines Contractor's Organization for the Works, at HQ as well as on site. The various sections, functionaries and persons to be responsible for various aspects of the Works shall be clearly identified and stated.

**1.07 Equipment Statement**

This Statement shall incorporate a description of all equipment the Contractor intends to use for execution and control /monitoring of the Works and of such back-up equipment deemed necessary to ensure the proper continuation and timely completion of the Works.

The description will include types, names, ownership, dimensions, power, capacities, provision for control/ instrumentation and other items of relevance to the Works.

**1.08 Method Statement**

The Method Statement clarifies with supporting data the work methods intended to be applied for execution of the Works with the equipment and manpower proposed.

**1.09 Timing, work plan**

The Statement outlines Time Schedule and Works plans based on and tuned to the Employer's overall project Schedule.

**1.10 Mobilization, Demobilization**

The Statement refers to mob/demo schemes of manpower, plant, equipment and ancillaries and will be consistent with other Statements.

**1.11 Alternative Equipments**

The Contractor may propose, for the Project Manager's approval, alternative Equipment to those specified, provided either:

- (i) they are of at least equal performance;
- (ii) If alternative equipments are proposed, the Contractor shall submit comprehensive details including technical description, drawings and specifications to demonstrate that the alternative complies with either requirement of this Clause. The Contractor shall allow for the time necessary for review and approval of such alternative by the Project Manager.

**1.12 Manufacturers' Instructions**

Equipments shall be used or installed where relevant in accordance with the instructions of the manufacturer unless otherwise required.

**1.13 Quality Assurance**

The Contractor shall prepare a Quality Plan for the Works which shall be submitted to the Project Manager for approval within 15 days of commencement Date. The quality Plan shall be reviewed, updated and resubmitted for approval as necessary throughout the Contract period.

The Contractor shall not commence any works until he has submitted to the Project Manager a written statement of his proposed procedure for his own inspection of that item, recording such inspection and obtaining the Project Manager's written



approval thereof. Every such statement shall identify the individuals on the Contractors staff who are responsible for inspecting the workmanship for the item in question.

The Contractor shall provide all necessary access to the Works and to records to enable the Project Manager to assess the Contractor's Quality Plan and Quality Assurance procedure.

**1.14 Tolerances**

All works shall be executed to the tolerance shown in **Appendix-A** or elsewhere stated in the Specification.

**1.15 Materials on and under the Site**

All materials obtained in the excavations, cleaning of the Site of the Works and soil stripping, shall belong to the Employer and shall not be removed from the Site without the consent of the Engineer in Charge. The Contractor may, however, use for the construction of the Works any of the materials excavated under the Contract which the Engineer in Charge may determine to be fit for such use and shall use such materials if directed by the Engineer in Charge.

**1.16 Drains, Streams, Watercourses etc**

Drains, pipes, canals, channels, watercourses or streams affected by the Contractor's operation shall be reinstated to their original condition. The Contractor shall notify the Engineer in Charge in writing 14 days in advance of his intention to start any part of the Works affecting watercourses, canals, streams, drains, pipes channels etc. The Contractor shall be responsible for maintaining the watercourse within the Site in effective working condition. The Contractor shall take all practicable measures (which shall be subject to the prior approval of the Engineer in Charge) to prevent the deposition of silt or other materials from his operations in such watercourses.

The Contractor shall not discharge into any watercourse oil, noxious or floating materials or untreated waterborne effluent.

**1.17 Slips**

The Contractor shall make good to any damage or defect caused by slips to any cuttings, excavations or embankments on the Site and shall do all necessary work to prevent or remedy the same.

**1.18 Protection of Completed Works**

The Contractor shall protect completed works from damage during, subsequent operations, from the weather or any other cause, including the naturally aggressive nature of the environment in which the works are to be constructed and make good to any damage so arising.

**1.19 Surface and River Bed Levels**

The survey of the river bed shall be undertaken at a time as close as practicable to the commencement of the respective section of the work. The permissible time between survey and commencement of the work at any location will vary depending on the rate of change of the river bed levels but shall in no case be longer than that which may result in a change of levels through natural processes that exceeds the tolerance set out in **Appendix-A** for that type of work.

**1.20 Contractor Responsible for sufficiency of means**

The Contractor shall upon himself the full and entire responsibility for the sufficiency of plant, machinery, tools or implants and generally for all means used for the fulfillment of the Contract. In



## **Employed**

the event of any of these means proving insufficient, the Contractor is still fully and entirely responsible for the sufficiency of these means notwithstanding any previous approval or recommendation that may have been given by the Project Manager.

The Contractor shall make due allowance regarding plant capacity and output for the seasonal working which will be imposed by river flow and climate conditions.

### **1.21 Contractor's Craft and Crew**

The Contractor shall ensure that all craft employed by him and using the navigable channels are properly manned by qualified and experienced personnel.

Movements of floating plant shall at all times be under the jurisdiction of the relevant navigation authority, who may require craft to wait for other vessels navigating the river.

### **1.22 Temporary Works**

The Contractor shall be responsible for the design, specification, execution and subsequent removal of all Temporary Works necessary for the completion of the Works. Temporary Works shall be designed by the Contractor in accordance with the standards described elsewhere in this specification or agreed with the Engineer in Charge.

It is emphasized that the Contractor is responsible for the design of Temporary Works required to provide a suitable working environment in which to construct the Works both above and below water level.

Before the Contractor starts Construction on any part of the Temporary Works, he shall furnish the Engineer in Charge with complete drawings and, if so required, calculations relating to stability, strength and deflections of that part of the Temporary Works.

The required submission of drawings and/or calculations shall be made to the Engineer in Charge a reasonable period before the Contractor intends to commence any fabrication or installation of the Temporary Works. The Contractor shall make due allowance in his program for submission of temporary works proposal, review by the Engineer in Charge and amendments, resubmission and further review by the Engineer in Charge to the proposals is obtained.

### **1.23 "Directed" and "Approved"**

The terms "directed" and "Approved" in the Specification mean "directed by the Project Manager/Engineer in Charge" and "approved by the Project Manager/Engineer in Charge" except where the context clearly implies another meaning.

### **1.24 Removal of Plant which has sunk**

The Contractor shall forthwith and with dispatch at his cost raise and remove any plant floating or otherwise belonging to him or to any subcontractor or to any person employed by him including also any contractor's Equipment which is held by the Contractor or any subcontractor under agreement for hire or hire-purchase which may be sunk within the limits of the Site in the course of the



construction completion and maintenance of the Works or otherwise deal with the same as the Engineer in Charge may direct. Until the same shall be raised and removed the Contractor shall set all such things for the safety of navigation as may be required by the Engineer in Charge or by the Employer or any other Authority having jurisdiction in connection with the Site. In the event of the Contractor not carrying out the obligations imposed upon him by this Clause the Employer may buoy and light such sunken plant and raise and remove the same (without prejudice to the right of the Employer to hold the Contractor liable under the Contract) and the Contractor shall refund to the Employer all costs incurred in connection therewith.

In the event of any such Contractor's equipment being sunk outside the limits of the Site the Contractor shall be subject to the powers of the Employer or any other authority having jurisdiction in respect thereto and shall be liable to pay all costs and expenses incurred in connection with the buoying lighting, raising and removal of such sunken Contractor's equipment and claims arising in consequence of the sinking of such Contractor's equipment.

#### **1.25 Low Water Access**

The Contractor is responsible for making the necessary arrangement for gaining low water access to the work area.

#### **1.26 Underwater Obstructions**

At the locations where river bank protection works have been carried out previously, the Contractor may encounter obstructions underwater such as, concrete block, porcupines and miscellaneous other materials. The Contractor shall remove such obstructions, unless otherwise directed by the Engineer in Charge. The Contractor shall dispose of all debris, obstructions etc. encountered, with the exception of concrete blocks that he shall recover for re-use, and repair any consequential damage.

#### **1.27 Discharge Requirement**

The Cutter suction dredger(s) shall be equipped to meet discharge requirements as stipulated in Clause 1.03 (Dredging method) hereafter and provided with fittings allowing for a speedy and efficient conversion from one discharge mode to another.

Maximum discharge length will be as follows

- (i) a combination of floating and land line: of average length 1500 m and above.

#### **1.28 Accuracy and Process**

Positioning system, instrumentation and operating control of the dredger will allow the accuracy of the positioning of the cutter head to be within 2 m in horizontal sense and 0.1 m in vertical sense.

The process information concerns the systematic presentation and storage data regarding primary system in the dredging process over real time such as:

- (i) Position in X, Y and Z of the cutter head and movements thereof
- (ii) RPM of- and power consumed by the cutter head.



- (iii) Mixture volume, sediment concentration and tons dry solid produced by the dredger pumping system.

In-addition hereto information regarding the discharge of dredge materials (type of discharge-length and type of pipe line) will be recorded for each typical operation.

**1.29 Special Care when Dredging**

The Contractor shall give particular attention and care when dredging at or adjacent to existing structures so as to minimize any disturbance that may cause thereto and he shall employ only suitable Contractor's equipment approved by the Project Manager for such dredging. Approval of such Contractor's equipment shall not relieve the Contractor his liabilities and obligations under the Contract.

**1.30 Foundation treatment of existing bridges**

The Contractor shall give particular attention and care when dredging at or adjacent to existing bridges over the river system. There are 9 (Nine) nos of existing bridges over the river system of different authorities. The work also consists of foundation treatment of those 9 (Nine) nos of existing bridges under this Lot no: **DWKF/Sirajganj-ICT-02** constructed by different authorities such as Roads & Highways, Local Government Engineering Department & Railways. Quantity of required materials for foundation treatment of bridges under every package is included in the BoQ. Foundation treatment work will be executed simultaneously with river dredging work consulting with the concerned department & the Employer as per indicative design **shown in Section-9**. The indicative design may be revised as per consultation between Employer & concerned owner of the bridge. Quantity of required materials will be adjusted and cost will be provided accordingly.

**1.31 Bed Formation/ Tolerances**

The Contractor shall execute the dredging within the plan limits indicated on the Drawings or otherwise directed by the Project Manager and ensure that the finished dredged work shall, at the time of acceptance, lie within the tolerance stated in **Appendix-A**.

The Contractor shall not, however, be responsible for the removal of siltation in dredged channel areas previously accepted by the Engineer as being completed.

**1.32 Side Slopes**

The Contractor shall, until completion of the approved soundings and survey, at any location dredged or any part thereof, be solely responsible for the stability of any slopes.

**1.33 Disposal of Dredged Materials**

Where described in the drawings or as directed by the Engineer in Charge the Contractor shall place dredged materials aimed at attainment of construction of Flood control embankment along the both bank of Korotoa-Fuljor river in Sirajganj district. Therefore, agricultural land and homestead areas, business centre, agriculture farm, industries etc. on the both bank of Korotoa-Fuljor river remains flood free during the monsoon and also to fill the low area or in temporary stockpiles.

The earth disposed must be leveled, compacted to its maximum dry density and properly dressed. In this operation the



The earth disposed at other specified area must properly be leveled and dressed. The slopes of the stockpiles shall be stabilized with bullah/bamboo piling, placing synthetic bags, geo-textile fabric sheeting as per drawing to be supplied before issuing Work Order **(an indicative drawing is shown in Section-9)**.

The Contractor shall take such measures as may be practicable to minimize turbidity arising at the point of dredging. Sediment concentrations shall be monitored as directed by the Engineer in Charge. Disposal of any surplus dredged earth into River, other than in the temporary stockpile area shown on the drawings is not permitted.

(1) Not less than 14 days prior to the commencement of the work, the Contractor shall provide for approval by the Engineer in Charge, statement of drawings giving in detail the proposed methods for carrying out the work which shall include the layout and construction of palisade works, bunds and intermediate bunds required to retain the dredged materials, method of working within bounded areas to achieve the specified requirements, routes of the pipelines for deposition of fill, the design position/series of weir/water boxes, spill ways and sequence of filling to allow uninterrupted and controlled passage of waste water and reducing the discharge losses of suspended sediment.

(2) Materials shall be placed hydraulically in the specified areas as indicated on the drawings. The materials filled in the embankment alignment/low area above water level to be pushed/leveled properly, compacted to its maximum dry density, leveled and dressed. The materials filled in the other area shall be leveled and dressed properly and shall be allowed to obtain its natural density.

(3) The Contractor shall carry out operation in filling and discharge of water from the fill areas without disturbance to existing works, structure, flood embankments, river bank and farm land. Pipelines required for disposition of fill materials shall be laid along routes and corridors approved by the Engineer in Charge. Any road or river crossings of pipelines shall be constructed so as to minimize interference with traffic both during construction and operation of pipelines.

The Contractor shall take measures to prevent unacceptable leakage from the pipe joints and shall deal with leakage that does occur immediately and, in a manner, approved by the Engineer in Charge.

(4) The materials shall be discharged at such points on the drawings.

The Contractor shall plan his work to allow sufficient distance



### 1.37 Channel Locations, Dimensions and Tolerances

between the dredge and disposal areas to ensure that the area that has already been dredged is not adversely affected by disposal operation.

(1) The alignment of the channel will be determined on the basis of a pre-dredge Survey executed for a river section prior to the commencement of dredging that particular section.

Criteria to be applied for selection of the alignment are best fit/minimum yardage combined – where considered necessary- with avoidance of cutting too closely sensitive bank erosion areas.

The decision regarding alignment selection will without delay be made by the Engineer in Charge in consultation with Contractor's nominated representative.

(2) The profile to be excavated with the alignment as the centerline and the LWL plane as the upper limit shall have a depth of at least 3.0 m to 5.0 m. The width at depth of 5.0 m shall- for Contractor's navigational requirements- be not less than 35 m. The area of the channel shall be calculated as follows:

- (i) for payment purpose as the volumetric difference between the bottom elevations shown by the respective pre- and post dredging surveys and channels lateral limits, being formed by vertical lines at 17.5 m to 25 m both sides from the center-line or as will be most acceptable way in determining the dredged area in a vertical section.
- (ii) For the determination that design criteria have been met as the area between the LWL plane and the post-dredged bottom elevation.

For the latter area so calculated following shall apply:

Areas where the Post-Dredging Survey shows the required minimum not to be attained shall require corrective dredging unless:

- (i) the stated average and minimum section are attained.

Although in the operational cutting plan side slope of 1 vertical and 2 horizontal may be adopted, the angle of side slopes of the final product will be the angle of natural repose created by Contractor's approved method.

For the indicative sectional Drawing No.BOG-DRDG-8629 (Page: 1 to 10) dated: 15-12-2019.

(3) Section with length of **500 m** measured along the center line (being the alignment of channel) and shown by the Post Dredging Survey to be completed in accordance with Specification will be accepted and taken over by the Engineer in



Charge in accordance Sub-Clause 2.5 of General Conditions of Contract.

(4) maintenance during construction-that is before relevant section have been accepted and taken over in accordance with the Specification is of Contractor' account.

(5) Works shall be carried out in accordance with Contractor's approved work plan (**see Clause 1.09**). In order to promote a smooth and continuous execution of the dredging works, the Engineer in Charge on recommendation of the BWDB, Taskforce Team shall determine a program to harmonize the demands for uninterrupted dredging operation with the timely determination of alignments.

Therefore prior to the scheduled commencement of the dredging operations, the determination of the alignment (or alignments in case of separate starting positions) will be completed over sufficient lengths for the first week of dredging.

Depending on the river's adaptation to the changing natural conditions and response to dredging activities determination of alignment will timely be made at schedule intervals.

In order to render this programming feasible, the Contractor shall ensure the timely availability of his contribution as further outlined in Clause 1.37 hereunder. In case of non-compliance, the resulting delay will be of his account.

(6) The Contractor shall install and operate round-the-clock communication system between his local HQ. Engineer's office, operational units, control points, pipelines terminals and such other points within the work-area where communication may be required.

The system shall be in accordance with Contractor's approved equipment and method statement.

### **1.38 Surveys and Monitoring**

(1) Surveys and monitoring of the work shall be performed by the Contractor in accordance with his approved Equipments and Method Statement 'and shall be for Guidance Control and quantification of the dredging Works.

(2) All survey works will be attended by an assigned member of BWDB, Taskforce Team and shall require acceptance by the Engineer in Charge.

Surveys and measurements shall consist of following categories;

#### **A. Bathymetry**

- (i) Pre-Dredged surveys: Cross-sectional soundings perpendicular to the thalweg at 5 m intervals executed prior to commencement of dredging.
- (ii) Progress surveys; soundings made along the same pattern as pre-dredge survey to evaluate the



- progress of the works.
- (iii) Post-dredged Surveys: progress surveys showing the dredging works to be completed in accordance with this specification and accepted by the Project Manager as post-dredged survey and thus as the basis for payment purposes.
- (iv) Inspection Surveys: surveys of accepted non-dredged channel section to establish changes, identify needs for maintenance dredging and changes in alignment.

#### B. Hydrology

- (i) Vertical water movements, observation and recording of the levels of standard water level gauging station and other required places.
- (ii) Water levels at these and at any other water level gauging stations required for the works shall be related to PWD level, observed at agreed intervals with readings radio transmitted and recorded throughout the period(s) of the works.

(2) The expected mobility of the river bed and the dimensions of the work-area cause the survey requirements for the Works to be extensive.

The Contractor shall mobilize, install, test, calibrate and set to work the required plant, equipment and personnel in manner and at scale adequate to fit his planed dredging operations at the rates progress foreseen.

The survey and monitoring operation as deemed to be required are briefly stipulated above. They shall be outlined in an amplified manner in Contractor's approved equipment and method statements.

(3) Survey craft shall be specialized for survey purposes and therefore shall be shallow draught, highly maneuverable and fully equipped for Bathymetric and hydrological survey requirements as listed in these Clauses.

#### Horizontal Positioning:

An electronic positioning system shall provide round-the- clock, coverage of the area of the works and over the duration of the Works with a repeatable dynamic accuracy in the order 1.5 m.

The system shall be multi user and employed on all craft/spreads used for the Works with up-to-date position-displays.

Adequate back-up facilities shall be available in operational condition when needed due to failure of main system employed.

#### Vertical Control



Vertical control of the determination of the water levels of bottom elevations with respect to LWL reduction plane shall be within 0.1m plus or minus.

Data acquisition and data digest and storage will be up-to-date and highly automated.

Instrumentation:

Instrumentation for bathymetric surveys (such as RTK GPS & echo sounders) and shall be of good reliability and efficiency.

Computers:

Hardware and software shall be compatible with those to be used by the Project Manager's QC Team.

Plant, equipment, instrumentation, computer hardware and software to be used for surveying and monitoring shall be fully in accordance with Contractor's approved equipment statement.

(4) Requirements as briefly listed above are quantified as follows:

- (i) Wet pre-progress and post dredged Surveys.  
In the order of a combined transient-length of around 5 km per week.  
Cross-sections, average length 200m, at 5 m intervals.
- (ii) Wet inspection surveys  
-In the order of a combined length of 10 km per fortnight.  
-Inspection survey is needed: to check the condition of channels already dredged and accepted.  
-To identify the condition of areas undredged as yet.  
-Inspection survey shall be made at cross-sectional intervals of 200 m, plot intervals 5 m.
- (iii) Topographic Surveys  
Especially during lower water stages, cross-sections will (partly) be topographic surveys.  
For pre and post dredged surveys:  
In the order of combined stretch length of 5 km per week at plot intervals of max 5 m.  
Digested Data shall be stored on DVD/CD, prints will be made at scales to be recommended Project Manager's QC Team and determined by the Engineer in Charge.

(5) The records of the data collected on primary items of the dredging process as provided by the Contractor form an important part of the overall monitoring activities and shall be integrated in evaluations.

(6) Before commencement of dredging the particular area to be



dredged, together with any adjacent areas whose level might be affected by the dredging, the areas are to be surveyed and sounded and contour plans, with contours at 0.10 m intervals, and sections are to be drawn accordingly. The Survey works to be carried out by the Contractor in presence of the Project Manager's representative in accordance with method proposed by the Contractor and approved by the Project Manager. The Plans and sections drawn by the Contractor and, when finally, and mutually agreed, be signed by the Project Manager and the Contractor as truly representing the configuration of the areas at the commencement of the dredging and shall constitute the commencing surface for measurement.

(7) Before the Project Manager accepts the dredging has been completed, the Contractor shall demonstrate, by means of soundings and surveys as approved by the Engineer in Charge, that the work has been executed to the required lines, levels and stable slopes. Such soundings and surveys as described in (1) above should be carried out soon after the dredging, at a time to be agreed between the Contractor and Engineer in Charge, in the presence of the Engineer's representative, where areas are shown not to have been dredged to the required lines, levels and stable slopes, the Contractor shall return and remove all high spots and/ or trim slopes to the satisfaction of the Engineer in Charge.

(8) Dredging works shall be executed in section to suit the construction of the channel areas as agreed with the Engineer in Charge.

At the conclusion of each section of dredging, the Contractor shall inform the Project Manager that the section is ready for inspection with a view to its acceptance.

#### **1.39 Quality Management and Control**

The Contractor shall comply with any relevant standards such as the ISO 9000 series and maintain the QA procedures throughout the duration of the Contract and in accordance with the approved statements including his Quality Assurance & Control (Q.A& C) Plan.

It is brought to the Contractor's attention that, in order to fulfill his function for the Works, the Project Manager, Bogura/Sirajganj has established a QC Team which will operate under the direct supervision of Project Manager and to which the Contractor will contribute in the manner indicated by him and approved by the Project Manager.

The QC Team shall from time to time develop and adapt the Quality Plan, exercise the advisory tasks as indicated in the Contract and observe adherence to Contractor's approved Statement.

#### **1.40 Quality Assurance and Control**

With reference to the relevant ISO standards this Statement will include:

- (I) a reference to the QA and QC system operated within Contractor's organization.
- (II) Contractor's proposed contributions regarding



sensitive items for Quality Plan to be developed in conjunction with the Project Manager's assigned Quality Control Team. The sensitive items are expected to cover (but are not necessarily limited to) the following aspects: time limits, production control, adequacy of monitoring means and processes, avoidance of damages to persons and properties and all other things.

- (III) Names and expertise of his resident staff members to contribute to and participate when required in the Project Manager's QC Team.

#### **1.41 Records of Operations**

The Contractor shall make and keep of all operations on the dredgers and at the reclamation and temporary stockpile areas including the location of such operations, materials encountered, samples, the time of working, pump velocities and contemporaneous dredging densities, performance of the Contractor's Equipment and overall progress of the Works. The records, in a form approved by the Project Manager, shall be submitted by the Contractor to the Project Manager daily and such information shall be summarized and submitted in weekly reports.

#### **1.42 Breakdowns**

Plant breakdowns and any accidents shall be notified immediately to the Engineer in Charge.

#### **1.43 Reservation of Right to Carryout Dredging or Other Works**

The Employer reserves to himself the right at any time or times to carry out any dredging construction or maintenance works he may think necessary or proper in the vicinity of the Site or elsewhere.

#### **1.44 Manufacturing of C.C Blocks.**

Pre-cast concrete blocks shall be made as per dimensions and specifications shown on the approved design, in general & particular specification and BoQ. The C.C. Blocks to be manufactured in leanest mix 1:2.5:5 of cement, sand (F.M>=1.5) and stone chips (40mm downgraded), to attain a 28 days minimum cylinder strength of 12.00 N/mm<sup>2</sup> (compressive).

C.C. Blocks shall be made of concrete of specified strength and cast in moulds made of steel sheet to ensure designed size and shape. The moulds shall be sufficiently tight fitting to prevent grout/water losses and sufficiently rigid to withstand the effects of placing and vibratory the concrete without distorting and capable of releasing the hardened concrete blocks without causing damage to it. Each block shall be marked with a serial number and the date of casting. Marking shall be engraved on the blocks whilst the concrete is still "green". Marking by paint shall not be acceptable. Blocks shall be cured at least 21 days and its surface shall be wet up to that time without any break.

Compressive strength of C.C. Blocks shall be determined by taking cylinder for each 100cum of concrete poured. 6(six) nos. specimen shall be prepared in each set. Size of cylinder shall be 150mm in diameter and 300mm in height. Three samples of each set shall be tested after 7 days and other three sets shall be tested after 28 days of its production. Compressive strength may also be determined by cutting core from C.C. Blocks at any time. The C.C. Blocks shall be considered adequate if the



average strength of three cores is at least 85% of the specified strength and no single core strength is less than 75% of the specified strength (According to ACI 318 and BNBC).  
The C.C. Blocks shall be supplied in measurable stacks as per direction of Engineer-in-Charge. Blocks which will be damaged during transportation, stockpiling or handling shall be rejected and removed from the site.



## APPENDIX-A

### Table of Tolerances

The following are the tolerances within which the Works are to be executed:

#### Dredged Fill area

Fill levels

Above existing ground level (to be shown during execution)

Side slopes of banks, embankments

$\pm 150$  mm

#### Dredging

Change in bed level before commencement of works + 150 mm

Excavated horizontal bed levels + 150 mm



## APPENDIX-B

### Schedule of Road and Water Transport for the Project Manager/Engineer in Charge

The Contractor shall provide road and water transport as mentioned and specified below, for exclusive and full time use of the Project Manager/Engineer in Charge, BWDB, Taskforce Member and Engineer's officers/staff for the entire duration of the Contract.

The Contractor shall provide competent vehicle, drivers and boat men, maintain, clean and fuel the transports for the duration of the contract and have to handover the vehicles and boat to the Engineer in charge after completion of the contract. Allowance shall be made for personnel to work shifts.

#### **ROAD TRANSPORT**

##### **Pajero Sports QX or equivalent (Jeep) – 1 (One) No**

Specification: 2477 CC, 2.5 Ltr. 4 cylinder, 16 Valve, Electronic control injector (Common rail), Diesel engine, 7 seater, 4 wheel drive, wheel base 2800 mm, ground clearance 218 mm, output 100 KW (136 PS)/4000 rpm, Torque: 324NM/2000 rpm, 5 speed auto transmission (V5AWF), Power Windows, Built in AC and rear cooler, centre door locking system, Air bag, Immobilizer ABS with EBD, Child lock, alloy wheel, vacuum break booster or equivalent specification.

**Colour:** Black/silver/white as per direction of Engineer in charge.

#### **WATER TRANSPORT**

##### **Speed Boat – 1 (One) No**

Particulars of the Boat:

Ser.	Particulars	Description
1.	Construction	: New Construction
2.	Vessel type	: Speed Boat
3.	Material	: Fiberglass Reinforced Plastic FRP/GRP)
4.	Length overall	: 08.00 M (Approx)
5.	Breath	: 02.50 M (Approx)
6.	Depth	: 01.20 M (Approx)
7.	Draught	: 00.60 M (Approx)
8.	Capacity (Passengers Crew)	: 10 Passenger + 1 driver + 1 crew
9.	Engine Power	: 2 x 85 hpOBM
10.	Fuel	: Petrol
11.	Steering	: Hydraulic Steering and front Wheel
12.	Speed	: 25 Knot (Approx)
13.	Navigation Items	: 1 x Magnetic Compass, 1 x Fish Finder, Electric Horn with loud hailer, Cabin control Search light, or Set Navigation Light, 1 set mast head light.
14.	Life Jacket	: 14
15.	Life Buoy	: 02
16.	Fire Extinguisher	: 02



## APPENDIX-C

### (Schedule Pre shipping Inspection of Dredgers)

The Contractor shall arrange an Inspection team comprising 4 (four) persons of the Employer at the place where the dredgers and ancillaries are ready for shipping for deployment at the project site. The Inspection/checking includes but not limited to the following features;

- a. Readiness of the Dredgers and other ancillaries for shipping to Bangladesh at destination of Project site
- b. Non-engagement of the Dredgers to any other project/Contract
- c. Defect free and running condition
- d. Demonstration of the performance of the Dredgers physically that they meet the criteria and requirements as specified in the Tender document
- e. Demonstration chart /table /brochure /specifications shall be in an internationally accepted language
- f. Any other aspects as deemed fit for successful implementation of the Project related to Dredgers and other equipment

The Contractor shall bear all the expenses to be incurred for inspection.

On clearance by the Inspection Team, they shall arrange shipping of the Dredgers with all other ancillary equipment to Project site

