

TENDER NO. IWAI/COCH/43(A)/2017-18

**TENDER FOR
CONSTRUCTION OF RCC PILE & SLAB TYPE BANK
PROTECTION IN CHAMPAKKARA CANAL OF NW.3.
(THROUGH e-PROCUREMENT).**



June, 2017

**Address of Issuing Office: INLAND WATERWAYS AUTHORITY OF INDIA
National Waterway Road, Kannadikkadu,
Maradu P.O, NH 47 Bypass,
Ernakulam, Kerala.
PIN: 682 304**

E-mail address of Issuing Officer: iwai_kochi@yahoo.co.in; dirkoc.iwai@nic.in

**Head Office: INLAND WATERWAYS AUTHORITY OF INDIA
(Ministry of Shipping, Govt. of India)
A – 13, Sector – 1, Noida-201 301 (U.P.)
Web site: www.iwai.nic.in , <https://eprocure.gov.in/eprocure/app>**

INDEX

Sl. No.	Details	Page no.
1.	Tender issue letter	3
2.	Notice Inviting Tender	4 - 5
	Part-I	6
3 (i)	Tender Acceptance Letter	7
3 (ii)	Form of Tender	8 - 9
4.	Instruction to bidders (ITB) for submission of bid	10 - 20
	Part-II	21
5.	General Conditions	
	(i). Integrity Pact	22 - 27
	(ii). Schedules	28 - 30
	(iii). General conditions of contract	31 - 63
	Part-III	64
6.	Technical Specifications & Special Conditions of Contract	65 - 95
	Part-IV Drawings and Annexures	96
7.	Enclosure-1 Index Map of West Coast Canal Enclosure-2 Drawing of Rip-Rap Bank Protection Annexure-1 Details of Past Experience of Contractor for Similar Works Annexure-2 Agreement Format Annexure-3 Sample Form for Site Orders Book Annexure-4 Proforma for Hindrance Register Annexure-5 Notice for Appointment of Arbitrator	97 - 102
	Part-V Schedule of Quantities / Financial Bid	103 104 - 108



INLAND WATERWAYS AUTHORITY OF INDIA
National Waterway Road, Kannadikkadu,
Maradu P.O, NH 47 Bypass,
Ernakulam, Kerala.
PIN: 682 304

Websites: www.iwai.nic.in and <https://eprocure.gov.in/eprocure/app>.

Tender No: IWAI/COCH/43(A)/2017-18

To,

.....
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.....
.....

Sub: Construction Of RCC Pile & Slab Type Bank Protection In Champakkara Canal Of NW.3.

Ref: Your letter no....., Dated:

Sir,

With reference to your letter cited above on the subject, please find enclosed herewith one set of tender document for the subject work. You are requested to go through the terms and conditions carefully and also visit the site to familiarise and submit your tender as per procedure explained therein.

The tender document can be downloaded from the IWAI's website www.iwai.nic.in and CPP Portal Website <https://eprocure.gov.in/eprocure/app>. The last date for submission of e-tender is on 22.06.2017 upto 3.00 PM. The Bids will be placed only online at <https://eprocure.gov.in/eprocure/app>. Issuance of tender document will not construe that such bidders are automatically considered qualified.

Yours faithfully

Director.

INLAND WATERWAYS AUTHORITY OF INDIA
National Waterway Road, Kannadikkadu,
Maradu P.O, NH - 47 Bypass,
Ernakulam, Kerala.
PIN: 682 304.

Websites: www.iwai.nic.in and <https://eprocure.gov.in/eprocure/app>.

Tender Notice No: IWAI/COCH/43(A)/2017-18

Name of Work: Construction Of RCC Pile & Slab Type Bank Protection In Champakkara Canal Of NW.3.

1. Inland Waterways Authority of India (IWAI) invites e-tenders in two cover system (Cover I - Technical bid and Cover II - Financial Bid) from experienced and resourceful Contractors for the work of Construction of RCC Pile & Slab type Bank Protection in the Champakkara Canal of NW.3.
2. Estimated Cost of the work is as under:

Sl. No.	Name of the work	Estimated Cost (Rs. in Lakh)	EMD (in Rs)	Duration of work
1.	Construction of Pile & Slab type Bank Protection in Champakkara Canal of NW.3.	38.65 (exclusive of Service Tax, Swachh Bharat Cess & Krishi Kalyan Cess)	77,300/-	5 months

4. Download of tender document: from 1200 hrs on 12.06.2017 to 1500 hrs on 22.06.2017.
5. Bid submission closing: 1500 hrs on 22.06.2017.
6. Bid Opening Date & Time: 23.06.2017 at 1530 hrs.

TERMS & CONDITIONS:-

7. The tender document can be downloaded from the IWAI's website www.iwai.nic.in and CPP Portal Website <https://eprocure.gov.in/eprocure/app>. Bidders participating e-tender process are required to furnish a non-refundable deposit of Rs.500/- (Rupees five hundred only) through RTGS in the following bank particulars and submit the proof along with UTR No. towards the remittance of payment of tender cost and upload a copy of the same in Technical Bid, on or before the last date and time of submission of tender.

The details of Bank Particulars of IWAI are;

Name of Account Holder : Inland Waterways Authority of India Fund-Plan.
Name of Bank & Branch : Punjab National bank, Vyttila Branch.
Account No. : 4490001100000298
IFS Code : PUNB0449000

8. The Bids are to be submitted only online at <https://eprocure.gov.in/eprocure/app>.

9. The tenderer shall meet the following criteria:
- i. The tenderer shall be registered in appropriate class with CPWD, Railways, MES, State PWD/ Irrigation Department, Port Trust etc., or shall have required experience in similar works executed in inland waterways.
 - ii. Tenderer shall have Permanent Account Number issued by Income Tax Dept. and must be an assessee.
 - iii. Average annual financial turnover during last three years ending 31st March of the previous financial year should be at least 100% of the estimated cost. Experience of having successfully completed similar works during last 7 years ending last day of month previous to the one in which this tender is invited should be either of following :
 - a. Three similar works costing not less than 40% of the estimated cost; or
 - b. Two similar works costing not less than 60% of the estimated cost; or
 - c. One similar work completed not less than 80% of the estimated cost

AND

One completed work costing not less than the amount equal to 40% of the estimated cost put to tender with some Central Government Department/State Government Department/ Central Autonomous Body/ State Autonomous Body/ Central Public Sector Undertaking/ State Public Sector Undertaking/City Development Authority/ Municipal Corporation of City formed under any Act by Central/ State Government and published in Central/State Gazette.

Note: The successful completion of the similar work should be supported with a completion certificate issued by the department/ agency for whom the work has been executed.
 - iv. Latest certificate of solvency from Nationalized / Scheduled Bank included in the Second Schedule of the RBI Act for not less than 40% (i.e., for Rs.15.50 lakhs) of the estimated cost of the work.
 - v. Average annual financial turnover on contract works should be at least 100% of the estimated cost during the immediate last 3 consecutive financial years and should not have incurred any loss in more than two years during the last five years ending March of the previous financial year.
 - vi. The tenderer shall furnish the Tender Cost and Earnest Money Deposit through RTGS (in IWAI Account) before closing date and time of submission of tender. Any / all submissions made without the Earnest Money Deposit and without the Tender Cost and / or received after the closing date mentioned shall be rejected.
10. IWAI reserves the right to accept or reject any or all tenders without assigning any reason and no correspondence shall be entertained in this regard.

Director

PART – I

3. (i) Tender Acceptance Letter
- (ii) Form of Tender

4. Instruction to Bidders for submission of bid

PART-I

3 (i) TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

To,

THE DIRECTOR,
Inland Waterways Authority of India
National Waterway Road, Kannadikkadu,
Maradu P.O, NH 47 Bypass,
Ernakulam, Kerala. PIN: 682 304.

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No. IWAI/COCH/43(A)/2017-18

Name of Tender / Work: Construction of RCC Pile & Slab type Bank Protection in
Champakara Canal of NW.3.

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely: www.iwai.nic.in OR <https://eprocure.gov.in/eprocure/app> as per your advertisement, given in the above mentioned website(s).
2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.
3. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s) / minutes of the pre-bid meeting/corrigendum(s) in its totality / entirety.
4. In case any provisions of this tender are found violated , then your department/ organisation shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

3 (ii). FORM OF TENDER

To,

The Director,
Inland Waterways Authority of India
National Waterway Road, Kannadikkadu,
Maradu P.O, NH 47 Bypass,
Ernakulam, Kerala. PIN: 682 304.

Name of Work: Construction of RCC Pile & Slab type Bank Protection in Champakkara Canal of NW.3.

Sir,

1. Having visited the site and examined the information and instruction for submission of tender, general conditions of contract, Special Condition of contract, Technical, General and Detailed specification, Schedules and Bill of Quantities, agreement and bank guarantee forms, etc. for the above named works, I/ We hereby tender for execution of the work referred to in the tender document in conformity with the said Conditions of Contract, Specifications, Schedule of quantities for the sum as stated in Bill of quantities of this tender Document or such other sum as may be ascertained in accordance with the said conditions of contract.
2. I/ We undertake to complete and Deliver the whole of the works comprised in the Contract within the time as stated in the tender and also in accordance in all respects with the specifications, designs, drawings and instructions as mentioned in the tender documents.
3. I am tendering for the work mentioned in the table below duly furnishing Earnest Money Deposit (EMD) of Rs. 77,300/- through RTGS in the following bank particulars.

Name of Account Holder : Inland Waterways Authority of India Fund-Plan.
Name of Bank & Branch : Punjab National bank, Vyttila Branch.
Account No. : 4490001100000298
IFS Code : PUNB0449000

Sl. No.	Name of the work	Particulars of RTGS transfer along with UTR No.	EMD Amount (Rs.)
1	Construction of RCC Pile & Slab type Bank Protection in Champakkara Canal of NW.3.		

4. I/ We agree to abide by this tender. I/ We agree to keep the tender open for a period of 90 days from the last date of submission of bid or extension thereto as required by the IWAI and not to make any modifications in its term and conditions.

5. I/ We agree, if I/ we fail to keep the validity of the tender open as aforesaid or I/ we make any modifications in the terms and conditions of my/ our tender if I/ We fail to commence the execution of the works as above, I/ We shall become liable for forfeiture of my/ our Earnest money, as aforesaid and IWAI shall without any prejudice to any other right or remedy, be at the liberty to forfeit the said Earnest Money absolutely otherwise the said earnest money shall be retained by IWAI towards part of security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered. Should this tender be accepted, I/ We agree to abide by and fulfil all the terms and conditions and provisions of this tender. No interest is payable on earnest money deposit and/ or security deposit.
6. I/ We have independently considered the amount of Liquidated Damages shown in the tender hereto and agree that it represents a fair estimate of the loss likely to be suffered by IWAI in the event of works not being completed in time.
7. If this tender is accepted, I/ We undertake to enter into execute at my/ our cost when called upon by the employer to do so, a contract agreement in the prescribed form. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereto shall constitute a binding contract.
8. If my/ our tender is accepted, I/We am/are to be jointly and severally responsible for the due performance of the Contract. I/We also declare that the firm has not been banned or blacklisted by any Govt. or its department or any Quasi Govt. agency or Public Sector Undertaking or Multilateral or International Aid Agency/Development Bank.
9. I/ We understand that you are not bound to accept the lowest or any tender you may receive and may reject all or any tender without assigning any reason.
10. I/ We certify that the tender submitted by me, us is strictly in accordance with the terms, conditions, specifications etc. as contained in the tender document, and it is further certified that it does not contain any deviation to the aforesaid documents.

Date

Signature

Name

Designation

duly authorized to sign & submit tender for an on behalf of
(Name and address of firm)

M/s

.....

Telephone nos.....FAX No.....

Witness :

Signature.....

Name :

Occupation

AddressTelephone nos.

4. INSTRUCTIONS FOR SUBMISSION OF BID

- 1.0** All covering letters and information to be included in the bid shall be submitted along with the bid itself.
- 2.0** This tender schedule is only for the work of Construction of RCC Pile & Slab type Bank Protection in Champakkara Canal of NW.3.
- 3.0** The total estimated cost of works is Rs. 38.65 lakhs (exclusive of Service Tax, Swachh Bharat Cess & Krishi Kalyan Cess).
- 4.0** Tender should be submitted online at <https://eprocure.gov.in/eprocure/app>. latest by 1500 hours on 22.06.2017 **in two bid systems i.e.,** Technical Bid and Price Bid. Technical Bid of the offer will be opened online on 23.06.2017 at 15:30 hours at IWAI, Kannadikadu, Maradu, Ernakulam, Kerala.

4.1. Technical Bid

The technical bid shall be submitted online along with scanned copy of the following documents:

- a) Scanned copy of the 'Tender Acceptance Letter' duly signed and stamped.
- b) Scanned copy of the 'Form of Tender' duly signed and stamped
- c) Scanned copy of Payment Receipt made through RTGS (along with UTR No.) towards cost of the bidding documents must be uploaded. A certified copy of Payment Receipt is to be deposited in the office before the bid submission closing date & time.
- d) Scanned copy of Payment Receipt made through RTGS (along with UTR No.) towards remittance of Earnest Money Deposit must be uploaded. A certified copy of Payment Receipt is to be deposited in the office before the bid submission closing date & time.
- e) Registration certificate from concerned Authorities.
- f) Details of experience in the form at **Annex-1** and copies of experience certificate. (Experience certificate for the works of similar nature with satisfactory performance).
- g) Latest Solvency certificate for not less than Rs.15.50 lakhs issued by Nationalised / scheduled Bank, which should not be older than 5 months from the last date of bid submission.
- h) Letter of Authority for signing and negotiation of tender (as the case may be).
- i) Duly signed Integrity Pact (given in Part-II, General conditions)
- j) Permanent Account Number (PAN) issued by Income Tax Department.
- k) Audited balance sheets along with turnover, profit and loss account for the last 3 years i.e. ending March 2015, 2016 and 2017.
- l) Service Tax Registration number including copy of registration certificate.
- m) A confirmation duly signed by the tenderer that he/she has visited the site and is familiar with the site conditions as well as proposed works.

4.2. Price Bid

The price bid shall be submitted online for

- (i) Schedule of Prices duly filled in the specified form.
 - (ii) This part shall not contain any terms & conditions. Any condition given in the price bid will be a sufficient cause for rejection of bid.
- 5.0 Bidders are advised to submit their offer strictly based upon technical specification, terms and conditions contained in documents and not to stipulate any deviations. Any change in this may lead to rejection of bid.
- 6.0 Earnest Money Deposit of Rs.77,300/- for the tendered work in Notice Inviting Tender should be submitted through RTGS in the A/c. No.4490001100000298 of Inland Waterways Authority of India Fund- Plan, maintained at Punjab National bank, Vyttila Branch (IFS Code: PUNB0449000).

A certified copy of Payment Receipts towards Tender Cost and Earnest Money Deposit shall be submitted in the office of IWAI, National Waterway Road, Kannadikkadu, Maradu P.O, NH 47 Bypass, Ernakulam, Kerala, PIN 682 304 on or before the closing date & time of submission of bid. In case the EMD & Tender fee does not credited in the specified Account No. of IWAI due to any reasons, the bid is liable for rejection.

The Earnest Money of the Successful Bidder submitted through RTGS mode will be retained as Security Deposit.

The Bid Security / Earnest Money will be forfeited if the Bidder withdraws the Bid after its submission during the period of Bid Validity or in the case of a Successful Bidder, if the Bidder fails within the specified time limit to sign the Agreement; and/or to furnish the required Performance Security.

- 7.0 Any annotations or accompanying documentation in the bid shall be in Hindi or English language only and in metric system. Tenders filled in any other language will be summarily rejected.
- 8.0 Bidders shall sign their proposal with the exact name of the firm to whom the bid document has been issued / downloaded. The bid shall be duly signed and sealed by an authorized person of the bidder's organization as following:
- 8 (a) If the Tender is submitted by an individual, it shall be signed by the proprietor above his full name and full name of his firm with its current business address.
 - 8 (b) If the Tender is submitted by the proprietary firm, it shall be signed by the proprietor above his full name and full name of his firm with its name and current business address.
 - 8 (c) If the Tender is submitted by a firm in partnership, it shall be signed by all the partners of the firm above, their full names and current business address, or by a partner holding the power of attorney for the firm for signing the Tender in which cases a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed and current business address of all the partners of the firm shall also accompany the Tender.
 - 8 (d) If the Tender is submitted by a limited company, or a limited Corporation, it shall be signed by a duly authorized person holding the power of attorney for signing the tender in which case a certified copy of the power of attorney shall accompany the Tender. Such limited company or corporation may be required to furnish satisfactory evidence of its

existence before the contract is awarded. 'Satisfactory evidence' means the certificate of incorporation of the limited company or corporation under Indian Companies Act, 1956.

- 8 (e) All witnesses and sureties shall be persons of status and their full names, occupations and addresses shall be stated below their signatures. All signatures affixed in each page in the tender will be dated.
- 9.0** Bidders shall clearly indicate their legal constitution and the person signing the tender shall state his capacity and also the source of his ability to bind the bidder. The power of attorney or authorization or any other document constituting adequate proof of the ability of the signatory to bind the bidder shall be annexed to the bid. The Owner may reject outright any bid unsupported by adequate proof of the signatory's authority.
- 10.0** The bid document shall be completed in all respects and shall be submitted together with the requisite information and appendices. They shall be complete and free from ambiguity, change or inter-lineation. In case IWAI requires any information/ clarification(s) from the Bidder in respect of the bid documents, the bidder shall be required to furnish the same in writing, to IWAI at the earliest where no time is specified by IWAI to furnish the same. A failure to furnish the same shall entitle IWAI to cancel/ reject the bid.
- 11.0** If the space in the bid form or in the Appendices thereto is insufficient, additional pages shall be separately added. These pages shall be consecutively page numbered and shall also be signed by the Bidder.
- 12.0** Bidders should indicate at the time of quoting against this bid their full postal addresses, telephone numbers and other communication details enabling IWAI to contact the bidder in case the need so arise.
- 13.0** IWAI shall have an unqualified option under the said bid bond to claim the amount thereunder in the event of the Bidder failing to keep the bid valid up to the date specified or refusing to accept work or carry it out in accordance with the bid if the IWAI decides to award the Work to the Bidder.
- 14.0** The EMD shall be retained with the IWAI until finalization of tenders. Further, security deposit as per the Clause of Security shall be payable by the successful bidder. If the tenderer fails to furnish the security deposit in accordance with tender conditions EMD shall be forfeited. In the event of the Bidder becoming the successful Contractor, the amount of EMD would be adjusted against the Security deposit.
- 15.0** IWAI shall, however, arrange to release the EMD in respect of unsuccessful bidders within 30 (thirty) days of placement of order to successful bidder. No interest shall be payable on EMD by IWAI.
- 16.0** The Tender Evaluation Committee (TEC) shall open the tenders in the presence of the intending tenderers who may be present at the date and time of opening informed in the bid document or subsequently. If any of the tenderer or his agent is not present at the time of opening of tender, the TEC shall, on opening of tenders of the absentee tenderer, prepare a statement of the attested and unattested corrections in the tender over their signature. Such a list shall then be binding on the absentee tenderer.

17.0 The successful tenderers shall be required to execute a contract agreement in the given format. In case of any refusal/ failure on the part of such successful tenderer to execute such a contract shall be deemed to be a failure on the part of such successful bidder to comply with the terms contained herein.

18. Qualification of the Bidder

18.1 This invitation for online bids is open to all reputed and resourceful contractors fulfilling the criteria given under Terms and Conditions in the Tender Notice and as regards the size / value of experience in execution of similar works during past seven years, the factor specified below shall be used to bring the value of such completed works at the level of current financial year i.e. 2017-18.

Year Before	Multiplying Factor
One	1.07
Two	1.14
Three	1.21
Four	1.28
Five	1.35
Six	1.42
Seven	1.49

19.0 Each Bidder shall submit only one online Bid for the work. A Bidder who submits more than one Bid will cause proposals with the Bidder's participation to be disqualified.

20.0 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Owner will, in no case, be responsible or liable for those costs regardless of the conduct or outcome of the bidding process.

21.0 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, terms, specifications, forms and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 33 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

22.0 Clarification of Bidding Documents

22.1 A prospective Bidder requiring any clarification of the bidding documents may notify the Tender Inviting Authority in writing, by facsimile or email at the address indicated in the Tender Notice / Notice Inviting Tender. The tender inviting authority will respond to any request for clarification received earlier than 7 days prior to the deadline for submission of bids. Copies of the response will be forwarded to all purchasers of the bidding documents / will be uploaded to the web sites, including a description of the inquiry, but without identifying its source.

23.0 Amendment of Bidding Documents:

Before the deadline for online submission of bids, the Owner may modify/amend/make addition in the bidding documents for any reason, whether at its own initiative or in

response to clarification requested by a prospective bidder by issuing addenda/corrigendum. Any addendum/corrigendum/ minutes of pre bid meeting uploaded on website shall be part of the bidding documents. Corrigendum / Addendum / Minutes of pre bid meeting will be available on website. The modification /amendment / additions in the bidding document shall be binding on the prospective bidders. To give prospective bidders reasonable time in which to take a corrigendum / addendum / minutes of pre bid meeting into account in preparing their bids, the Owner may extend, as necessary, the deadline for submission of bids.

24.0 Bid Prices:

The Contract shall be for the whole Works, as described, based on the cost schedule submitted by the Bidder. The bidder shall quote rates and prices for all items of the Works described in the cost schedule. All duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder except for service tax which shall be indicated separately and which will be reimbursed to the contractor on producing proof of payment. The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment. The prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupees.

25.0 Bid Validity: Bids shall remain valid for a period of 90 days after the last date for bid submission. A bid valid for a shorter period will be treated as non-responsive and shall be rejected.

In exceptional circumstances, prior to expiry of the original time limit, the IWAI may request the bidder to extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security.

26.0 Bidder shall submit offers that fully comply with the requirement of the bidding document including conditions of contract. Conditional offer or alternate offer will not be considered in the process of tender evaluation.

27.0 The Bidder shall submit online bid and the Bid shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. All pages of the Bid shall be signed by the person or persons signing the Bid. The Bid shall contain no overwriting, alterations or additions, except those to comply with instructions issued by the Tender Inviting Authority.

28.0 Submission of Bids: The Bidder shall submit online bids. Complete online Bids (including Technical and Financial) must be received by the bid submission closing date and time. The Tender inviting Authority may extend the deadline for submission of bids by issuing an amendment, in which case all rights and obligations of the Owner and the bidders previously subject to the original deadline will then be subject to the new deadline.

29.0 Modification and Withdrawal of Bids: Bidders may modify or withdraw their bids online before the deadline prescribed. Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified or as extended shall result in the forfeiture of the Bid security.

30.0 Bid Opening and Evaluation

- 30.1 Online Bid opening shall be carried out in two stages. Firstly, 'Technical Bid' of all the online bids received shall be opened on the date and time mentioned. 'Financial Bid' of those bidders whose technical bid has been determined to be responsive and on evaluation fulfils the criteria shall be opened on a subsequent date, which will be notified to such bidders.
- 30.2 The Owner will open the online "Technical Bid" of all the bids received in the presence of the bidders/bidders' representatives who choose to attend at the time, date and place specified. In the event of the specified date for the submission of bids being declared a holiday for the Owner, the Bids will be opened at next immediate convenient time & date which will be notified through the web site.
- 30.2 Bidder's names and such other details like EMD furnished, as the Owner may consider appropriate will be announced by the Owner after the opening.
- 30.3 After the opening of the technical bids, their evaluation will be taken up with respect to bid security, qualification and other information furnished in Technical bid. Thereafter, on fulfilling the criteria laid down in Bid Evaluation, a list will be drawn up of the responsive bids whose financial bids are eligible for consideration.
- 30.4 The Owner shall inform the bidders, whose technical bids are found responsive, of the date, time and place of opening of the financial bids. The bidders so informed, or their representative, may attend the online opening of financial bids.
- 30.5 At the time of the online opening of the 'Financial Bid', the names of the bidders whose bids were found responsive and the Bid prices, the total amount of each bid and such other details as the Owner may consider appropriate will be announced by the Owner.

31.0 Process to be Confidential

Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Owner's processing of bids or award decisions may result in the rejection of his Bid.

32.0. Clarification of Bids and Contacting the Owner

- 32.1 During the evaluation of the bids, the owner may, at its discretion, ask the bidder to provide any additional information/clarification in relation to its bids as may be deemed fit by the owner. The bidder shall in all cases where such request has been made by the owner, submit such information/clarification within such period and in such manner as may be specified by the owner in the request so made. In the event of failure of the bidder to furnish such additional information as may be requested by the owner, the owner may, in its sole discretion, deem such bid as non-responsive. The bidder shall not have any right to challenge the same or any claims arising from such bid being deemed non-responsive by the owner.

- 32.2 No bidder shall contact the owner on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. Any attempt by the bidder to influence the Owner's bid evaluation, bid comparison or contract award decision may result in the rejection of his bid.

33.0 Examination of Bids and Determination of Responsiveness

During the detailed evaluation of "Technical Bids", the Owner will first determine whether each Bid (a) meets the eligibility criteria (b) has been properly signed; (c) is accompanied by the required securities; and (d) is responsive to the requirements of the bidding documents.

After the above process is completed, the technical specification/offer of the responsive bidders will be examined with respect to technical specifications provided in the tender document. Clarifications, if any, at this stage in respect of the technical parameters offered by the bidder will be sought from the bidders. Thereafter, the bids, which conform, to the terms, conditions, and specifications of the bidding documents, without material deviation or reservation will be considered as responsive for evaluation.

34.0 Evaluation of Bids

- 34.1 Selection of the bidder for the tendered work will be based on technical and financial evaluation.
- 34.2 Technical evaluation shall be based on the bidder satisfying the eligibility criteria stated in clause 8 of Terms and Conditions under the Tender Notice AND the bidder furnishing all documents / certificates / undertakings as specified in clause 4.1 under INSTRUCTIONS FOR SUBMISSION OF BID.
- 34.3 Verification of the facts furnished by the bidders may be made prior to finalizing the technical evaluation
- 34.4 If the bidder does not fulfil the above criteria his bid shall be technically disqualified and his financial bid shall not be opened.
- 34.5 The evaluation of the financial bid will be based on the lowest financial offer received for the work.

35.0 Award of Contract

- 35.1. Subject to Clause 36, the Owner will award the Contract to the Bidder after evaluation as per Clause 34.
- 35.2. Owner has the right to accept any Bid and to reject any or all Bids and split the work or Increase and Decrease work. Notwithstanding Clause 35.1, the Owner also reserves the right to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Owner's action.

36.0. Notification of Award and Signing of Agreement.

- 36.1 The bidder whose Bid has been accepted will be notified of the award by the Owner prior to expiration of the Bid validity period and this letter will be called "Letter of Acceptance" or "Work order" which will state the sum that the Owner will pay to the Contractor in consideration of the execution and completion of the Works by the

Contractor as prescribed by the Contract (hereinafter and in the Contract called the “Contract Price”) and also the time period for completion of the works.

- 36.2. The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 37.
- 36.3. The Agreement will incorporate all agreements between the Owner and the successful Bidder. It will be signed in the proforma given at **Annexure.2** by the Owner and the successful Bidder after the performance security is furnished and within 15 days of issuance of Letter of Acceptance.
- 36.4 Upon the furnishing of the Performance Security by the successful Bidder, the other Bidders will be informed that their Bids have been unsuccessful.

37.0 Performance Security

- 37.1 Within 15 (fifteen) days of issue of the Letter of Acceptance, the successful Bidder shall deliver to the Owner a Performance Security equivalent to five percent [5%] of the Contract Price.
- 37.2 The performance security shall be furnished through RTGS in the A/c. No. 4490001100000298 of Inland Waterways Authority of India Fund- Plan, maintained at Punjab National bank, Vyttila Branch (IFS Code: PUNB0449000).
- 37.3 Failure of the successful bidder to comply with the requirement of sub-clause 37.1 shall constitute sufficient ground for cancellation of the award and forfeiture of the bid security.

38.0 Corrupt or Fraudulent Practices

The Owner will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with Inland Waterways Authority of India and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contractor, or in execution.

The Owner requires the bidders/Contractors to strictly observe the laws against fraud and corruption enforced in India, namely, Prevention of Corruption Act, 1988.

39.0 Instructions to the Bidders for the submission of bids online through the e-Procurement Portal <https://eprocure.gov.in/eprocure/app>

- 39.1 Possession of valid Digital Signature Certificate (DSC) and enrollment/registration of the consultants/bidders on the e-procurement/e-tender portal is a prerequisite for e-tendering.

- 39.2 Bidder should do the enrolment in the e-Procurement site using the <https://eprocure.gov.in/eprocure/app> option available "Enroll Here" on the home page. Portal. Enrollment is free of charge. During enrollment/registration, the bidders should provide the correct/true information including valid email-id. All the correspondence shall be made directly with the contractors/bidders through email-id provided.
- 39.3 Bidder need to login to the site through their user ID/ password chosen during enrollment/registration.
- 39.4 Then the Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by SIFY/TCS/ nCode/ eMudra or any Certifying Authority recognized by CCA India on eToken/ Smar Card, should be registered.
- 39.5 The DSC that is registered only, should be used by the bidder and should ensure safety of the same.
- 39.6 Contractor/Bidder may go through the tenders published on the site and download the required tender documents/schedules for the tenders he/she is interested.
- 39.7 After downloading / getting the tender document/schedules, the Bidder should go through them carefully and then submit the documents as asked.
- 39.8 If there are any clarifications, this may be obtained online through the tender site, or through the contact details. Bidder should take into account of the corrigendum published before submitting the bids online.
- 39.9 Bidder then logs in to the site through the secured log in by giving the user id/ password chosen during enrolment/registration and then by giving the password of the eToken/ Smart Card to access DSC.
- 39.10 Bidder selects the tender which he/she is interested in by using the search option and then moves it to the 'my favourites' folder.
- 39.11 From the favourites folder, he selects the tender to view all the details indicated.
- 39.12 It is construed that the bidder has read all the terms and conditions before submitting their offer. Bidder should go through the tender schedules carefully and upload the documents as asked; otherwise, the bid will be rejected.
- 39.13 Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in general PDF/xls/rar/jpg formats. If there is more than one document, they can be clubbed together and can be provided in the requested format. Each document to be uploaded through online for the tenders should be less than 2 MB. If any document is more than 2MB, it can be reduced through zip/rar and the same can be uploaded, if permitted.
- 39.14 If there are any clarifications, this may be obtained through the site, or during the pre-bid meeting if any. Bidder should take into account the corrigendum published from time to time before submitting the online.
- 39.15 The Bidders can update well in advance, the documents such as certificates, annual report details etc., under My Space option and these can be selected as per tender

- requirements and then send along with bid documents during bid submission. This will facilitate the bid submission process faster by reducing upload time of bids.
- 39.16 Bidder should submit the Tender Fee/ EMD as specified in the tender. The original payment instruments should be posted/ couriered/ given in person to the Tender Inviting Authority within the due date as mentioned in this tender document. Scanned copy of the instrument should be uploaded as part of the offer, if asked for.
- 39.17 While submitting the bids online, the bidder reads the terms & conditions and accepts the same to proceed further to submit the bid packets.
- 39.18 The bidder has to select the payment option as offline to pay the Tender FEE/ EMD as applicable and enter details of the instruments.
- 39.19 The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise submitted bid will not be acceptable.
- 39.20 The bidder has to digitally sign and upload the required bid documents one by one as indicated. Bidders to note that the very act of using DSC for downloading the bids and uploading their offers shall be deemed to be a confirmation that they have read all sections and pages of the bid document including General conditions of contract without any exception and have understood the entire document and are clear about the requirements of the tender requirements.
- 39.21 The bidder has to upload the relevant files required as indicated in the cover content. In case of any irrelevant files, the bid will be rejected.
- 39.22 If the price bid format is provided in a spread sheet file like BoQ_xxxx.xls, the rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Price Bid/BOQ template must not be modified/replaced by the bidder, else the bid submitted is liable to be rejected for this tender.
- 39.23 The bidders are requested to submit the bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.
- 39.24 After the bid submission, the acknowledgement number, given by the e-tendering system should be printed by the bidder and kept as a record of evidence for online submission of bid for the particular tender and will also act as an entry pass to participate in the bid opening date.
- 39.25 The bidder should ensure/see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is likely /liable to be rejected.
- 39.26 The time settings fixed in the server side & displayed at the top of the tender site, will be valid for all actions of requesting, bid submission, bid opening etc., in the e-tender system. The bidders should follow this time during bid submission.
- 39.27 All the data being entered by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered will not viewable by

unauthorized persons during bid submission & not be viewable by any one until the time of bid opening.

- 39.28 Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 39.29 The confidentiality of the bids is maintained since the secured Socket Layer 128 bit encryption technology is used. Data storage encryption of sensitive fields is done.
- 39.30 The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.
- 39.31 Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 39.32 Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 233 7315.

PART – II

5. GENERAL CONDITIONS.

- (i) Integrity Pact**
- (ii) Schedules**
- (iii) General Conditions of Contract.**

Article 1: Commitment of the Principal/Owner

- 1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
 - (c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1. It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the IWAI all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
2. The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
 - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the tender process or execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the contract.

- b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
3. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
 4. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a wilful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.
 5. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the bidder/contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

1. If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days' notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.
2. Forfeiture of EMD/Performance Guarantee/Security Deposit: If the Principal / Owner has disqualified the Bidder(s) from the tender process prior to the award of the contract or terminated/determined the contract or has accrued the right to terminate/determine the contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.
3. Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a bidder or Contractor, or of an employee or a representative or an associate of a bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub-vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6: Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority of IWAI.

Article 7: Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Headquarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8: LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:

1.
(signature, name and address)

2.
(signature, name and address)

Place:
Date :

(ii) SCHEDULES

SCHEDULE 'A': Salient Features of the work.

Name of Work:	Construction of RCC Pile & Slap type bank protection in Champakkara Canal of NW.3.
Estimated cost:	Rs. 38.65 lakhs (exclusive of Service Tax & Swachh Bharat Cess)
Earnest Money:	Rs. 77,300/-.
Security Deposit:	10% of contract price.

SCHEDULE 'B': General Rules & Directions with reference to General Conditions of Contract: -

- | | | |
|--|----------|--|
| (i). Officer inviting tender | : | Director, IWAI, Kochi |
| (ii). Tender Accepting Authority | : | Director, IWAI |
| (iii). (a) Time allowed for submission of Performance Guarantee as per clause 3.1 of GCC from the date of issue of letter of acceptance | } | : 15 days |
| (b) Maximum allowable extension beyond the period provided in (iii) (a) above | } | : 7 days. |
| (iv) Percentage on Cost of Materials and Labour to cover all overheads & profits | } | : included in the estimate |
| (v) Standard Schedule of Rates | : | Not applicable |
| (vi) Specifications to be followed | : | Not applicable |
| (vii) Deviation Limit beyond which clause 16.3, 16.4, 16.5 & 16.6 | } | : 20% with approval of the Competent Authority |
| (viii) Competent Authority for grant extension of time under clause 34:- | | |
| | | (a) Regional Director (Field), IWAI (if the amount of contract is upto 50 lakhs). |
| | | (b) Member (Technical), IWAI (if the amount of contract is upto 100 lakhs). |
| | | (c) Vice-Chairman / Chairperson, IWAI, Noida (if the cost of contract |

is more than 100 lakhs & up to 500 lakhs).

(d) Chairman, IWAI, Noida (if the amount of contract is more than 500 lakhs).

(ix) Competent Authority to levy liquidated damages for delay under clause 35:-

(a) Regional Director (Field), IWAI (if the amount of contract is upto 50 lakhs).

(b) Member (Technical), IWAI (if the amount of contract is upto 100 lakhs).

(c) Vice-Chairman / Chairperson, IWAI, Noida (if the cost of contract is more than 100 lakhs & up to 500 lakhs).

(d) Chairman, IWAI, Noida (if the amount of contract is more than 500 lakhs).

(x) Competent Authority to determine the contract as per clause 36:-

(A) Regional Director (Field), IWAI (if the amount of contract is upto 50 lakhs).

(B) Regional Director/Engineer-in-Charge with the prior approval of

(a) Member (Technical), IWAI (if the amount of contract is upto 100 lakhs).

(b) Vice-Chairman / Chairperson, IWAI, Noida (if the cost of contract is more than 100 lakhs & up to 500 lakhs).

(c) Chairman, IWAI, Noida (if the amount of contract is more than 500 lakhs).

(xi) Milestones as per table given below:-

(Clause 34.5 & 34.6 shall be applicable only when the amount of the contract is more than 10 Crores).

Sl. No.	Milestone	Time Allowed (from date of start) in months	Amount to be withheld in case of non-achievement of mile stone
	Not applicable being less than Rs. 10 Crores.		

(xii) Competent authority to reschedule the milestones as per clause 34.5 } : Chairman, IWAI, Noida.

(xiii) Competent authority for foreclosure of contract in full or in part due to abandonment or reduction in scope of work as per Clause – 31:

- (A) Regional Director (Field), IWAI (if the amount of contract is upto 50 lakhs).
- (B) Regional Director/Engineer-in-Charge with the prior approval of
 - (a) Member (Technical), IWAI (if the amount of contract is upto 100 lakhs).
 - (b) Vice-Chairman / Chairperson, IWAI, Noida (if the cost of contract is more than 100 lakhs & up to 500 lakhs).
 - (c) Chairman, IWAI, Noida (if the amount of contract is more than 500 lakhs).

(xiv) Incentive for early completion : Not applicable

(iii) GENERAL CONDITION OF CONTRACT

CONTENTS

CLAUSE-1	:	DEFINITIONS
CLAUSE-2	:	INTERPRETATIONS
CLAUSE-3	:	PERFORMANCE GUARANTEE
CLAUSE-4	:	SECURITY DEPOSIT
CLAUSE-5	:	SUFFICIENCY OF TENDER
CLAUSE-6	:	CONTRACT DOCUMENTS
CLAUSE-7	:	DISCREPANCIES AND ADJUSTMENT OF ERRORS
CLAUSE-8	:	DUTIES AND POWERS OF ENGINEER-IN-CHARGE'S REPRESENTATIVE
CLAUSE-9	:	ASSIGNMENT AND SUB-LETTING
CLAUSE-10	:	FACILITIES TO OTHER CONTRACTORS
CLAUSE-11	:	CHANGE IN CONSTITUTION OF THE FIRM TO BE INTIMATED
CLAUSE-12	:	COMMENCEMENT OF WORK
CLAUSE-13	:	WORKS TO BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATIONS DRAWINGS AND ORDERS ETC.
CLAUSE-14	:	SETTING OUT THE WORKS
CLAUSE-15	:	URGENT WORKS
CLAUSE-16	:	DEVIATIONS, VARIATIONS, EXTENT & PRICING
CLAUSE-17	:	CONTRACTOR'S SUPERVISION
CLAUSE-18	:	INSTRUCTIONS AND NOTICE
CLAUSE-19	:	PLANT AND EQUIPMENT
CLAUSE-20	:	PATENT RIGHTS
CLAUSE-21	:	MATERIALS
CLAUSE-22	:	LAWS GOVERNING THE CONTRACT
CLAUSE-23	:	WATCH & WARD AND LIGHTING
CLAUSE-24	:	WORK DURING NIGHT OR ON SUNDAYS AND HOLIDAYS

- CLAUSE-25 : LABOUR
- CLAUSE-26 : MATERIALS OBTAINED FROM EXCAVATION SUCH AS FOSSILS, COINS ETC.
- CLAUSE-27 : FORCE MAJEURE
- CLAUSE-28 : LIABILITY FOR DAMAGE, DEFECTS OR IMPERFECTIONS AND RECTIFICATION THEREOF
- CLAUSE-29 : CONTRACTOR'S LIABILITY AND INSURANCE
- CLAUSE-30 : SUSPENSION OF WORKS
- CLAUSE-31 : FORE CLOSURE OF CONTRACT IN FULL OR IN PART DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK
- CLAUSE-32 : TERMINATION OF CONTRACT ON DEATH
- CLAUSE-33 : CARRYING OUT PART WORK AT THE RISK & COST OF THE CONTRACTOR
- CLAUSE-34 : COMPLETION TIME AND EXTENSIONS
- CLAUSE-35 : LIQUIDATED DAMAGES FOR DELAY
- CLAUSE-36 : WHEN THE CONTRACT CAN BE DETERMINED
- CLAUSE-37 : INSPECTION AND APPROVAL
- CLAUSE-38 : COMPLETION CERTIFICATE & COMPLETION PLANS
- CLAUSE-39 : MEASUREMENTS
- CLAUSE-40 : PAYMENT ON ACCOUNT
- CLAUSE-41 : TAXES, DUTIES AND LEVIES ETC
- CLAUSE-42 : TAX DEDUCTION AT SOURCE
- CLAUSE-43 : PAYMENT OF FINAL BILL
- CLAUSE-44 : OVER PAYMENTS AND UNDER PAYMENTS
- CLAUSE-45 : FINALITY CLAUSE
- CLAUSE-46 : SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED IS REASONABLE WITHOUT PREFERENCE TO ACTUAL LOSS
- CLAUSE-47 : SETTLEMENT OF DISPUTES & ARBITRATION
- CLAUSE-48 : CLAIM
- CLAUSE-49 : INTEREST

GENERAL CONDITIONS OF CONTRACT

CLAUSE - 1: DEFINITIONS

In the contract, the following words & expression shall, unless context otherwise requires, have the meaning thereby respectively assigned to them:

- (i) **Contract:** means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of the Chairman, Inland Waterways Authority of India and the contractor, together within the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-charge and all these documents taken together shall be deemed to form one contract and shall be complementary to one another
- (ii) **Contract sum;** means the amount arrived at by multiplying the quantities shown in the schedule of quantities and price by the respective item rates as allowed (excluding taxes).
- (iii) **Contractor:** means the successful tenderer who is awarded the contract to perform the work covered under this tender document and shall be deemed to include the contractor's successors, executors, representatives or assign approved by the Engineer-in-charge.
- (iv) **Employer** means the Chairman, Inland Waterways Authority of India and his successors.
- (v) **IWAI/ Authority/ Department/ Owner** shall mean the Inland Waterways Authority of India, which invites tenders on behalf of the Chairman, IWAI and includes therein-legal representatives, successors and assigns.
- (vi) **Engineer-In-Charge (EIC)** means the Engineer officer authorised to direct, supervise and be In-charge of the works for the purpose of this contract who shall supervise and be in charge of the work.
- (vii) **Engineer-in-charge representative** shall mean any officer of the Authority nominated by the Engineer-in-charge for day to day supervision, checking, taking measurement, checking bills, ensuring quality control, inspecting works and other related works for completion of the project.
- (viii) **Chairperson / Chairman** : means Chairman of Inland Waterways Authority of India.
- (ix) **Chief Engineer:** means the Chief Engineer of the Authority.
- (x) **Director** means the Director of the Authority, as the case may be.
- (xi) **Deputy Director** means the Deputy Director of the Authority, as the case may be.
- (xii) **Assistant Director** means the Assistant Director of the Authority, as the case may be.

- (xiii) **Assistant Hydrographic Surveyor** means the Assistant Hydrographic Surveyor of the Authority, as the case may be
- (xiv) **Work Order** means a letter from the Authority conveying the acceptance of the tender/offer subject to such reservations as may have been stated therein.
- (xv) **Day** : means a calendar day beginning and ending at mid-night.
- (xvi) **Week** : means seven consecutive calendar days
- (xvii) **Month** : means the one Calendar month.
- (xviii) **Site** means the waterway and / or other places through which the works are to be executed.
- (xix) **Vessel** : Any inland vessel / dredger operating in the National Waterway including the dredging units of IWAI for carrying out the work.
- (xx) **Drawings** : means the drawings referred to in the specifications and / or appended with the tender document, any modifications of such drawing approved in writing by the Engineer-in-Charge and shall also include drawings/ charts issued for actual execution of the work time to time by the Engineer-in-Charge.
- (xxi) **Urgent Works**: means any urgent nature which in the opinion of the Engineer-In-Charge become necessary at the time of execution and / or during the progress of work to obviate any risk or accident or failure or to obviate any risk of damage to the vessel structure, or required to accelerate the progress of work or which becomes necessary for security or for any other reason the Engineer-in-Charge may deem expedient.
- (xxii) **Work / works**: means work / works to be executed in accordance with the contract.
- (xxiii) Schedules referred to in these conditions shall mean the relevant schedules annexed to the tender papers.
- (xxiv) District specifications means the specifications followed by the State Government in the area where the work is to be executed.
- xxv) Tendered value means the value of the entire work as stipulated in the letter of award.

CLAUSE – 2: INTERPRETATIONS

- 2.1 Where the contract so requires, words imparting the singular only shall also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.
- 2.2 Heading and marginal notes in these General Conditions shall not be deemed to form part thereof or be taken into consideration in the interpretation of construction thereof of the contract.

CLAUSE – 3: PERFORMANCE GUARANTEE

- 3.1 The contractor shall be required to deposit an amount equal to 5% of the contract sum as performance guarantee through RTGS in the Account No. 4490001100000298 of Inland Waterways Authority of India Fund- Plan, maintained at Punjab National bank, Vyttila Branch (IFS Code: PUNB0449000) within 15 days of the issue of the work order. Alternatively, the Performance Guarantee may be furnished in the form of Bank Guarantee issued in favour of Chairperson, IWAI by a Nationalized Bank. The proforma for the Bank guarantee will be issued if requested, by the successful bidder.
- 3.2 After recording of the completion certificate for the work by the competent authority, and completion of defects liability period, the performance guarantee shall be returned to the contractor without any interest.
- 3.3 In the event of contract being determined under the provision of any of the clauses/ conditions of agreement, the performance guarantee shall be forfeited in full and shall be absolutely at the disposal of the authority.

CLAUSE – 4: SECURITY DEPOSIT

- 4.1 A sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as the earnest money in the form of RTGS will amount to security deposit of 5% of the contract value of work. Bank guarantee will not be accepted as security deposit.
- 4.2 The total security deposit shall remain with IWAI till the completion of the contract and handing over of the site back to IWAI and the defect liability period is over or the payment of the final bill payable in accordance with agreement conditions whichever is later, provided the Engineer-in-Charge is satisfied that there is no demand outstanding against the contractor.
- 4.3 No interest will be paid on security deposit.
- 4.4 If the contractor neglects to observe or fails to perform any of his obligations under the contract, it shall be lawful for the Employer/ EIC to forfeit either in whole or in part, the security deposit furnished by the contractor. However, if the contractor duly performs and completes the contract in all respects and presents in absolute "NO DEMAND CERTIFICATE" in the prescribed form, the IWAI shall refund the security deposit to the contractor after deduction of cost and expenses that the Authority may have incurred and other money including all losses and damages which the Authority is entitled to recover from the Contractor.
- 4.5 In case of delay in the progress of work, the Engineer- in-Charge shall issue to the contractor a memo in writing pointing out the delay in progress and calling upon the contractor to explain the causes for the delay within 3 days of receipt of the memo and 10 days from issuance of memo whichever is earlier. If the Engineer-in-Charge is not satisfied with the explanations offered, he may forfeit the security deposit and / or withhold payment of pending bills in whole or in part and/ or get the measures of rectification of progress of work accelerated to the pre-defined level at the risk and cost of the contractor.

- 4.6 All compensation or other sums of money payable by the contractor under the terms of the contract or any other contract or on any other account whatsoever, may be deducted from or paid by the sale of a sufficient part of his security or from the interest arising there from or from any sums which may be due or may become due to the contractor by the Authority on any account whatsoever. Also in the event of the contractor's security deposit being reduced by reasons of such deductions or sale, as aforesaid the contractor shall, within 14 days of receipt of notice of demand from the Engineer-in-Charge make good the deficit in his security deposit.
- 4.7 In case the contractor fails to commence the works or when the contractor has defaulted for more than thirty days or when any amount is to be recovered from the contractor as penalty or deduction and the contractor fails to remit such amount even after due notice is given to him in this regard, IWAI at its own discretion may recover the sum from his security deposit.

CLAUSE – 5: SUFFICIENCY OF TENDER

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates quoted in the schedule of Quantities and Prices which shall (except as otherwise provided in the contract) cover all his obligations under the contract and all matters and things necessary for the proper execution and completion of the works in accordance with the provisions of the contract and its operation during execution of work.

CLAUSE – 6: CONTRACT DOCUMENTS

- 6.1 The language in which the contract documents shall be drawn up shall be English and if the said documents are written in more than one languages, the language according to which the contract is to be constructed and interpreted shall be English.
- 6.2 The Contractor shall be furnished free of charge certified true copy of the contract document.
- 6.3 A copy of the Contract Documents furnished to the Contractor as aforesaid shall be kept by the Contractor on the Site in good condition and the same shall at all reasonable time be available for inspection and use by the Engineer-in-Charge, his representatives or by other Inspecting officers of the Authority.
- 6.4 None of these Documents shall be used by the Contractor for any purpose other than that of this contract.

CLAUSE – 7: DISCREPANCIES AND ADJUSTMENT OF ERRORS

- 7.1 Detailed drawings shall be followed in preference to small-scale drawings and figured dimensions in preference to scaled dimensions. The case of discrepancy between the Schedule of Quantities and prices, the Specifications and/ or the drawings, the following order of precedence shall be observed : -
- (a) Description in the Schedule of Quantities and Prices.
 - (b) Relevant Specifications and Special Conditions, if any.

- (c) Drawings.
 - (d) Indian Standards Specifications of BIS.
- 7.2 The contractor shall study and compare the drawings, specifications and other relevant information given to him by the Engineer-in-Charge and shall report in writing to the Engineer-in-Charge any discrepancy and inconsistency which he notes. The decision of the Engineer-in-Charge regarding the correct intent and meaning of the drawings and specifications shall be final and binding.
- 7.3 Any error in description, quantity or price in Schedule of Quantities and Prices or any omission there-from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the work(s) comprised therein according to drawings and specifications or from any of his obligations under the contract.
- 7.4 If on check there is difference in the amount worked out by contractor in the schedule of quantities and prices and General summary the same shall be adjusted in accordance with the following rules:
- (a) In the event of error/discrepancy occurring in the rates written in figures and words, then the rate which corresponds with the amount worked out by the contractor shall, unless otherwise proved, be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rate written either in figures or in words, then the rate quoted by the contractor in words shall be taken as correct. When the rate quoted by the contractor in figures and words tally, but the amount is not worked out correctly, the rate quoted by the contractor will, unless or otherwise proved, be taken as correct.
 - (b) All errors in totaling in the amount column and in carrying forward totals shall be corrected.
 - (c) The totals of various sections of schedule of quantities and price amended shall be carried over to the General Summary and the tendered sum amended accordingly. The tendered sum so altered shall, for the purpose of tender, be substituted for the sum originally tendered and considered for acceptance instead of the original sum quoted by the tenderer. Any rounding off of quantities or in sections of schedule of quantities and prices or in General summary by the tenderer shall be ignored.

CLAUSE-8: DUTIES AND POWERS OF THE ENGINEER-IN-CHARGE REPRESENTATIVE

- 8.1 The duties of the representative of the Engineer-in-Charge are to watch and supervise the works and to test and examine any materials/ parts to be used or workmanship achieved in connection with the works.
- 8.2 The Engineer-in-Charge may, from time to time in writing, delegate to his representative any of the powers and authorities, vested in the Engineer-in- Charge and shall furnish to the contractor a copy of all such written delegation of powers and authorities. Any written instruction or written approval given by the representative of the Engineer-in-Charge to the contractor within the terms of such delegation shall bind the contractor and the Authority as though it has been given by the Engineer-in-Charge.

- 8.3 Failure of the representative of the Engineer-in-Charge to disapprove any work or materials shall be without prejudice to the power of the Engineer-in-Charge thereafter to disapprove such work or materials and to order the pulling down, removal or breaking up thereof. The contractor shall, at his own expense, again carry out such works as directed by the Engineer-in-Charge.
- 8.4 If the Contractor is dissatisfied with any decision of the representative of the Engineer-in-Charge, he will be entitled to refer the matter to the Engineer-in-Charge who shall thereupon confirm, reverse or vary such decision and the decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor.

CLAUSE – 9: ASSIGNMENT AND SUB-LETTING

The Contractor shall not sub-let, transfer or assign the whole or any part of the work under the contract. Provided that the Engineer-in-Charge may at his discretion, approve and authorize the Contractor to sub-let any part of the work, which in his opinion, is not substantial, after the contractor submits to him in writing the details of the part of the work(s) or trade proposed to be sublet, the name of the sub-contractor thereof together with his past experience in the said work/trade and the form of the proposed sub-contract. Nevertheless any such approval or authorization by the Engineer-in-Charge shall not relieve the contractor from his any or all liabilities, obligations, duties and responsibilities under the contract. The contractor shall also be fully responsible to the Authority for all the acts and omissions of the sub-contractor, his employees and agents or persons directly employed by the contractor. However, the employment of piece rate works shall not be construed as sub-letting.

CLAUSE – 10: FACILITIES TO OTHER CONTRACTORS

The contractors shall, in accordance with the requirements of the work as decided by the Engineer-in-Charge, afford all reasonable facilities to other contractors engaged contemporaneously on separate contracts and for departmental labour and labour of any other agency properly authorised by Authority or any statutory body which may be employed at the site for execution of any work not included in the contract which the Authority may enter into in connection with or ancillary to the works. In all matters of conflict of interest, the Engineer-in-Charge shall direct what compromise should be made and his decision shall be final and binding on the parties.

CLAUSE – 11: CHANGE IN THE CONSTITUTION OF THE FIRM TO BE INTIMATED

Where the contractor is a partnership firm, prior approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu Undivided Family business concern, such approval, as aforesaid, shall like-wise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If prior approval as aforesaid is not obtained the contractor shall be deemed to have been assigned in contravention to Clause 36 hereof and the same action will be taken and the same consequences shall ensure as provided for in the said clause-36.

CLAUSE – 12: COMMENCEMENT OF WORK

The contractor shall commence the work at the respective sites within 15 days of the issue of Letter of Award. If the contractor commits default in mobilization of resources, and equipment as aforesaid, the Engineer-in-Charge shall without prejudice to any other right or remedy be at liberty to cancel the contract and forfeit the earnest money/security deposit.

CLAUSE – 13: WORKS TO BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATION DRAWINGS AND ORDERS ETC.

- 13.1 The contractor shall execute the whole and every part of the work in the most substantial and workman like manner in strict conformity with the specifications laid down in the contract document or as may be laid down by the Engineer-in-Charge under the terms of the contract. The contractor shall also conform exactly, fully and faithfully to the designs, drawings specifications and instructions in writing in respect of the work, duly signed by the Engineer-in-Charge as may be issued from time to time.
- 13.2 The contractor shall be entitled to receive, on demand, in addition to the contract documents, in accordance with the provisions of contract, the documents set forth herein in respect of the work on commencement or during the performance of the contract:
- (a) Specifications or revisions thereof other than standard printed specifications and charts/drawings issued to the contractor from time to time
 - (b) Explanations, instructions etc.

Such further drawings, explanation, modifications and instruction, as the Engineer-in-Charge may issue to the contractor from time to time in respect of the work shall be deemed to form integral part of the contract and the contractor shall be bound to carry out the work accordingly.

- 13.3 In the case of any class of work for which there is no specifications, such work shall be carried out in accordance with the Bureau of Indian Standards specifications. In case there are no such specifications in the BIS, work shall be carried out as per manufacturer's specifications, if manufacturer's specifications are also not available then as per District specifications. In case there are no such specifications as required, above the work shall be carried out in all respect in accordance with the instructions and requirements of the Engineer-in-Charge.
- 13.4 All instructions and orders in respect of the work shall be given by the Engineer-in-Charge in writing. However, any verbal instructions or order shall be confirmed by the Engineer-in-Charge as soon as practicable without loss of time and only such written instruction shall be deemed to be valid.

CLAUSE – 14: SETTING OUT THE WORKS

The contractor shall provide all assistance and adhere to the instruction of E.I.C during the course of surveying, inspection, etc.

CLAUSE – 15: URGENT WORKS

If any urgent work (in respect of which the decision of the Engineer-in-Charge shall be final and binding) becomes necessary, the contractor shall execute the same as may be directed by Engineer-in-Charge, provided the directions are in accordance and confirmatory with provisions in Clause – 8.

CLAUSE – 16: DEVIATIONS, VARIATIONS, EXTENT AND PRICING

- 16.1 The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.
- 16.2 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows:
- (i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus
 - (ii) 20% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge after approval of the Competent Authority.
- 16.3 In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, for the work and the Engineer-in-Charge shall within one month of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.
- 16.4 In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para.
- (a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).
 - (b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).
- 16.5 In the case of contract items, substituted items, contract cum substituted items, which exceed the deviation limits laid down in Schedule 'B', the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates,

supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

- 16.6 The provisions of the paragraph 16.4 above shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule 'B', and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.
- 16.7 Under the circumstances, the contractor shall at any stage not suspend the work on account of non-settlement of rates of such Deviated/Extra/Substituted items.

CLAUSE - 17: CONTRACTOR'S SUPERVISION

- 17.1 The contractor shall either himself supervise the execution of the works or shall appoint at his own expense, a qualified and experienced Engineer as his accredited agent approved by the Engineer-in-Charge, if contractor has himself not sufficient knowledge or experience to be capable of receiving instruction or cannot give his full attention to the works. The contractor or his agent shall be present at the site(s) and shall supervise the execution of the works with such additional assistance in each trade, as the work involved shall require and considered essential by the Engineer-in-Charge. Further the directions/instructions given by the Engineer-in-Charge to the contractor's agent shall be considered to have the same force as if these had been given to the contractor himself.
- 17.2 If the contractor fails to appoint a suitable agent as directed by the Engineer-in-Charge, the Engineer-in-Charge shall have full powers to suspend the execution of the works until such date as a suitable agent is appointed by the contractor and takes over the charge of supervision of the work. For any such suspension, the contractor shall be held responsible for delay so caused to the work.

CLAUSE - 18: INSTRUCTIONS AND NOTICE

- 18.1 Except as otherwise provided in this contract, all notices to be given on behalf of the Authority and all other actions to be taken on its behalf may be given or taken by the Engineer-in-Charge or any officer for the time being entrusted with the functions, duties and powers of the Engineer-in-Charge.
- 18.2 All instructions, notices and communications etc. under the contract shall be given in writing and any such oral orders / instructions given shall be confirmed in writing and no such communication which is not given or confirmed in writing shall be valid.
- 18.3 All instructions, notices and communications shall be deemed to have been duly given or sent to the contractor, if delivered to the contractor, his authorized agent, or left at, or posted to the address given by the contractor or his authorized agent or to the last known place of abode or business of the contractor or his agent of services by post shall be deemed to have been served on the date when in the ordinary course of post these would have been delivered to him and in other cases on the day on which the same were so delivered or left.

- 18.4 The Engineer-in-Charge shall communicate or confirm the instructions to the contractor in respect of the execution of work through a “Site Order Book“ maintained in the office of the Engineer-in-Charge and the contractor or his authorized representative shall confirm receipt of such instructions by signing the relevant entries in this book. If required by the Contractor, he shall be furnished a certified true copy of such instruction(s). The pro-forma for Site Order Book to be maintained at site is given in **Annex – 3.**
- 18.5 The “Hindrance Register” shall be maintained at the site of work, where any hindrance which comes to the notice of the representative of the Engineer-in-Charge shall be recorded and immediately a report will be made to the Engineer-in-Charge within a week. The Engineer-in-Charge shall review the Hindrance Register at least once in a month. The pro-forma on which the Hindrance Register shall be maintained is given in **Annex – 4.**

CLAUSE -19: PLANT AND EQUIPMENT

- 19.1 The plants and equipments required for the execution of dredging works and all additional necessary plant, equipment and machinery required for the execution of the work under the contract shall be brought to the site by the Contractor at his cost and shall use such methods and appliances for the purpose of all the operations connected with the work covered by the contract, which shall ensure the completion of work(s) within the specified time.
- 19.2 The contractor shall operate, maintain, repair and safeguard the plants and equipments during the tenancy of the contract in accordance with terms and conditions, specifications of the contract and instructions of the Engineer in Charge.
- 19.3 Subject to the availability of any item(s), plant, equipment and machinery, the Authority at the written request of the contractor, may issue to the contractor on hire for being deployed on the work contracted for, at pre- determined rates, terms and conditions at the sole discretion of the Engineer-in-Charge.

CLAUSE – 20: PATENT RIGHTS

The contractor shall indemnify the Authority, its representatives or its employees against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof included in the contract. In the event of any claim being made or action being brought against the Authority or any agent, servant or employee of the Authority in respect of any such materials as aforesaid the contractor shall immediately be notified thereof. Provided that such indemnification shall not apply when such infringement has taken place in complying with the specific directions issued by the Authority but the contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursement to the contractor only if the use was the result of any drawings and or specifications issued after submission of the tender.

CLAUSE – 21: MATERIALS

- 21.1 The contractor shall at his own expenses provide / arrange all materials required for the bona-fide use on work under the contract.

21.2 All materials/parts to be provided by the contractor shall be in conformity with the specifications laid down in the contract and the contractor shall furnish from time to time proof and samples, at his own cost, the materials/parts as may be specified by the Engineer-in-Charge. Further the Engineer-in-Charge shall also have powers to have such tests, in addition to those specified in the contract, as may be required and the contractor shall provide all facilities to carry out the same. The cost of materials/parts consumed in such tests and also the expenses incurred thereon including the cost of the testing charges, shall be borne by the contractor in all cases and also where such tests which are in addition to those provided in the contract disclose that the materials are in conformity with the provisions of the contract.

21.3 The Engineer-in-Charge or his representative shall be entitled at any time to inspect and examine any plants, materials/parts intended to be used in the works, either on the site or at factory or workshop or other place(s) where such materials are assembled, fabricated, manufactured or any place where these are lying or from where these are being obtained. For this, purpose, the contractor shall afford such facilities as may be required for such inspection and examination.

CLAUSE - 22: LAWS GOVERNING THE CONTRACT

The Courts at **Noida** only shall have the jurisdiction for filing the award of the arbitration and for any other judicial proceedings.

CLAUSE - 23: WATCH & WARD AND LIGHTING

The Contractor shall provide and maintain at his expense all lights, guards, fencing and watch & ward when and where necessary or as required by the Engineer-in-Charge for the protection of the works or for the safety and convenience of those employed on the works or the public.

CLAUSE - 24: WORK DURING NIGHT OR ON SUNDAYS AND HOLIDAYS

24.1 Subject to any provisions to the contrary contained in the contract, none of the works shall be carried out during Sundays and national holidays without the permission in writing of the Engineer-in-Charge. However, when work is unavoidable or necessary for safety of life, property or works, contractor shall take necessary action immediately and advise the Engineer-in-Charge accordingly.

24.2 The Engineer-in-Charge at its discretion may, however, direct the contractor that the work may be carried out on holidays, Sundays and/or in extra shifts to ensure completion of works under the contract as scheduled.

CLAUSE - 25: LABOUR

25.1 (a) The contractor shall employ labour in sufficient numbers to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the contract and to the satisfaction of the Engineer-in-Charge. The Contractor shall not employ in connection with the works any person who has not completed eighteen years of age the minimum age specified in Indian Labour Law.

- (b) If any foreigner is employed by the contractor on the work within the site the later shall ensure that such foreigner possesses the necessary special permit issued by the Civil Authorities in writing and also comply with the instructions issued there-from from time to time. In the event of any lapse in this regard on the part of such foreigner the contractor shall be personally held responsible for the lapse & Authority shall not be liable in any event.
 - (c) The Contract is liable for cancellation if either the contractor himself or any of his employee is found to be a person who has held Class-I post under the Authority immediately before retirement and has within two years of such retirement accepted without obtaining the previous permission of the Authority or of the Chairman as the case may be and employment as contractor for, or in connection with the execution of the public works, or as an employee of such contractor. If the contract is terminated on account of the failure of the contractor to comply with the above clause, the Authority shall be entitled to recover from him such damages as may be determined by the Engineer-in-Charge with due regard to the inconvenience caused to the Authority on account of such termination without prejudice to the Authority's right to proceed against such officer.
- 25.2 The contractor shall furnish and deliver fortnightly to the Engineer-in-Charge, a distribution return of the number and description by trades of the works of people employed on the works. The contractor shall also submit on the 4th and 19th of every month for the period of second half of the preceding month and first half of the current month respectively to the Engineer-in-Charge, a true statement in respect of the following.
- i) Any accident if occurred during the said fortnight showing the circumstances under which it happened and the extent of damage and injury caused by it and.
 - ii) The number of female workers who have been allowed maternity benefit as provided in the Maternity Benefit Act 1961 or Rules made there-under and the amount paid to them.
- 25.3 The Contractor shall pay to labourer employed by him either directly or through sub-contractors wages not less than wages as defined in Minimum Wages Act 1948 and Contract Labour (Regulation and Abolition) Act 1970 amended from time to time and rules framed there-under and other labour laws affecting contract labour that may be brought in force from time to time.
- 25.4 The Contractor shall also comply with the provisions of all Acts, Laws, any Regulation or Bye Laws of any Local or other Statutory Authority applicable in relation to the execution of works such as:
- i) Payment of Wages Act, 1936 (Amended)
 - ii) Minimum Wages Act, 1948 (Amended).
 - iii) The Contract Labour (Regulation & Abolition) Act, 1970 with Rules framed there under as amended.
 - iv) Workmen Compensation Act, 1923 as amended by Amendment Act no.65 of 1976.

- v) Employer's Liability Act 1938 (Amended)
- vi) Maternity Benefit Act. 1961 (Amended)
- vii) The Industrial Employment (Standing orders) Act 1946 (Amended).
- viii) The Industrial Disputes Act. 1947 (Amended)
- ix) Payment of Bonus Act.1965 and Amended Act No. 43 of 1977 and No. 48 of 1978 and any amended thereof:
- ix) The Personal Injuries (Compensation Insurance) Act 1963 and any modifications thereof and rules made there-under from time to time. The Contractor shall take into account all the above and financial liabilities in his quoted rates and nothing extra, whatsoever, shall be payable to him on this account.

The list is indicative only, otherwise the contractor should be aware of all the Acts/Labour Laws and should follow diligently on the work. The contractor shall be fully and personally responsible for the violation of any Act/Labour Law

- 25.5 The Contractor shall be liable to pay his contribution and the employees contribution to the State Insurance Scheme in respect of all labour employed by him for the execution of the contract, in accordance with the provision of "the Employees State insurance Act 1948" as amended from time to time. In case the Contractor fails to submit full details of his account of labour employed and the contribution payable, the Engineer-in- Charge shall recover from the running bills the contribution amount as assessed by him. The amount so recovered shall be adjusted against the actual contribution payable for Employees State Insurance.
- 25.6 The Engineer-in-Charge shall on a report having been made by an inspecting officer as defined in the Contract Labour (Regulation and Abolition) Act and Rules or on his own in his capacity as Principal Employer, have the power to deduct from the amount due to the contractor any sum required for making good the loss suffered by worker(s) by reason of non-fulfillment of the conditions of the Contract for the benefit of Workers, nonpayment of wages or on account of deduction made from the wages of the workers which are not justified by the terms of the contract or non- observance of the said Act and Rules framed there under with amendments made from time to time.
- 25.7 The Contractor shall indemnify the Authority against any payments to be made under and for observance of the Regulation Laws, Rules as stipulated in Clause-25.4 above without prejudice to his right to claim indemnity from his sub-contractors. In the event of the contractor's failure to comply with the provisions of all the Acts/Laws stipulated in Clause-25.4 or in the event of decree or award or order against the contractor having been received from the competent authority on account of any default or breach or in connection with any of the provisions of the Acts/Laws/Rules mentioned in Sub-Clause 25.4 above, the Engineer-in-Charge without prejudice to any other right or remedy under the contract shall be empowered to deduct such sum or sums from the Bill of the contractor or from his security deposit or from other payment due under this contract or any other contract to satisfy within a reasonable time the provisions of the various Acts/Laws/Rules/Codes as mentioned under Sub-Clause 25.4 above, on the part of the contractor under the contract on behalf of and at the expenses of the contractor and make payment and /or provide amenities/ facilities/services accordingly. In this regard, the decision of the Engineer-in-Charge shall be conclusive and binding on the contractor.

- 25.8 In the event or the Contractor committing a default or breach of any of the provisions of the aforesaid Contract's Labour (Regulation and Abolition) Act and Rules as amended from time to time or furnishing any information or submitting or filling any form/Register/Slip under the provisions of these Regulations which is materially incorrect then on the report of the Inspecting officer as defined in the relevant Acts and Rules as referred in Clause 25.4 above, the Contractor shall without prejudice to any other liability pay to the Authority a sum not exceeding Rs.50/- (Rs. Fifty only) as liquidated damages for every default, breach or furnishing, making, submitting, filling materially incorrect statement as may be fixed by the Engineer-in-Charge. The decision of the Engineer-in-Charge in this respect shall be final & binding.
- 25.9 The Contractor shall at his own expenses comply with or cause to be complied with the Provisions/ Rules provided for welfare and health of Contract Labour in the Contract Labour (Regulation and Abolition) Act and other relevant Acts and Rules framed there under or any other instructions issued by the Authority in this regard for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works. In case the contractor fails to make arrangements as aforesaid, the Engineer-in-Charge shall be entitled to do so and recover the cost thereof from the contractor.
- 25.10 The Contractor shall at his own expense arrange for the safety or as required by the Engineer-in-Charge, in respect of all labour directly or indirectly employed for performance of the Works and shall provide all facilities in connection therewith. In case the contractor fails to make arrangements and provide necessary facilities as aforesaid, the Engineer-in-Charge shall be entitled to do so and recover the cost thereof from the Contractor. But this will not absolve the contractor of his responsibility or otherwise thereof.
- 25.11 Failure to comply with "Provisions/Rules made for Welfare and Health of Contract Labour" Safety Manual, or the provisions relating to report on accidents and grant of maternity benefits to female workers and the relevant Acts/Rules referred in clause 25.4 above shall make the contractor liable to pay to the Authority as liquidated damages an amount not exceeding Rs. 50/- for each default or materially incorrect statement. The decision of the Engineer-in-Charge in such matters based on reports from the inspecting Officers as defined in the relevant Acts and Rules as referred in clause 25.4 above shall be final and binding and deductions for recovery of such liquidated damages may be made from any amount payable to the contractor. In the event of any injury, disability or death of any workmen in or about the work employed by the contractor either directly or through his sub-contractor, contractor shall at all time indemnify and save harmless the Authority against all claims, damages and compensation under the Workmen Compensation Act, 1923 as amended from time to time or in other Law for the time being in force and Rules there-under from time to time and also against all costs, charges and expenses of any smooth action by proceedings arising out of such accidents or injury, disability or death of a workmen and against all sum or sums which may with the consent of the contractor be paid to compromise or compound any claim in this regard. If any award, decree or order is passed against the contractor for recovery of any compensation under the Workmen Compensation Act, 1923, for any injury, disability or death of a workman by any competent court, the said sum or sums shall be deducted by the Engineer-in-Charge from any sum then due or that may become due to the contractor or from his security deposit or

sale thereof in full or part under the contract or any other contract with the Authority towards fulfillment of the said decree, award or orders.

- 25.12 Provided always that the contractor shall have no right to claim payments/claims whatsoever on account of his compliance with his obligations under this clause and Labour Regulations.
- 25.13 The contractor shall not otherwise than in accordance with the statutes ordinance and Government Regulations or orders for the time being in force import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs to permit or suffer any such import, sale, gift, barter or disposal by his sub-contractor, agent or employees.
- 25.14 The contractor shall not give, barter or otherwise dispose of to any person or persons any arms or ammunition of any kind or permit to suffer the same as aforesaid.
- 25.15 The Contractor shall employ for the execution of the works only such persons as are skilled and experienced in their respective trades and Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any persons employed by the Contractor for the execution of the works who, in the opinion of the Engineer-in-Charge, misconduct himself or is incompetent or negligent in the proper performance of his duties. The contractor shall forthwith comply with such requisition and such person shall not be again employed upon the works without permission of the Engineer-in-Charge.
- 25.16 Release of Security deposit after labour clearance: Security deposit of the work shall not be refunded till the contractor produces a clearance certificate from the Labour Officer. As soon as the work is virtually completed, the contractor shall apply for clearance certificate to the Labour Officer under intimation to Engineer-in-Charge. The Engineer-in-Charge on the receipt of such communication shall write to Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending on record till after three months after completion of work and/or no communication is received from Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the security deposit will be released if otherwise due.

CLAUSE – 26: MATERIALS OBTAINED FROM EXCAVATION SUCH AS COINS, FOSSILS, ETC.

- 26.1 Materials of any kind obtained from excavation on the site shall remain the property of the Authority and shall be disposed off as directed by the Engineer-in-Charge.
- 26.2 However if any of the materials thus obtained from excavation on the site is such as can be used in the execution of the work under the contract, the contractor will be allowed to use the same free of cost (except that any amount of royalty paid for in this regard by the Authority shall be recoverable from the contractor) for the aforesaid purpose provided the same is found suitable and is approved by the Engineer-in-Charge.
- 26.3 Fossils, coins, articles of value, structures and other remains or things of geological or archeological interest discovered on the site shall be the absolute property of the Authority. The contractor shall take reasonable precautions to prevent his labour or any other person from removing or damaging any such article or thing and shall acquaint the Engineer-in-Charge with such discovery and carryout the Engineer-in-Charge's directions as to the disposal of the same at the expense of the Authority.

CLAUSE – 27: FORCE MAJEURE

- 27.1 The term Force Majeure shall herein mean Riots (other than among the contractor's employees), Civil Commotion (to the extent no insurable), war (whether declared or not), invasion, act of foreign enemies, hostilation, civil war, rebellion, revolution, insurrection, military or usurped power, damage from aircraft, nuclear fission, acts of God, such as earthquake (above 7 magnitude on Richter Scale), lightning, unprecedented floods, fires not caused by contractor's negligence and other such causes over which the contractor has no control and are accepted as such by the Engineer-in-Charge, whose decision shall be final and binding. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under this contract, the relative obligation of the party affected by such Force Majeure shall be treated as suspended for the period during which such Force Majeure cause lasts, provided the party allowing that it has been rendered unable as aforesaid, thereby shall notify within 15 days of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of such cause.
- 27.2 For delays arising out of Force Majeure, the bidder shall not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force Majeure and neither the Authority nor the bidder shall be liable to pay extra costs provided it is mutually established that Force Majeure conditions did actually exist.
- 27.3 If any of the Force Majeure conditions exists in the places of operation of the bidder even at the time of submission bid, he shall categorically specify in his bid and state whether they have been taken into consideration in their quotations.

CLAUSE - 28: LIABILITY FOR DAMAGE, DEFECTS OR IMPERFECTIONS AND RECTIFICATION THEREOF

- 28.1 If the contractor or his labour or his sub-contractor, injure, destroy or damage, battery, solar panel, lighting system, road, fence, enclosures, water pipe, cables, buildings, drains, electricity or telephone posts, wires, trees, grass line, cultivated land in the area in which they may be working or in the area contiguous to the premises on which the work or any part of it is being executed or if any damage is caused to any item belonging to IWAI or to any person during the progress of work, the Contractor shall upon receipt of a notice in writing in that behalf from the Engineer-in-Charge, make good the same at his cost.
- 28.2 If it appears to the Engineer-in-Charge or his representative at any time during the progress of work or prior to the expiration of the Defects Liability period that any work has been executed with unsound, imperfect or unskilled workmanship or that any materials or articles provided by the Contractor for execution of the work are unsound or of a quality inferior to that contracted for, or otherwise not in accordance with the Contract, or that any defect, shrinkage or other faults found in the work arising out of defective design or defective/ improper materials or workmanship, the Contractor shall, upon receipt of a notice in writing in that behalf from the Engineer-in-Charge forthwith rectify or remove and reconstruct the work so specified in whole or in part, as the case may be, and/or remove the materials/articles so specified and provide other proper and suitable materials at his expense.

- 28.3 All damages caused by accidents or carelessness of the contractor or any of his employees or any property belonging to the Authority is wasted or is misused by the contractor or any of his employees shall be to the account of the contractor, who shall make good the loss.
- 28.4 Defects liability period for the civil works like bank protection, jetty, culvert etc. shall be 6 months from the date of completion of all works under the contract. Dredging / excavation will not have a defects liability period once the required lines & levels are achieved and the same measured and jointly recorded in post dredging survey charts and the chart approved by the EIC.

CLAUSE – 29: CONTRACTOR'S LIABILITY AND INSURANCE

- 29.1 From commencement to completion of the work(s) as a whole, the Contractor shall take full responsibility for the care thereof and for taking precautions to prevent loss or damage. He shall be liable for any damage or loss that may happen to the works or any part thereof and to the Authority's Plant, Equipment and Material (hired or issued to the Contractor) shall be in good order and condition and in conformity in every respect with the requirements of the Contract and instructions of the Engineer-in-Charge.
- 29.2 i) Neither party to the contract shall be liable to the other in respect of any loss or damage which may occur or arise out of "Force Majeure" to the works or any part thereof on to any material or article at site but not incorporated in the works or to any person or anything or material whatsoever or either party provided such a loss or damage could not have been foreseen or avoided by a prudent person and the either party shall bear losses and damages in respect of their respective men and materials. As such liability of either party shall include claims/ compensations of the third party also.
- ii) Provided, however, in an eventuality as mentioned in sub-clause - 29.2 (i) above, the following provisions shall also have effect:
- (a) The Contractor shall, as may be directed in writing by the Engineer-in-Charge proceed with the completion of the works under and in accordance with the provisions and conditions of the contract, and
 - (b) The Contractor shall, as may be directed in writing by the Engineer-in-charge, re-execute the works lost or damaged, remove from the site any debris and so much of the works as shall have been damaged and carry the Authority's T & P, Plant and Equipment, Material etc. to the Authority's store. The cost of such re-execution of the works, removal of damaged works and carrying of Authority's store shall be ascertained in the same manner as for deviations and this shall be ascertained in the same manner as for deviations and this shall be added to the contract sum. Provided always that the Contractor shall, at his own cost, repair and make good so much of the loss or damage as has been occasioned by any failure on his part to perform his obligations under the contract or not taking precautions to prevent loss or damage or minimise the amount of such loss or damage, Final assessment of loss or damage shall be decided by the Engineer-in-Charge and his decision shall be final and binding.

- 29.3 The contractor shall take special precautions to see that public places and roads adjacent to contractor's yard are not blocked at anytime either by his material or by his workmen. The roads are to be kept always clear and no equipment/materials shall be stacked.
- 29.4 The navigable waterways shall not be blocked by Contractor's vessels. The anchors dropped in the waterways shall be properly marked and removed after done with.
- 29.5 The contractor shall indemnify and keep indemnified the Authority against all losses and claims for death, injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance, of works during the contract period and also against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto, and such liabilities shall include claims/compensations of the third party.
- 29.6 (a) Before commencing execution of the work, the Contractor shall without in any way limiting his obligations and responsibilities under this condition, insure against any damage, loss or injury which may occur to any property (excluding that of the Authority but including the Authority building rented to the contractor wholly or in part and any part of which is used in part and any part of which is used by him for storing combustible materials) public liability by arising out of the carrying out of the contract. For this purpose the contractor shall take out, pay all costs and maintain throughout the period of his contract public liability with the following coverage.
- i) Public liability limits for bodily injury or death not less than Rs. 1,00,000 for one person and Rs. 2,00,000 for each accident.
 - ii) Property liability limits for each accident not less than Rs. 1,00,000 ;
 - iii) The Contractor shall prove to the Engineer-in Charge from time to time that he has taken out all the insurance policies referred to above and has paid the necessary premiums for keeping the policies alive till expiry of the Defects Liability Period.
- (b) The Contractor shall ensure that similar insurance policies are taken out by his sub-contractor (if any) and shall be responsible for any claims or losses to the Authority resulting from their failure to obtain adequate insurance protection in connection thereof. The Contractor shall produce or cause to be produced by his sub-contractors (if any) as the case may be, relevant, policy or policies and premium receipt as and when required by the Engineer-in-Charge.
- (c) If the contractor and/or his sub- contractor (if any) shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under the term of the Contract then and in any such case the Authority may, without being bound to effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the Authority from any moneys due or which may become due to the contractor or recover the same as a debt due from the contractor.
- (d) The contractor shall at his own expense arrange for the safety provisions as required in respect of the works covered under this contract as per the instruction of Engineer-in-charge. In case, the contractor fails to comply with the provisions of the safety the Engineer- in-Charge shall be entitled to and make the necessary arrangements at the risk and cost of the contractor. This will, however, not absolve the Contractor of his overall responsibility to execute the works under the contract.

CLAUSE – 30: SUSPENSION OF WORKS

- 30.1 The contractor shall on the receipt of order of the Engineer-in-Charge (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer-in-Charge may consider necessary.
- 30.2 The suspension of the work can be done by Engineer-in-Charge for any of the following reasons:
- (a) On account of any default on the part of the contractor or
 - (b) for proper execution of the works or part thereof for the reasons other than the default of the contractor or
 - (c) for the safety of the works or part thereof.
- 30.3 The contractor shall during the suspension period, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.
- 30.4 If the suspension is ordered for the reasons under the Clause 30.2(b) and (c) above, the contractor shall be entitled to the extension of time equal to the period of every such suspension Plus 25% for the completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which suspended work forms a part

CLAUSE – 31: FORECLOSURE OF CONTRACT IN FULL OR IN PART DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK

If at any time after acceptance of the tender the Authority decides to abandon or reduce the scope of the works for reason whatsoever and hence does not require the whole or any part of the works to be carried out, the Engineer-in-Charge (with the prior approval of competent authority mentioned in Schedule 'B') shall give notice in writing to that effect to the contractor and the Contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he could not derive in consequence of the fore closure of the whole or part of the works.

CLAUSE – 32: TERMINATION OF CONTRACT ON DEATH

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies, or if the Contractor is a partnership concern and one of the partners dies, then, unless the Engineer-in-Charge is satisfied that the legal representatives of the individual contractor or of the proprietor of the proprietary concern and in the case of partnership, the surviving partners are capable of carrying out and completing the contract, the Engineer-in-Charge shall be entitled to terminate the Contract as to its incomplete part without the Authority being in anyway liable to payment of any compensation whatsoever on any account to the estate of the deceased Contractor and/or to the surviving partners of the Contractor's firm on account of termination of the Contract. The decision of the Engineer-in-Charge that the legal representatives of the deceased contractor or the

surviving partners of the Contractor's firm cannot carry out and complete the works under the contract shall be final and binding on the parties. In the event of such termination, the Authority shall not hold the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable for damages for not completing the contract. Provided that the power of the Engineer-in-Charge of such termination of contract shall be without prejudice to any other right or remedy which shall have accrued or shall accrue to him under the contract.

CLAUSE– 33: CARRYING OUT PART OF WORK AT THE RISK AND COST OF THE CONTRACTOR

33.1 If the contractor

- (i) At any time makes default during the currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 days in this respect from the Engineer-in-Charge; **or**
- (ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 days even after a notice in writing is given in that behalf by the Engineer-in-Charge; **or**
- (iii) Fails to complete the work (s) or items of work with individual dates of completion, on or before the date (s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge.

33.2 The Engineer-in-Charge without invoking action under clause 36 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to IWAI, by a notice in writing to take the part work/ part incomplete work of any item (s) out of his hands and shall have powers to:

- (a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/ or
- (b) Carry out the part work/ part incomplete work of any items (s) by any means at the risk and cost of the contractor.

33.3 The Engineer-in-Charge shall determine the amount, if any, is recoverable from the contractor for completion of the part work/ part incomplete work of any item (s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by IWAI because of action under this clause shall not exceed 10% of the tendered value of the work.

33.4 In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same number and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Engineer-in-Charge as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the IWAI are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.

33.5 Any excess expenditure incurred or to be incurred by IWAI in completing the part work/ part incomplete work of any item (s) or the excess loss of damages suffered or may be suffered by IWAI as aforesaid after allowing such credit shall without prejudice to any

other right or remedy available to IWAI in law or per as agreement be recovered from any money due to the contractor on any account, and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

- 33.6 If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.
- 33.7 In the event of the above course being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

CLAUSE - 34: COMPLETION TIME AND EXTENSIONS

- 34.1 The Engineer-in-Charge will make available to the contractor the site to enable the contractor to commence & proceed with the execution of the work in accordance with agreed programme. If there is any delay in making available any area of the work or the delays mentioned in Para 34.4, the competent authority as specified in schedule 'B' on the recommendations of the Engineer-in-Charge shall grant reasonable extension of time for completion of work. But the contractor shall not claim any compensation whatsoever on this account.
- 34.2 If after the award of the work the contractor commits defaults in commencing the execution of work as aforesaid, Govt. shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money & performance guarantee absolutely.
- 34.3 As soon as possible after the Contract is concluded, the Contractor shall submit a Time and Progress Chart get it approved by the Department. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work.
- 34.4 However, if the work (s) be delayed by:-
- (i) Force majeure as per clause 27, or
 - (ii) Abnormally bad weather, or
 - (iii) Serious loss or damage by fire, or
 - (iv) Civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or
 - (v) Delay on the part of other contractors or tradesman engaged by Engineer-in-Charge in executing work not forming part of the contract, or
 - (vi) Non-availability of stores, which are the responsibility of Government to supply or
 - (vii) Non-availability of breakdown of Tools and Plant to be supplied or supplied by Government or

- (viii) Any other cause which, in the absolute discretion of the Engineer-in-Charge is beyond the Contractor's control.

then immediately upon the happening of any such events as aforesaid, the contractor shall inform the Engineer-in-Charge accordingly, but the contractor shall nevertheless use constantly his best endeavours to prevent and/or make good the delay and shall do all that may be required in this regard. The Contractor shall also request, in writing, for extension of time, to which he may consider himself eligible under the contract, within fourteen days of the date of happening of any such events as indicated above.

- 34.5 In case the cost of the work is more than 10 crores, then the total scope of work will be divided into milestones. The contractor shall submit a Time & Progress chart for each milestone and get it approved by the competent authority.
- 34.6 Request for rescheduling of Mile stones and extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay on the prescribed form to the competent authority as indicated in Schedule 'B'. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.
- 34.7 In any such case as may have arisen due to any of the events, as aforesaid, and which may have been brought out by the contractor in writing, the Competent Authority mentioned in Schedule 'B' may give a fair and reasonable extension of time, after taking into consideration the nature of the work delayed and practicability of its execution during the period of extension.
- 34.8 Such extensions shall be communicated to the contractor by the Engineer-in-Charge in writing. The contractor shall not be entitled to claim any compensation or over run charges whatsoever for any extension granted.

CLAUSE – 35: LIQUIDATED DAMAGES FOR DELAY

- 35.1 If the contractor fails to maintain the required progress in terms of clause 34 or to complete the work and clear the site on or before the date of completion as per the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the authority on account of such breach, pay as agreed liquidated damages the amount calculated at the rates stipulated below.

- (i) Liquidated Damages @ 1.5 % per month of delay
for delay of work to be computed on per day basis

Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Tendered Value of work.

The competent authority mentioned in Schedule 'B' (whose decision in writing shall be final & binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 34 or that the work remains incomplete.

The amount of liquidated damages may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the authority.

- 35.2 In case of contracts having tendered amount more than 10 Crores, if the contractor does not achieve a particular milestone mentioned in Schedule 'B', or the re-scheduled milestone(s) in terms of Clause 34.6, the amount shown against that milestone shall be withheld, to be adjusted against the liquidated damages levied at the final decision on Extension of Time. With-holding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.
- 35.3 In case of contracts having tendered amount less than 10 Crores, if the work remains incomplete after the stipulated date of completion, the Engineer-in-charge may withheld 10% of the tendered value of the work from the running payments of the contractor pending final decision of the competent authority mentioned in schedule 'B' on the extension of time case. If the competent authority decides to grant extension of time without levy of liquidated damages or levy part of the total liquidated damages specified above then the balance withheld amount after adjusting the amount of the liquidated damages levied by the competent authority will be refunded to the contractor.

CLAUSE – 36: WHEN THE CONTRACT CAN BE DETERMINED

- 36.1 Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:
- (i) If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.
 - (ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.
 - (iii) If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge.
 - (iv) If the contractor persistently neglects to carry out his obligations under the contract and/ or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

- (v) If the contractor shall offer or give or agree to give to any person in IWAI service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of contract.
- (vi) If the contractor shall enter into a contract with IWAI in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Engineer-in-Charge.
- (vii) If the contractor shall obtain a contract with IWAI as a result of wrong tendering or other non-bona-fide methods of competitive tendering or commits breach of integrity pact.
- (viii) If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.
- (ix) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of accredit or shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.
- (x) If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.
- (xi) If the contractor assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Engineer -in-Charge.

When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of the IWAI with the approval of the competent authority mentioned in schedule 'B' shall have powers:

- (a) To determine the contract as aforesaid (of which termination notice in writing to the contractor under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination, the Earnest Money Deposit, Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the IWAI.
- (b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above courses being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE – 37: INSPECTION AND APPROVAL

- 37.1 All works involving more than one process shall be subject to examination and approval at each stage thereof and the contractor shall give due notice to the Engineer-in-Charge on his authorized representative, when each stage is ready. In default of such notice, the Engineer-in-Charge shall be entitled to appraise the quality and extent thereof and the decision of the Engineer-in-Charge in this regard shall be final and binding.
- 37.2 No work shall be put out of view without the approval of the Engineer-in-Charge or his authorized representative and the Contractor shall afford full opportunity for examination. The contractor shall give due notice to the Engineer-in-Charge or his authorized representative whenever any such work is ready for examination and the Engineer-in-Charge or his representative shall, without unreasonable delay, unless he considers it necessary and advise the contractor accordingly, examine and measure such work. In the event of the failure or the contractor to give such notice, he shall if required by the Engineer-in-Charge, uncover such work at the contractor's expenses.
- 37.3 Periodic inspection will be carried out by the EIC or his representative by their vessels. The contractor can have the inspection schedules finalized with the Engineer-in-charge. Generally all attempts should be made to have joint inspection and number of inspections be not less than three in a calendar month.

CLAUSE – 38: COMPLETION CERTIFICATE AND COMPLETION PLANS

- 38.1 The work shall be completed to the entire satisfaction of the Engineer-in-Charge and with in the specified time limit and under the terms and conditions of the contract. As soon as the work under the contractor is completed as a whole the contractor shall give notice of such completion to the Engineer-in-Charge. The Engineer-in-Charge shall inspect the work and shall satisfy himself that the work(s) has been completed in accordance with the provisions of the contract and then issue to the Contractor a certificate of completion indicating the date of completion. Should the Engineer-in-Charge notice that there are defects in the works or the works are not considered to be complete, he shall issue a notice in writing to the Contractor to rectify / replace the defective work or any part thereof or complete the work, as the case may be within such time as may be notified and after the contractor has complied with as aforesaid and gives notice of completion the Engineer-in-Charge shall inspect the work and issue the completion certificate in the same manner as aforesaid.
- 38.2.1 No certificate of completion shall be issued as stipulated above and no work be considered to be completed unless the contractor shall have removed from the work site

and / or premises all his belongings / temporary arrangements brought / made by him for the site and / or premises in all respects and made the whole of the site and / or premises fit for immediate occupation / use to the satisfaction of the Engineer- in-Charge. If the contractor fails to comply with the above mentioned requirements on or before the date of completion of the work, the Engineer-in-Charge, may as he thinks fit and at the risk at cost of the contractor, fulfill such requirements and remove / dispose of the contractor's belongings / temporary arrangements, as aforesaid, and the contractor shall have no claim in this respect except for any sum realised by the sale of Contractor's belongings / temporary arrangements less the cost of fulfilling the said requirements and any other amount that may be due from the contractor. Should the expenditure on the aforesaid account exceed the amount realised by sale of such contractor's belongings / temporary arrangements then the contractor shall on demand pay the amount of such excess expenditure.

- 38.2.2 The contractor shall submit the completion plans of the work wherever required within 30 days of the completion of work. In case the contractor fails to submit completion plans as aforesaid, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs. 15000/- (Rupees fifteen thousand only) as may be fixed by Engineer-in-Charge concerned and in this respect the decision of the Engineer-in-Charge shall be final and binding on the contractor.

CLAUSE - 39: MEASUREMENTS

- 39.1 The Engineer-in-charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract.
- 39.2 Notwithstanding any provision in the relevant standard method of measurement or any general or local custom, measurement of work done under the contract shall be taken in accordance with the procedure set forth in the Technical Specifications or Schedule of Quantities under the contract. In case of items of work which are not covered by the Technical Specifications or Schedule of Quantities measurement shall be taken in accordance with the relevant standard methods of measurement laid down by the Bureau of Indian Standard.
- 39.3 All items having a financial value shall be entered in daily log book/ measurement book prescribed by the Authority so that the complete work performed under the contract is duly accounted.
- 39.4 Measurement shall be taken jointly by the Engineer-in-Charge or his authorised representative and by the contractor or his authorised representative.
- 39.5 Before taking measurements of any works, the Engineer-in-Charge or representative deputed by him for the purpose, shall give a reasonable notice to the Contractor. If the Contractor fails to attend or send an authorised representative for measurement after such notice or fails to countersign or to record the objection within a week from the date of taking the measurements, in such eventuality the measurements taken by the Engineer-in-Charge shall be taken to be correct and final measurements of such works.
- 39.6 The contractor shall, without extra charge, provide assistance with every appliance, labour and other things necessary for measurement.

- 39.7 Measurements shall be signed and dated by both parties each day on the Site on completion of measurement. If the contractor objects to any of the measurement recorded by the representative of the Engineer-in- Charge a note to the effect shall be made in the item objected to and such note shall be signed and dated by both parties engaged in taking the measurement. The decision of the Engineer-in-Charge on any such dispute or difference or interpretation shall be final and binding on the contractor in respect of all contract items, substituted items, extra items and deviations.

CLAUSE – 40: PAYMENT ON ACCOUNT

- 40.1 Interim bills shall be submitted by the contractor monthly on or before the date fixed by the Engineer-in- Charge for the items of work completed. The Engineer-in-Charge shall then arrange to have the bills verified with reference to the actual measurements recorded in the measurement book(s).
- 40.2 Payment on account for amount admissible shall be made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment for the work executed, after deducting therefrom the amount already paid, the security deposit and such other amounts as may be withheld, deductible or recoverable in terms of the contract.
- 40.3 Payment of the contractor's bills shall be made by the Authority only in Indian Rupees within 30 days from the date of submission of the bill subject to the acceptance of the Engineer-in- Charge.
- 40.4 Payments due to the contractor shall be made by crossed cheque by the Engineer-in-Charge or his authorised representative. Such cheques shall be issued direct to the contractor on furnishing a stamped receipt for the amount of the cheque or to his constituted attorney duly authorised to receive such payments from the EIC. Alternatively payment, due to the contractor shall be made by electronic bank transfer / RTGS
- 40.5 Any interim certificate given relating to work done or materials delivered may be modified or corrected by any subsequent interim certificate or by the final certificate. No certificate(s) of the Engineer-in- Charge supporting an interim payment shall itself be conclusive evidence that any work or materials to which it relates is / are in accordance with the same.
- 40.6 Should there be a request for extension of date of completion, pending its consideration interim payments shall continue to be made as provided herein.
- 40.7 Income Tax / TDS at the applicable rates shall be deducted at source from any payment made to the contractor against this contract.

CLAUSE – 41: TAXES, DUTIES AND LEVIES ETC.

The prices shall include all the taxes, levies, cess, octroi, royalty, terminal tax, excise, or any other local, State or Central taxes as applicable / charged by Central or State Government or Local authorities on all materials that the contractor has to purchase for the performance of the contract and services and the Authority will not entertain any claim for compensation whatsoever in this regard. The rates quoted by the

contractor shall be deemed to be inclusive of all such taxes, duties, cess, levies, etc. except for service tax which shall be indicated separately and which will be reimbursed to the contractor on producing proof of payment.

Labour Welfare Cess @ 1% of the value of the contract shall be deducted from the RA bills of the Contractor and deposited by IWAI as per norms of Govt. of India.

CLAUSE-42: TAX DEDUCTION AT SOURCE

42.1 TDS at the applicable rate as per Income Tax Act/Rules shall be deducted from all the payment/advances made against the contract.

CLAUSE – 43: PAYMENT OF FINAL BILL

The final bill shall be submitted by the contractor within one month from the date of completion of the work or of the date the certificate of completion furnished by the Engineer-in-Charge. No further claim in this regard unless as specified herein under shall be entertained. Payment of final bill shall be made within three months if the amount of the contract is up to Rs. 15 lakhs and six months if the value of the work exceeds Rs. 15 lakhs. If there shall be any dispute about any item or items of the work then the undisputed item or items only shall be paid within the said period of three months or six months, as the case may be. The contractor shall submit a list of the disputed items within thirty days from the disallowance thereof and if he fails to do so, his claim shall be deemed to have been fully waived and absolutely extinguished.

CLAUSE - 44: OVER PAYMENTS AND UNDER PAYMENTS

- 44.1 Whenever any claim whatsoever for the payments of a sum of money to the Authority arises out of or under this contract against the contractor, the same may be deducted by the Authority from any sum then due or which at anytime thereafter may become due to the contractor under this contract and failing that under any other contract with the Authority or from any other sum whatsoever due to the contractor from the Authority or from his security deposit, or he shall pay the claim on demand.
- 44.2 The Authority reserves the right to carry out post- payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc. The authority further reserves the right to enforce recovery of any over payment when detected notwithstanding the fact that the amount of the final bill may be included by one of the parties as an item of dispute before an arbitrator appointed under clause 48 of this contract and notwithstanding the fact that the amount of the final bill figures in the arbitration award.
- 44.3 If as a result of such audit and technical examination any over payment is discovered in respect of any work done by the contractor or alleged to have been done by him under contract, it shall be recovered by the Authority from the contractor by any of all of the methods prescribed above, and if any under payment is discovered, the amount shall be duly paid to the contractor by the Authority.
- 44.4 Provided that the aforesaid right of the Authority to adjust over-payment against amount due to the contractor under any other contract with the Authority shall not extend beyond the period of two years from the date of payment of the final bill or in case the final bill is a MINUS bill, from the date the amount payable by the Contractor under the MINUS final bill is communicated to the contractor.

- 44.5 Any sum of money due and payable to the Contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or Authority against any claim of the Authority or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer-in-Charge or Authority or with such other person or persons. The sum of money so withheld or retained under this clause by the Engineer-in-Charge or Authority will be kept withheld or retained as such by the Engineer-in-Charge or Authority or till his claim arising out of in the same contract or any other contract is either mutually settled or determined by the arbitrator, if the contract is governed by the arbitration clause under the clause 48 or by the competent court hereinafter provided, as the case may be, and the contractor shall have no claim for interest or damages whatsoever on this account or any other ground in respect of any sum of money withheld or retained under this clause.

CLAUSE – 45: FINALITY CLAUSE

It shall be accepted as an inseparable part of the contract that in matters regarding design, materials, workmanship, removal of improper work, interpretation of the contract drawings and contract specifications, mode of procedure and the carryout of the work the decision of the Engineer-in-Charge which shall be given in writing shall be final and binding on the contractor.

CLAUSE – 46: SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED IS REASONABLE WITHOUT PREFERENCE TO ACTUAL LOSS

All sum payable by way of compensation to the Authority under any of these conditions shall be considered as reasonable compensation without reference to the actual loss or damage sustained and whether or not damage shall have been sustained.

CLAUSE - 47: SETTLEMENT OF DISPUTES & ARBITRATION.

- 47.1 Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in-before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, design, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:
- (i) If the contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer-in-Charge on any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable, he shall promptly within 15 days of the receipt of decision from the Engineer-in-Charge request the Chief Engineer in writing through the Engineer-in-Charge for written instruction or decision. Thereupon, the Chief Engineer shall give his written instructions of the decision within a period of one month from the receipt of the contractor's letter. However, this will not be reason for the stoppage of work.

(ii) If the Chief Engineer fails to give his instructions or decision in writing within the aforesaid period or if the contractor is dissatisfied with the instruction or decision of the Chief Engineer, the contractor may, within 15 days of the receipt of Chief Engineer's decision, appeal to the Chairman, IWAI who shall afford an opportunity to the contractor to be heard, if the latter so desires, and to offer evidence in support of his appeal. The Chairman, IWAI shall give his decision within 30 days of receipt of contractor's appeal. If the contractor is still dissatisfied with his decision, the contractor shall within a period of 30 days from receipt of the decision, give notice to the Chairman, IWAI for appointment of arbitrator on prescribed proforma as per Annex-5, failing which the said decision shall be final binding and conclusive and not referable to adjudication by the arbitrator.

47.2 Except where the decision has become final, binding and conclusive in terms of Sub Para 47.1 above, disputes or differences shall be referred for adjudication through arbitration by a sole arbitrator appointed by Chairman, IWAI.

47.3 Further, within thirty (30) days of receipt of such notice from either party, the Engineer-in-Charge of work at the time of such dispute shall send to the Contractor a panel of three persons preferably but not necessarily from the approved panel of arbitrators being maintained by Indian Council of Arbitration (ICA) and thereafter the Contractor within fifteen (15) days of receipt of such panel communicate to the Engineer-in-charge the name of one of the persons from such panel and such a person shall then be appointed as sole arbitrator by the Chairman, IWAI. However, the arbitrator so appointed shall not be an officer or the employee of Inland Waterways Authority of India.

Provided that if the Contractor fails to communicate the selection of a name out of the panel so forwarded to him by the Engineer-in-charge then after the expiry of the aforesaid stipulated period the Chairman, shall without delay select one person from the aforesaid panel and appoint him as the sole arbitrator.

47.4 The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason, then the Chairman IWAI shall appoint another person to act as sole arbitrator, such person shall be entitled to proceed with the reference from the stage at which it was left by the predecessor.

47.5 The award of the Arbitrator shall be final and binding. The Arbitrator shall decide in what proportion the Arbitrator's fees, as well as the cost of Arbitration proceeding shall be borne by either party.

47.6 The Arbitrator with the consent of the parties can enlarge the time, from, time-to-time to make and publish his award.

47.7 A notice of the existence in question, dispute or difference in connection with the contract unless served by either party within 30 days of the expiry of the defects liability period, failing which all rights and claim under this contract shall be deemed to have been waived and thus forfeited and absolutely barred.

47.8 The Arbitrator shall give reasons for the award if the amount of claim in dispute is Rs. 1,00,000/- and above.

- 47.9 The work under this Contract shall continue during Arbitration proceedings and no payments due from or payment by the Authority shall be withheld on account of such proceedings except to the extent which may be in dispute.
- 47.10 The Arbitration and Conciliation Act 1996 with any statutory modifications or re-enactment thereof and the rules made there under and being in force shall apply to the Arbitration proceedings under this clause.
- 47.11 The parties to the agreement hereby undertake to have recourse only to arbitration proceedings under for Arbitration Act 1996 and the venue of the arbitration proceeding shall be Noida/ New Delhi and the parties will not have recourse to Civil Court to settle any of their disputes arising out of this agreement except through arbitration.

NOTE: In case of contract with another Public Sector Undertaking, following Arbitration Clause shall apply: "Except as otherwise provided, in case of a contract with a public Sector Undertaking if at any time any question dispute or difference whatsoever arises between the parties upon or in relation to, or in connection with this agreement, the same shall be settled in terms of the Ministry of Industry, Department of Public Enterprises O.M No. 3/5/93-PMA dt.30.06.93 or any modifications / amendments thereof. "The arbitrator shall have the power to enlarge the term to publish the award with the consent of the parties provided always that the commencement or continuation of the arbitration proceeding shall not result in cessation or suspension of any of other rights and obligations of the parties of any payments due to them hereunder.

CLAUSE - 48: CLAIMS

- 48.1 The contractor shall send to the Engineer-in-Charge once in every month on account giving particulars, as full and detailed as possible of all claims for any additional payment to which the contractor may consider himself entitled and of all extra work or additional work ordered in writing and which has been executed during proceeding month.
- 48.2 No claim for payment of any extra work or expenses will be considered which has not been included in such particulars. The Engineer-in-Charge may consider payment for any such work or expense, where admissible under the terms of the Contract.
- 48.3 Any claim which is not notified in two consecutive monthly statements for the two consecutive months shall be deemed to have been waived & extinguished.

CLAUSE 49: INTEREST

No interest shall be payable on account due to the contractor against final bills or any other payment due under the contract.

PART – III

6. TECHNICAL SPECIFICATIONS AND SPECIAL CONDITIONS OF CONTRACT

1. Technical Specifications and Special conditions
(For Pile & Slab Bank Protection)

TECHNICAL SPECIFICATIONS

INDEX

1.0 GENERAL

- 1.1 Indian Standards
- 1.2 Inspection, Sampling and Testing
- 1.3 Test Certificates
- 1.4 Names of Manufacturers and Copies of Orders
- 1.5 Storage of Materials
- 1.6 Records and Usage's of Materials
- 1.7 Notice for Inspection of Materials
- 1.8 Use of Permanent Materials for Temporary Works
- 1.9 Cost of Sampling and Testing
- 1.10 Standard of Workmanship
- 1.11 Plant
- 1.12 Temporary Works
- 1.13 Materials not Specified

2.0 EXCAVATION AND BACKFILLING

- 2.1 General
- 2.2 Record Survey
- 2.3 Shoring
- 2.4 Keeping Excavation Dry
- 2.5 Bottom of Excavation
- 2.6 Disposal of Excess Excavation
- 2.7 Backfill
- 2.8 Damage to Adjacent Structure
- 2.9 Demolition of existing structures & foundations
- 2.10 Excavation beyond desired limit
- 2.11 Dewatering and equipments for dewatering
- 2.12 Compacting quality

3.0 CONCRETE AGGREGATE

- 3.1 Standards
- 3.2 Quality
- 3.3 Testing
- 3.4 Fine Aggregates for Structural Concrete
- 3.5 Fine Aggregates for Mortar and Grout
- 3.6 Sand for Masonry Mortars
- 3.7 Coarse Aggregates
- 3.8 Storage at Site
- 3.9 Rejected Material

4.0 CEMENT

4.1 Standard

5.0 WATER

5.1 Water from Approved Source

6.0 ADMIXTURES FOR CONCRETE

6.1 Approval

7.0 CONCRETE

- 7.1 Codes
- 7.2 Qualified Personnel
- 7.3 Classes of Concrete
- 7.4 Designed Proportion
- 7.5 Declared Proportions
- 7.6 Proportion Specified as Ratio of Cement to Fine/Coarse aggregates
- 7.7 No Deviation from Declared Proportions
- 7.8 Mortar and Grout
- 7.9 Inspection and Testing
- 7.10 Sampling and Strength Test
- 7.11 Cube Strength Requirement
- 7.12 Standard Deviation
- 7.13 Acceptance Criteria of Concrete
- 7.14 Failure to Meet Characteristic Strength
- 7.15 Tests Conducted Outside
- 7.16 Measurement of Ingredients
- 7.17 Check Tests for Equipments
- 7.18 Gauging Water
- 7.19 Batching and Mixing
- 7.20 Discharge from Mixer
- 7.21 Transporting of Concrete
- 7.22 Authorisation to Pour
- 7.23 Deposition of Concrete
- 7.24 Compaction of Concrete
- 7.25 Concreting in Inclement Weather
- 7.26 Concreting Underwater
- 7.27 Stop Ends
- 7.28 Openings, Cable Ducts and Holes etc.
- 7.29 Construction Joints
- 7.30 Screeding
- 7.31 Curing
- 7.32 Concrete Below Specified Strength
- 7.33 Faulty Work
- 7.34 Workability of concrete
- 7.35 Durability of concrete
- 7.36 Production and control of concrete

- 7.37 Commencement of concreting
- 7.38 Intervals during concreting
- 7.39 Concreting not to be disturbed
- 7.40 Finishing

8.0 SHUTTERING

- 8.1 General
- 8.2 Shuttering material
- 8.3 Fixing
- 8.4 Removing
- 8.5 Unwrought Shuttering
- 8.6 Wrought Shuttering
- 8.7 Special Provision
- 8.8 Preparation for Concreting
- 8.9 Contractor's Responsibility
- 8.10 Re-use of shuttering material
- 8.11 Opening for inspection
- 8.12 Use of mould oil
- 8.13 Alignment of shuttering and centering
- 8.14 Damage to concrete
- 8.15 Shuttering for exposed concrete work
- 8.16 Left Shutter for Brick Work.

9.0 REINFORCING STEEL

- 9.1 Steel Reinforcement
- 9.2 Storage
- 9.3 Supply of Reinforcing Steel

10.0 WELDING OF REINFORCEMENT

- 10.1 Standards
- 10.2 Inspection of Welds

11.0 REINFORCEMENT IN CONCRETE

- 11.1 General
- 11.2 Bar Bending Schedule
- 11.3 Bending Reinforcement
- 11.4 Binding Wire
- 11.5 Placing and Fixing
- 11.6 Splicing Reinforcement
- 11.7 Butt Welding of Reinforcement
- 11.8 Cover to Reinforcement
- 11.9 Reinforcement to be cleaned
- 11.10 Depositing Concrete

12.0 PRECAST CONCRETE

- 12.1 General
- 12.2 Precasting Yard
- 12.3 Shutters
- 12.4 Casting Tolerance
- 12.5 Striking Shutters
- 12.6 Curing
- 12.7 Lifting & Stacking
- 12.8 Marking
- 12.9 Precasting Records

13.0 GEOFABRIC

- 13.1 General
- 13.2 Quality
- 13.3 Sampling and testing
- 13.4 Laying of Geofabric

14.0 METHOD OF ERECTION OF THE PROTECTION.

- 14.1 Record of Pile driving
- 14.2 Installation of the pile
- 14.3 Sequence of Installation
- 14.4 Jetting of piles
- 14.5 Rejection of piles
- 14.6 Minimum casting level
- 14.7 Concrete work in piles

15 METHOD OF MEASUREMENT AND PAYMENT

16. PRE-CAST RCC SLABS

16.1 Scope

17 SPECIAL CONDITIONS

TECHNICAL SPECIFICATIONS FOR RCC PILE & SLAB BANK PROTECTION

1.0 General

- 1.1** Inland Waterways Authority of India (IWAI) is a statutory body under the Ministry of Road Transport, Highways and Shipping, Govt. of India. The Authority has the principal objectives of development, maintenance and management of National Waterways in the country for shipping and navigation. The Kollam - Kottappuram stretch of West Coast Canal along with Champakkara Canal and Udyogmandal Canal have been declared as National Waterway No.3. IWAI envisaged development of navigation channel of minimum 2.20m depth and 32/38 m bottom width in narrow/wider reaches in West Coast Canal and mark the navigation channel for safe, efficient shipping & navigation.

Construction of RCC Pile & Slab type bank protection in Champakkara Canal of NW.3, at an estimated cost of Rs. 38.65 lakhs (exclusive of Service Tax, Swachh Bharat Cess & Krishi Kalyan Cess), as per specification of drawing enclosed with the tender document.

1.2 Inspection, Sampling and Testing

All materials used in the works shall be subjected to inspection and tests. Samples of all materials proposed to be employed in the permanent works shall be submitted to the EIC for approval before they are brought to the site. Delay to the works arising from the late submission of samples will not be acceptable as a reason for delay in the completion of the works.

The contractor shall provide all assistance, instruments, machinery, labour and materials as are normally required for examining, measuring and testing any work.

1.3 Test Certificates

All manufacturer's certificates of test, proof sheets, mill sheets, etc. showing that the materials have been tested in accordance with the requirements of this specification, the appropriate Indian Standard or other relevant standard specifications are to be supplied free of charge, on request to the EIC or his representative.

1.4 Names of Manufacturers and Copies of Orders

Before ordering any materials of any description for the works, the Contractor shall submit for the approval of the EIC, the names of the makers and suppliers proposed and any other detail required by the EIC and shall afterwards send to the EIC copies in quadruplicate of the orders given by the Contractor for the materials.

1.5 Storage of Materials

All materials used in the works shall be stored on racks, supports, in bins, under cover, etc. as appropriate to prevent deterioration or damage from any cause whatsoever to the entire satisfaction of the EIC or his representatives and as amplified in the succeeding clauses.

1.6 Records and Usage's of Materials

The Contractor shall maintain a detailed record of all materials received on the site or in his stores or storage and working areas in the vicinity of the site and shall make such records available to the EIC at such times as the latter may reasonably require.

Materials shall wherever possible and practicable be used in the order in which they arrive on the site and in the stores or storage and working areas in the vicinity of the site.

1.7 Notice for Inspection of Materials

Where the EIC or his representative shall give notices to the Contractor that materials are to be inspected off the site, the Contractor shall, having regard to the location of the materials and the nature of the inspection, test or examination required, give to the EIC or his representative when such materials are ready for inspection, test or examination either during manufacture, fabrication, etc. or on completion, such notice as the EIC may reasonably require to enable the inspection, test or examination to be made in the contractor shall make arrangement for transportation for inspection at his cost.

Delay to the works arising from the late submission of such notice will not be acceptable as reason for delay to the completion of the works.

1.8 Use of Permanent Materials for Temporary Works

Materials for the permanent works shall not be used for temporary works unless otherwise approved in writing by the EIC. Granting of such permission shall not prejudice the right of the EIC to reject materials so used, which have become unfit for use in the permanent works.

1.9 Cost of Sampling and Testing

Sampling of materials for approval and testing as called for under the appropriate Indian Standard or other relevant standard specification, and sampling and testing referred to in this specification, is to be done without charge and unless otherwise specified, the cost of all such tests and sampling shall be deemed to be included in the rates and prices quoted in the Bill of Quantities.

1.10 Standard of Workmanship

A high standard of workmanship in all trades will be required. The Contractor shall ensure that only skilled and experienced tradesmen are employed.

1.11 Plant

The Contractor shall be responsible for supply, use and maintenance of all construction plant and equipment and he shall ensure that it is suitable for the work and is maintained in such a manner as to ensure its efficient working. The EIC may direct that plant, which is not efficient and is prejudicial to the quality of the work, be removed from the site and replaced by plant to his satisfaction. The plant and machinery deployed for the work shall not be removed from the site till completion of work in all aspects and equipment shall not be taken out from site without approval of the Engineer – in- charge or his representative.

1.12 Temporary Works

Where required, the Contractor shall furnish such details of his temporary works as may be called for by the EIC and the Contractor shall satisfy the EIC as to their safety and efficiency. The EIC may direct that temporary works which he considers unsafe or inefficient shall be removed and replaced in satisfactory manner.

1.13 Materials Not Specified

All materials not herein fully specified and which may be offered for use in the works shall be subject to the approval of the EIC without which they shall not be used anywhere in the Permanent Works.

2.0 EXCAVATION AND BACKFILLING

2.1 General

Excavation for the foundation works shall be carried out to the widths, lengths and depths and within the lines and levels indicated on the drawings or as directed by the EIC. Any excavation beyond such limits or instructions shall be made good by filling with approved earth to the required compaction by the Contractor at his own expense to the satisfaction of the EIC.

2.2 Record Survey

Before beginning excavation or filling the EIC and the Contractor shall jointly survey and record all ground levels and surroundings on the Site.

2.3 Shoring

The Contractor shall provide all shoring, timbering or other approved support to the sides of the excavation as may be necessary to prevent any ground movement. The Contractor shall bear all responsibility connected with such shoring including dewatering notwithstanding the EIC's approval. Cost of shoring wherever required shall be included in the rates for relevant items while quoting.

2.4 Keeping Excavation Dry

All excavation shall be required to be kept completely free from subsoil water, rain water and water from any other source for all times to the entire satisfaction of the EIC. Bed drainage, if required, shall be done to the full satisfaction of the EIC.

2.5 Bottom of Excavation

The bottom of all excavation shall be trimmed and leveled in accordance with the Drawings and compacted properly to the satisfaction of the EIC. A bottom layer of 150 mm thick shall be left undisturbed and removed only when concrete is about to be placed in order to prevent softening or deterioration of the surface of the bottom of the excavation due to exposure.

2.6 Disposal of Excess Excavation

Excavated material not required for filling is to be disposed of as directed by the EIC as a contingency of the contract. The Site must at all times be kept free from surplus material.

2.7 Backfill

All return fill to excavated trenches, pits, etc. shall consist of material selected from excavation or elsewhere as approved by the EIC. The Contractor shall carry out such tests as may be required, to the satisfaction of the EIC to ascertain the water content of the materials is maintained. Filling shall be placed in layers not exceeding 225 mm and compacted to the satisfaction of the EIC. Rolling shall be carried out at the optimum moisture content to achieve at least 95% of Proctor's Maximum Dry Density.

2.8 Damage to Adjacent Structures

Should any slips, falls or settlement of the adjacent ground occur, the Contractor shall re-excavate to firm ground and make good the excess excavation and any damage to adjacent structures to the satisfaction of the EIC.

2.9 Demolition of Existing Structures & Foundations

It is possible that old structures and their foundations may need to be demolished for the works to be taken up. All such demolition work shall be carried out at no extra cost as per the direction of the EIC. All such material from demolition considered usable by the EIC shall be stored properly as directed. And all rubbish shall be disposed off from the site.

2.10 Excavation beyond desired limit

Any excavation beyond the required limits and against which concrete is to be placed shall be made good with concrete of similar grades. Any excavation beyond the required limits at locations where no concrete is to be placed will not be required to be made good unless otherwise directed by the EIC, provided always that caused or necessitated by the excavation beyond limits will not be admitted for payment.

2.11 Dewatering and Equipments for dewatering

The Contractor shall provide for the purpose of excavation under water, all the necessary dewatering equipments like pumps, pipes, conduits etc. The dewatering process shall be carried out till the concrete or other structures in works as mentioned above has set sufficiently and as directed by the EIC.

2.12 Compacting Quality

Compaction of earth and sand filling in areas where foundations and floors are located, the degree of compaction achieved shall be minimum 95% of maximum dry density as obtained by Proctor compaction as per IS: 2720-(part VII). In other areas i.e. back filling around foundations, the degree of compaction shall be 90%.

3.0 CONCRETE AGGREGATE

3.1 Standards

Aggregates shall comply with the requirements of IS:383 'Coarse and Fine Aggregates from Natural Sources for Concrete'.

3.2 Quality

The aggregate shall be hard, strong, durable, clean and free from any adherent coatings or other deleterious matter and shall be obtained from an approved source. Aggregates which are chemically reactive with alkalis of cement shall not be used. Aggregates which are not clean shall be washed in clean fresh water to the satisfaction of the EIC.

3.3 Testing

All aggregates shall be subject to inspection and testing. Sampling and testing shall be carried out in accordance with IS: 2386 (Part I to Part VIII) "Methods of Test for aggregates for Concrete".

3.4 Fine Aggregates for Structural Concrete

The grading of the fine aggregate for reinforced concrete shall be within the limits of grading zones I and II as defined in Table 4 of IS: 383 "Coarse and Fine Aggregate from Natural Sources for Concrete". Fine aggregate for use of concrete shall be washed as per relevant Indian Standards.

3.5 Fine Aggregates for Mortar and grout

Fine aggregates for mortar and grout shall be obtained from an approved sources. It shall comply with IS: 383 and its grading shall be in accordance with grading zone III of Table 4 of the said standard.

3.6 Sand for Masonry Mortars

Sand specified for masonry mortars shall be natural sand, crushed stone sand or crushed gravel sand complying with IS: 2116 "Sand for Masonry Mortars".

3.7 Coarse Aggregates

Coarse aggregates for reinforced concrete shall consist of black trap broken stones free from flat laminated or elongated pieces and shall be within the limits of the relative grading in IS: 383 Table II.

Unless otherwise specified in the drawings, all coarse aggregates in reinforced concrete shall be graded aggregate of 20-mm nominal size and below.

3.8 Storage at Site

Aggregates shall be stored at the site on clean, well-paved and drained areas which are not liable to flooding. The various sizes and types of aggregates shall be well separated and the layout and sitting of the storage areas shall be submitted to the EIC for approval prior to the starting of construction.

3.9 Rejected Material

Any aggregate brought to the Site which is not approved by the EIC shall be immediately removed from the Site.

4.0 CEMENT

4.1 Standard

Generally, ordinary Portland Cement complying with the requirements of IS: 269 shall be used in all works.

5.0 WATER

5.1 Water from Approved Source

The contractor shall make his own arrangements for supply of water at no extra cost to the employer. Water used for cement concrete, mortar plaster, grout, curing, cooling or, washing of aggregates shall be potable water. The deleterious materials and its quantity should be within the permissible limits as per IS: 456 when tested as per IS: 3025. In case of doubt the EIC may required the contractor to get the water tested from an approved laboratory at contractors expense.

6.0 ADMIXTURES FOR CONCRETE

6.1 Approval

Admixtures may be used in concrete only with the approval of the EIC and shall conform to IS: 9103. The contractor shall produce test certificates from recognized laboratories before use of admixtures as directed by the EIC.

7.0 CONCRETE

7.1 Codes

All Design and construction shall be performed in accordance with the Indian Standard Code of Practice for Plain and Reinforced Concrete IS: 456 (Latest) and other relevant codes mentioned therein.

7.2 Qualified Personnel

A fully qualified and experienced concrete quality control engineer shall be employed by the Contractor and shall be available on site at all times when concreting is taking place. Prior to commencement of the works, Contractor shall submit for the approval of the EIC details of qualifications and experience of the personnel to be engaged in the work of concrete and quality control. Operators of mechanical vibrators and mixers and foreman in charge of placing of concrete shall be fully trained and experienced for their class of work and they shall be named to the EIC for approval and testing.

7.3 Classes of Concrete

The classes of concrete shall be in accordance with the following table or as described in Clause 7.7.

Class	Max. size of aggregate(mm)	<u>Min. Crushing Strength N/sq.mm.</u>				Min. Mixing time (minutes)
		Preliminary Tests		Works Tests		
		7 days	28 days	7 days	28 days	
M 10	40	9	13.5	7	10	1.5
M 15	20/40	15	20	10	15	2
M 20	20	18	26	13.5	20	1.5
M 25	20	22	32	17	25	2
M 30	20	30	40	20	30	2

7.4 Designed Proportion

When concrete is specified as in Clause 7.3 (M10, 15, 20...) the Contractor shall make calculations and carry out all the necessary tests to determine for each class of concrete the proportion by weight of cement aggregate and water necessary to produce concrete in accordance with the table in Clause 7.3 prior to commencement of works. The Contractor shall submit to the EIC for approval:

1. The proportion of cement, coarse aggregate, fine aggregate and water so determined.
2. The sieve analysis of aggregates which he proposes to use in the works.
3. Full details of preliminary tests on each class of concrete, and on the ingredients of each class of concrete.
4. For each trial mix, the mix strength - determined as the average of 10 test specimens - shall exceed the specified strength given in Table of Clause 7.3 under the heading "Preliminary Tests".
5. All the calculations relevant to the design of each class of concrete mix. For underwater concreting (including Tremie concreting), the Contractor shall conform to Clause 13.2 of IS:456. Minimum cement content required for cement concrete to ensure durability under severe exposure condition shall be as per Appendix A of IS: 456. The maximum cement content in the concrete mixes shall be subject to the approval of the EIC.

7.5 Declared Proportions

When the proportions are submitted to the EIC which the contractor considers will produce concrete having the properties required by the foregoing table and elsewhere in the specifications, such properties shall be known as the declared proportions, but no agreement by the EIC to such declared proportions shall relieve the Contractor of any of his responsibilities.

7.6 Proportion Specified as Ratio of Cement to Fine/Coarse Aggregates

Wherever nominal mix is specifically required the contractor shall use the ratio by volume of ordinary Portland cement, fine aggregates and coarse aggregates with maximum size of 20mm as per Drawings and Bill of Quantities.

7.7 No Deviation from Declared Proportions

No deviation from declared proportions will be allowed unless and until the EIC gives his written authorization for the adoption of revised proportions for any class of concrete. This provision shall also apply to any revised proportions so authorised.

7.8 Mortar and Grout

Mortar and Grout shall unless otherwise specified be composed of Portland cement and sand of specified grading and shall be mixed in the proportions called for.

7.9 Inspection and Testing

As the work progresses, inspection of cement, aggregate, reinforcing steel and testing of the concrete strength will be done by the EIC. The Contractor's concrete plant and material stores shall be made accessible to the EIC at all times for inspection and taking samples. The Contractor shall facilitate in all possible ways the inspection and testing of samples by the EIC. Labour shall be provided by the Contractor for testing.

7.10 Sampling and Strength Test

Samples from fresh concrete shall be taken as per IS:1199 and cubes (15 cm size) shall be made, cured and tested at 28 days in accordance with IS:516.

All samples and testing specified under these clauses shall be carried out at the Contractor's own expenses and the cost of these shall be deemed to be included in the rate quoted for execution of work in the Bill of Quantities.

7.11 Cube Strength Requirement

Concrete tested as indicated above shall meet the specified characteristic concrete, optional tests i.e. compressive strength test at 7 days shall be carried out in addition to 28 days compressive strength test. 7 days compressive strength shall be 2/3rd of 28 days specified characteristic compressive strength. In all cases, the 28 days compressive strength specified shall be the criterion for acceptance or rejection of the concrete.

The frequency of sampling of concrete shall be decided by the EIC. However, minimum frequency of sampling for each grade of concrete shall be in accordance with the following. At least one sample shall be taken from each shift and each sample shall comprise three test specimens:

Quantity of Concrete in work, m ³	No. of Sample
1 - 5	1
6 - 15	2
16 - 30	3
31 - 50	4
51 and above	4 plus one additional sample for each additional 50 m of part there

Three test specimens shall be made from each sample for testing at 28 days. The specimens shall be 15-cm size cubes. Additional three test cubes shall be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the formwork or to determine the duration of curing, or to check the testing error. The specimens shall be tested as described in IS: 516.

The test strength of the sample shall be the average of the strength of three specimens. The individual variations should not be more than + 15 per cent of the average.

7.12 Standard Deviation

Standard deviation based on test results shall be determined as per clause 14.5 of IS:456 and shall conform to Table 6 of IS:456.

7.13 Acceptance Criteria of Concrete

The concrete tested as per specified procedure herein shall be deemed to comply with the strength requirement if the criteria specified in Clause 15.1 of IS:456 is met with. The concrete shall be deemed not to comply with the strength requirements if the concrete has strength less than that required by Clause 15.2 of IS:456 and consequential action i.e. testing of structures shall be undertaken as directed by the EIC.

7.14 Failure to Meet Characteristic Strength

The results of core test or load test of structure if found unsatisfactory, all the concrete represented shall be removed from the works and replaced by the Contractor at his own cost with concrete complying with specified requirements.

7.15 Tests Conducted Outside

Whenever required by EIC, the Contractor shall cast and supply the required number of 150 mm size cubes to be tested by an independent laboratory.

The Contractor shall be responsible for transporting and delivering the cubes. Sufficient notice shall be given to the EIC so that EIC may arrange his representative to be present during transportation and testing.

All costs concerning the casting, transporting and testing of such cubes shall be borne by the Contractor.

7.16 Measurement of Ingredients

Cement and the aggregate shall be measured by weight. While weighing the fine aggregates (sand), due allowance shall be made for moisture content. The method adopted for weighing the concrete materials shall be as approved by the EIC, or his AR. All aggregates shall be batched by weight. The batching plant shall be of the requisite capacity to maintain the required progress on different items of work. The equipment shall be capable of determining accurately by direct weighing of the prescribed quantities of various ingredients including water, cement, admixtures etc., and each individual size of aggregates making up the concrete and combination of them to give a uniform mix within the prescribed time and discharging the mix without segregation. The equipment, type and its operation shall at all times, be subject to the approval of the EIC. All controlled concreting covered in this contract shall be permitted to be done by equivalent volume batching as against weigh - batching as specified above and in the item specifications, subject to checking by weighment for concreting of every 500 cum. of concreting. However this is the upper limit and EIC may at his discretion check by weighment during any stage of work.

7.17 Check Tests for Equipments

The Contractor shall provide standard tests, weights and other auxiliary equipment required for checking the operating performance of each scale or other measuring device and shall make periodic tests over the range of measurement involved in the batching operation.

The test shall be made in the presence of authorised representative of the EIC and shall be adequate to prove the accuracy of the device. The frequency of such tests shall be determined by the EIC.

7.18 Gauging Water

The general arrangement for the supply of water for mixing concrete shall be to the satisfaction of the EIC or his AR. The quantity of water to be employed in the mix shall be as per water cement ratio determined while designing the mix and according to the degree of moisture in the aggregates. The quantity of water thus determined shall be accurately measured for each separate mixing in a suitable tank provided with means

for adjusting the flow of water with gauge clearly marked in liters. Only required quantity of water shall be used for mixing concrete.

7.19 Batching and Mixing

On proportioning concrete the quality of both cement and aggregate should be determined by weight. Where the weight of cement is determined on the basis of weight per bag, a reasonable number of bags shall be weighed periodically to check the net weight. Water should be either weighed or measured by volume in calibrated tanks. All measuring equipment should be maintained in a clean serviceable condition and shall be periodically checked for accuracy.

The grading of course and fine aggregate should be checked frequently and frequency of testing shall be determined by the EIC to ensure that the specified grading is maintained, where weigh - batching is not possible or practicable, the quantities of fine and course aggregate may be determined by volume but cement shall be weighed by weight only. If fine aggregate is moist and volume batching is adopted, allowance shall be made for bulking. The bulking shall be determined in accordance with IS: 2386 (Part III).

The water cement ratio shall be maintained to its correct value. Surface moisture content of aggregates shall be determined as per IS:2386 (part III) and the amount of water to be added shall be adjusted accordingly to maintain the correct water cement ratio.

The concrete shall be mixed in a mechanical mixer. The mixer shall comply with IS : 1791. The mixing shall be continued until there is a uniform distribution of the materials and mass is uniform in colour and consistency. If there is segregation after unloading from the mixer, the concrete should be remixed. Normally, hand mixing shall not be permitted. When the same is permitted by the EIC water-tight platform adding 10% extra cement. Care shall be taken to ensure that mixing is continued until the concrete is uniform in colour and consistency. Workability of the concrete shall be controlled and checked at frequent intervals by testing as per IS: 1199.

7.20 Discharge from Mixer

The concrete shall be discharged from the mixer on to a level, clean, watertight platform or floor and carried in watertight containers. The area surrounding the mixer shall be paved and kept clean.

7.21 Transporting of Concrete

The concrete shall be transported from the mixer to its place in the works as rapidly as possible and in such a manner that there shall be no separation or loss of its ingredients. In no circumstances shall more than half an hour elapse between the time water is added to the mix and the time when the concrete is finally compacted in position. No concrete shall be permitted to be used in the works after initial set has taken place. The use of concrete distributing chutes will not be permitted without the sanction of the EIC.

7.22 Authorization to Pour

Notice for each concrete pour shall be given by the Contractor to the EIC at least one day in advance. Concreting shall be undertaken only after receiving due authorization from the EIC.

Concreting shall not be started unless the electrical conduits or any other piping wherever required are laid by the concerned agency. The civil Contractor shall afford all the facilities and maintain coordination of work with other agencies engaged in electrical and such other work as directed by the EIC.

Before concreting, the Contractor shall provide fabricate and lay in proper position all metal inserts, anchor bolts, pipes etc. (which are required to be embedded in concrete members) as per relevant drawings and direction of EIC.

7.23 Deposition of Concrete

The arrangements for depositing concrete shall be subject to the approval of the EIC. In no case shall concrete be dropped or thrown from a height of more than 1.0 m. Concreting of beams, slabs, and similar members shall be carried out in one continuous operation to the full depth of the member and the sequence of placing shall be arranged as to avoid disturbance of partially set concrete. The concrete shall be deposited as close to its final position as practicable in order to prevent segregation.

Freshly laid concrete shall not be wheeled over or otherwise disturbed. When depositing concrete adjacent to a construction joint special care shall be taken not to disturb the dowels or other reinforcing bars projecting from the existing concrete.

In foundations, walls, and columns where the full height is not being poured in one continuous operation the surface of each lift shall be finished horizontal and any laitance removed between the period of initial and final set. For slip formed wall concrete shall be placed in horizontal layers approximately 150 to 200 mm in thickness. Not more than half an hour should elapse between the placing of successive layers of concrete in any portion of the slip form. This is to ensure that each pour is thoroughly, worked into and made homogeneous with the preceding pour.

7.24 Compaction of Concrete

The Contractor shall agitate the placed concrete thoroughly into place by means of a sufficient number of mechanical vibrators complying with IS:2505, IS:2506 and IS:4656. The vibrator shall be allowed to sink freely of its own weight until it enters the previous lift. It shall be withdrawn immediately at the same rate and used at a new location. Concrete once vibrated shall not be vibrated again. The Contractor shall ensure that the concrete is thoroughly worked around the reinforcement and against external shutters so that all entrained air is expelled and the concrete surface when exposed is found good and free from air pockets, honey-combing or other defects. Re-tampering of concrete or mortar which has partially hardened shall not be permitted.

7.25 Concreting in Inclement Weather

In the event of rainstorm or any other severe conditions arising, concreting shall be stopped and appropriate temporary stop ends, vee grooves, etc. placed as may be necessary. During wet weather, the concrete shall be adequately protected as soon as put into position. The Contractor shall always have in readiness approved framed sheeting, tarpaulin etc. for the protection of newly placed concrete during inclement weather. Should any concrete be damaged due to rainstorms or other weather conditions, the EIC may order the cutting out and replacement of the damaged concrete, all at the expense of the Contractor.

7.26 Concreting Underwater

Where the concrete is to be deposited underwater greatest care shall be taken to prevent the cement being washed out. The concrete may be placed under water using bottom opening skips or may be continuously fed through a tremie pipe provided with a suitable hopper. Great care shall be taken that no segregation of concrete takes place. The methods, equipments, materials and proportions of the mix to be used shall be submitted to and approved by the EIC before the work is started. The concreting operations shall be done as per provisions of IS:456 (clause 13.2) unless otherwise directed by EIC.

7.27 Stop Ends

The position of temporary stop ends for vertical joints shall be approved by the EIC.

7.28 Openings, Cable Ducts and Holes etc.

Cable ducts, holes, etc. shall be moulded in the concrete as may be required to the details and the positions on the drawings or as directed by the EIC.

7.29 Construction Joints

Concreting shall be carried out continuously up to construction joints, the position and arrangement of which shall be indicated by the EIC or shown in the drawings. The work at construction joints shall conform to provisions of clause 12.4.1 and clause 12.4.2 of IS:456-1978 and shall be done at no extra cost to the employer.

7.30 Screeding

All the surfaces of slabs or other members not required to be shuttered are to be screeded by means of a steel shed screed and within a tolerance of plus minus 3 mm of true level and grade. In making such finish care shall be exercised not to work in excess fines to the top. Care is to be taken to ensure that the concrete is properly closed and for this purpose vibrator screed boards or plates will normally be required.

7.31 Curing

Curing of concrete shall be in accordance with IS:456. Concrete shall be cured by keeping it moist for the period of time specified herein to ensure that complete hydration and hardening takes place.

All concrete shall be cured by use of water which shall be continuously (not periodically) maintained on all exposed surfaces.

Curing shall be assured by use of an ample water supply under pressure in pipes, with all necessary appliances of hose, sprinklers and spraying devices. Continuous fine-mist spraying or sprinkling shall be used, unless otherwise specified or approved by the EIC.

Wherever, in the judgment of the EIC it may be necessary, the continuous spray method may be omitted and a covering of sand or other approved material such as burlap which will hold moisture for long periods and prevent loss of moisture from the concrete shall be used. Type of covering which would stain, disfigure, or damage the concrete during and after the curing period will not be approved. Approved covering shall be kept continuously wet during the specified curing period.

Concrete shall be maintained in moist condition for at least the first 7 days after placing. Other curing period may be used with the permission of the EIC, if the specified strengths are obtained.

The Contractor shall have all equipment and materials required for curing on hand and ready to use before concrete is placed.

For curing of concrete in pavements, side walls, floors, flat roofs or other level surfaces the ponding method of curing is preferred. The method of containing the ponded water shall be approved by the EIC. Special attention shall be given to edges and corners of the slabs to ensure complete and proper protection to these areas. The ponded area shall be kept continuously filled with water and leaks shall be promptly repaired.

Curing of concrete shall start after 8 hours of placement and in hot weather within 4 hours of placement for exposed faces. During the first 24 hours, the concrete shall be cured by use of wet burlap or such other means to cover the concrete surfaces. In very hot weather precaution shall be taken to see that the temperature of wet concrete does not exceed 38 degree C while placing.

Newly placed concrete shall be protected by approved means from rain, sun and wind. Concrete placed below the ground level shall be protected from falling earth during and after placing, surface shall be kept free from contact with such ground or with water draining from such ground during placing of concrete and for a period of at least 3 days unless otherwise directed by the EIC. The ground water around newly poured concrete shall be kept to an approved level by pumping or other approved means of drainage and adequate steps shall be taken to prevent flotation and flooding. Steps shall be taken to protect immature concrete from damage by debris, loading, vibration, abrasion, mixing with deleterious materials that may in the opinion of the EIC impair the strength and/or durability of the concrete.

Approved curing compounds may be used in lieu of moist curing with the permission of EIC. Such compounds shall be applied to all exposed surfaces of the concrete as soon as possible after the concrete has set.

7.32 Concrete below Specified Strength

Should the test cubes fail to meet the minimum specified crushing strength for each class of concrete, the EIC may take one of the following decisions:

- a) Instruct the Contractor to carry out such additional tests and/or works to ensure the soundness of the structure at the Contractor's expense.
- b) The EIC may accept the work. Any decision to accept the work shall be entirely at the discretion of the EIC who may make a reduction in the rate of the appropriate item.
- c) Reject the work and instruct that the Section of the works to which the failed cubes relate to be cut out and replaced at the Contractor's expense.

7.33 Faulty Work

Immediately on removal of forms, the R.C.C. works shall be examined by the EIC before any defects are made good.

- (a) The work that has sagged or contains honeycombing to an extent detrimental to structural safety or architectural concept shall be rejected.
 - (b) Surface defect of a minor nature may be accepted. On acceptance of such work by the EIC the same shall be rectified.
- ◆ Surface defects which require repair when forms are removed usually consist of bulges due to movement of forms, ridges at form joints, honey-combed areas, damage resulting from the stripping of forms, and bolt holes. Bulges and ridges are removed by careful chipping or tooling and the surface is then rubbed with a grinding stone. Honeycombed and other defective areas must be chipped out, the edges being cut as straight as possible and perpendicularly to the surface, or preferably slightly undercut to provide a key at the edge of the patch.
 - ◆ Shallow patches are first treated with a coat of thin grout composed of one part of cement and one part of sand and then filled with mortar similar to that used in the concrete. The mortar is placed in layers not more than 10 mm thick and each layer is given a scratch finish to secure bond with the succeeding layer. The last layer is finished to match the surrounding concrete by floating, rubbing, or tooling on formed surfaces by pressing the form material against the patch while the mortar is still plastic.
 - ◆ Large and deep patches require filling up with concrete held in place by forms. Such patches are reinforced and carefully dowelled to the hardened concrete.
 - ◆ The same amount of care to cure the material in the patches should be taken as with the whole structure. Curing must be started, as soon as possible, after the patch is finished to prevent early drying. Damp hessian may be used but in some locations it may be difficult to hold in place. A membrane curing compound in these cases will come in most convenient.
- (c) The surface of R.C.C. slab on which the cement concrete is to be laid shall be roughened with brushes while the concrete is green. This shall be done carefully without disturbing the concrete.

No additional payment will be made for treatment indicated above and shall be covered by the rates quoted against the relevant items of the Bill of Quantities.

Any concrete which gives below standard test results, becomes severely damaged due to cracking, shows excessive honey-combing and exposure of reinforcement or exhibits any fault which, in the opinion of the EIC seriously impairs its function, may be declared defective concrete. Such concrete shall be cut out, removed from the site and replaced by fresh concrete of the specified quality at the Contractor's own expense. Alternatively the Contractor shall carry out whatever other remedy the EIC may reasonably require having regard to all the circumstances.

7.34 Workability of Concrete

Workability of concrete for different planning conditions should be in accordance with IS:1199-1989 and shall be as given in clause 6.1 of IS:456-1978.

7.35 Durability of Concrete

Durability of concrete shall be ensured by adopting low- water cement ratio and minimum cement content. Maximum water cement ratio shall be as specified in

Appendix 'A' of IS:456-1978 or as specified and directed by the EIC, depending upon conditions of exposure of concrete.

7.36 Production and control of concrete

The Contractor shall depute a competent person to supervise all stages of production of concrete. Preparation of test specimens and site test shall be properly supervised. The Contractor shall provide the EIC, all reasonable opportunity and facility to inspect the materials and the manufacture of concrete and to take any sample or to make any test.

7.37 Commencement of Concreting

No concreting shall be commenced in any portion of the works until the programme and preparation have been approved and permission given by the EIC, that the concreting such portion of the works may commence.

7.38 Intervals during concreting

The schedule for the depositing of concrete is to be so arranged that no face of concrete shall be left more than 20 minutes before concrete is deposited against it. Pauses for meals, changes of shifts, etc., and the distributing of the concrete among the positions where work may be proceeding simultaneously must therefore be carefully organized to ensure that the above-mentioned interval is not exceeded.

7.39 Concreting not to be disturbed

Extreme care should be taken not to disturb the concrete by direct or indirect loading, striking of shutters or otherwise, until it has hardened sufficiently.

7.40 Finishing

Top surface of all the slabs shall be finished even and smooth with wooden trowel, before the concrete begins to set.

8.0 SHUTTERING

8.1 General

All shuttering and supports included under the contract shall be designed by the Contractor and relevant drawings together with calculations for strength and deflection shall be submitted to the EIC for approval before commencement of the work.

8.2 Shuttering Material

Material for shuttering shall be of timber, plywood, steel or any other material as agreed or directed by the EIC. Timber used for shuttering shall be easily workable with nails without splitting and of lightweight. It shall be stiff and strong enough to avoid undue deflection when loaded, be stable and not liable to warp when exposed to sun and rain or wetted during concreting. It shall not be so soft as to get damaged easily on the contact faces under normal condition or erecting forms, fixing steel and pouring concrete.

All forms shall be fixed in perfect alignment and adequately be roped by ballies, steel posts and fixed in their correct position and shall be sufficiently strong to withstand the dead or live loads and forces caused by ramming and vibrations of concrete and other incidental loads imposed upon it during and after casting of concrete. Particular care shall be taken to maintain alignment of plane and uniformity of profile with glove tight

forms at the junctions between columns, beams, walls and slabs and between lifts or joints in the work. All open joints are to be covered with building paper of approved quality.

8.2.1 Clamps and bolts for shuttering

Wedges and clamps shall be used wherever possible instead of nails. Wire ties to shuttering through concrete shall not be permitted. If internal ties are necessary then bolts or rods shall be used through metal sleeves so that such metal sleeves shall be left within 40 mm of finished concrete surface. On the removal of such bolts or rods, the holes left shall be thoroughly filled with a stiff paste comprising of one part of cement to one part of sand. No ties whatsoever shall pass through any concrete members designed to be part of a watertight structure.

8.2.2 Shuttering for vibrated concrete

Where concrete is required to be vibrated and where boarding is used for shuttering all joints shall be tongued and grooved or grooved and feathered. Where prefabricated timber panels are used, joints between panels shall be tight and shall be thoroughly caulked with putty or other approved materials before concreting is commenced.

Where steel shuttering are used all joints and holes in the shutters shall be covered with tape which shall be firmly affixed to the shuttering by means of spirit glue or other oil grease resisting glue. All caulking and covering of joints and holes shall be carried out to the satisfaction of the EIC.

8.2.3 Shutters for beam

All shuttering work for beams, slabs and like members shall be designed and constructed so that the sides may be removed without disturbing the bottom boards or supports thereto. The bottom of each formwork shall be set with a camber approximating to the final deflection of both shuttering and beam under load as approved by the EIC. The supporting struts shall be adjusted and fixed in position by suitable means and placed on timber sills where necessary or required.

8.2.4 Shutters for slabs

Where timber is used for the sophist shuttering of slabs, the boards shall be planned and laid perfectly true to line and level. All requisite bearers and struts shall be provided and shall be adjusted in position and placed where necessary on sills at the lower end, as specified in the case of beam shuttering.

8.2.5 Camber

Suitable camber shall be provided in horizontal member of structures to counter-act the effects of deflection. The shuttering shall be so assembled as to provide for such camber, and magnitude of camber shall be as directed by the EIC.

8.3 Fixing

Form shall be true to shape, lines and dimensions of the concrete work as shown on the drawing. The contractor shall fix all the formwork in perfect alignment. The formwork shall be securely braced so as to be able to withstand, without appreciable displacement, deflection or movement of any kind, the weight of the construction or movement of person's material and plant. All the joints should be water tight to

prevent leakage of cement slurry from the concrete. Wedges and clamps are to be used wherever practicable.

8.4 Removing

The Contractor shall be responsible for properly supporting all concrete until it is sufficiently strong for the removal of the formwork including the props. No formwork shall be removed without the prior consent of the EIC. All formwork shall be so constructed as to permit easing and removal without jarring the concrete. Particular care shall be taken to avoid damaging the concrete when removing formwork from concrete surfaces which are required to be left with an 'as struck' finish. When props are to be left in position under beam and slabs the formwork shall be constructed in such a way that the props are in no way disturbed when the remainder of the formwork is removed. No patchwork or repairing of concrete surface shall be done without the notice of the EIC. All surfaces of concrete after stripping of formwork shall be got approved by the EIC before they are touched. The EIC's decision shall be final regarding the acceptance of the quality of concrete surface.

Before removal of props and formwork, it shall be ensured that the concrete has attained the minimum strength required to avoid any unacceptable deflection due to shrinkage creeps etc. and the minimum striking period should follow as per provision of IS:456.

8.5 Unwrought Shuttering

Unwrought shuttering shall be used for all surfaces of mass concrete walls, etc. which are not exposed in the finished work, and as directed by the EIC.

8.6 Wrought Shuttering

Wrought shuttering shall be such as to produce a first class fair face on the concrete and free from board marks or any other disfigurements and shall be used for exposed surface where specified or directed by the EIC. Wrought shuttering is to be aligned within a tolerance of 3 mm.

8.7 Special Provision

Wherever the concreting of narrow members is required to be carried out within shutters of considerable depth, temporary opening in the sides of the shutters shall, if so directed by the EIC, be provided to facilitate the pouring and consolidation of the concrete. Small temporary openings shall be provided as necessary at the bottom of shutters of columns, Walls and deep beams to permit the expulsions of rubbish etc. All arises and return to beam, columns and slabs shall unless otherwise shown on the Drawings be provided with chamfers of 20 x 20 mm or as directed by the EIC.

8.8 Preparation for Concreting

Before any concreting is commenced shuttering and centering shall be carefully examined and the space to be occupied by the pour thoroughly cleaned out. The inside of shutters shall be treated with a coating of an approved substance to obviate adhesion and, where necessary to prevent absorption from the concrete, the shutters shall be thoroughly wetted shortly before concreting is commenced.

8.9 Contractor's Responsibility

Any damage resulting from premature removal of shutters or from any other cause shall be made good by the Contractor at his own expense.

8.10 Re-use of shuttering Material

All shuttering material which is to be reused shall be cleaned to the satisfaction of the EIC, repaired as necessary and coated afresh with approved mould oil of non- staining type.

8.11 Opening for inspection

Wherever the concreting of narrow members is required to be carried out within formwork of considerable depth, temporary opening shall be provided as necessary at the bottom of the formwork to columns, walls and deep beams to permit the expulsion of rubbish etc. All such temporary openings shall be closed as soon as pouring has been done up to their level or location.

8.12 Use of mould oil

All faces of formwork in contact with the concrete shall be coated with an approved type of mould oil that will not injure or stain the concrete surface or prevent the proper adhesion of applied finish and is agreed by the EIC. The mould oil shall be applied evenly and the quantity used shall be minimum necessary to prevent the concrete adhering to the shuttering. The Contractor shall carefully remove all mould oil from the reinforcement fittings to be embedded in concrete, or from the previously placed concrete at construction joints.

8.13 Alignment of shuttering and centering

All formwork is to be aligned so that the finished concrete is true to line (with a tolerance of +5mm) and level and shall be approved by the EIC's work proceeds. For exposed concrete surface, however, tolerance as mentioned separately in that section of work shall be applicable.

8.14 Damage to concrete

The Contractor is to make good at his own expense any injury to the concrete work & any damage caused by or arising from the removal and striking of formworks and supports.

8.15 Shuttering for exposed concrete work

For exposed concrete work plywood to be used shall be new good exterior grade W.B.P Hardcore faced of minimum 18mm thickness (11 plies). Care shall be taken about the quality of workmanship and execution of the formwork and concreting as under no circumstances any repair work or patching up of finished concrete shall be allowed. The pattern of the boards and the proposed lifts of concrete shall be indicated by the Contractor in his formwork design drawings for approval of the EIC. The joints between boards or panels shall painted with patching plaster or otherwise filled or covered to make the surface free of all marks. After manufacture and before fixing, each formwork shall be got approved by the EIC.

Construction joints shall be positioned as indicated in the drawings or as directed by the EIC.

Formation of blotches and stains shall not be allowed to occur and for this purpose all shuttering shall be struck off at the same time. Efflorescence shall not be allowed to take place at all.

Nailing shall be done carefully using hammers with smooth and well-dressed heads to prevent marring of the form surfaces. Non- staining from oil or coating or release agent shall be used for forms to prevent uneven colouring of the concrete. Use of ties shall be very much restricted and as far as practicable shuttering shall be supported without the ties by propping against staging erected firmly for the purpose.

8.16 Left Shutter of Brick Work

The Contractor shall provide brickwork shutter to be left in place wherever required or specified by the EIC. The bricks shall be of second class quality and shall be laid with lime mortar. The work shall be suitably protected from damage, mortar dropping, etc. till concreting is completed.

9.0 REINFORCING STEEL

9.1 Steel Reinforcement

Steel reinforcing bars for concrete shall be round bars of Grade I quality complying to IS:432 "Mild Steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement" or high yield strength deformed round bars conforming to IS:1786 "Cold- worked steel high strength deformed bars for concrete reinforcement".

9.2 Storage

Reinforcing bars shall be stored on site on timber or concrete supports suitably spaced and of sufficient height to keep steel clear of the ground. The reinforcing steel shall be stored separately section wise.

9.3 Supply of Reinforcing Steel

There is no departmental supply of material in this work. Procurement of steel is included in contractor's scope of work.

10.0 WELDING OF REINFORCEMENT

10.1 Standards

Normally welding of reinforcement will not be permitted. Only when permitted in exceptional circumstances, welding of reinforcement shall be carried out in accordance with IS:2751 for mild steel bars and IS:9417 for high yield strength deformed torsteel bars.

10.2 Inspection of Welds

All welding shall be subject to inspection and testing as specified by the EIC.

11.0 REINFORCEMENT IN CONCRETE

11.1 General

The following clauses shall be read in conjunction with the section pertaining to concrete. All RCC work shall comply with IS:456.

11.2 Bar Bending Schedule

Bar bending schedule will be prepared by the Contractor as per IS-2502 and shall be submitted to the EIC in triplicate for approval at least two weeks before the bars are to

be bent. The EIC will check and return one copy for the Contractor's use, with amendments if any. The cost of preparing schedules will be deemed to be included in the rates for reinforcement in the Schedule of Quantities. Any approval given by the EIC shall, in no case, relieve the Contractor from being responsible for the accuracy and correctness of bar bending schedule.

11.3 Bending Reinforcement

Bends, cracks or other labour on reinforcement shall be carefully formed in exact accordance with the drawings or bar bending schedule, otherwise all bars shall be truly straight. Bends shall be made cold round a former having a diameter four times the diameter of the bars. Stirrups and binders shall be bent to the radius of the bars against which they are to be bent. Bending shall be in accordance with IS:2502 "Code of Practice for Bending and Fixing of Bars for Concrete Reinforcement". Heating of bars will not be allowed. Bars incorrectly bent shall be used only if means for straightening and re-bending have been approved by the EIC. No reinforcing bar shall be bent when in position without the EIC's approval whether or not it is partly embedded in hard concrete.

11.4 Binding Wire

All bars shall be bound tightly together, where they cross, with black annealed steel wire 1.5 mm in diameter. The free ends of the binding wire shall be bent inwards.

11.5 Placing and Fixing

The number, size and form of all reinforcement shall be in exact accordance with the Drawings. The reinforcement shall be placed, fixed and maintained in the forms within a tolerance of 5 mm during the placing and compaction of the concrete. Horizontal bars shall be suspended or supported with concrete blocks to prevent them from sagging. Such spacer blocks shall have no dimensions exceeding 50 mm and shall be precast from concrete of the same class as the concrete in which they are to be embedded except that the largest size of aggregate shall be 10 mm. Each block shall be cured for 10 days or more. Each block shall be secured to the reinforcement with wire or spring clip embedded on the center of the block so that it shall not be in contact with the shuttering or subsequently cause rust marks on the concrete. Where necessary, spacer bars, supporting stools and distance pieces shall be supplied and fixed by the Contractor to maintain the reinforcement rigidly in the correct position and to the satisfaction of the EIC. Any ties or stirrups connecting the bars shall be taut so that the bars properly braced, inside of their curved parts in actual contact with the bars round which they are intended to fit. The cost of providing tying wire as well as stools and chairs and concrete blocks shall be deemed to be covered in the reinforcing steel.

Where reinforcement bars are bent aside at construction joints and afterwards bent back into their original positions, care should be taken to ensure that at no time is the radius of the bend less than 4 x bar diameter for plain mild steel or 6 x bar diameter for deformed bars. Care shall also be taken when bending back bars to ensure that the concrete around the bar is not damaged.

The Contractor shall provide necessary steel chairs, etc. or other subsidiary reinforcement which are not shown on the drawings but may be necessary to keep the reinforcement firmly in its correct position. Hooks, L- bends and laps in bars shall be provided by the Contractor as shown in the drawing or as per standard practice. The

cost of such subsidiary reinforcement shall be deemed to be included in the price quoted by the Contractor. The concrete cover shall not be less than that specified in the drawings.

Fabric reinforcement shall be fixed flat in the works over area shown in drawings. Adjoining sheets of fabric shall overlap by at least one complete square or 60 x diameters of the bars crossing the lap, whichever is the greater overlap. Loose bars shall not be used in conjunction with fabric reinforcement except where shown on the drawings. Loose small pieces of fabric shall only be used where they are essential for fitting into small confined parts of the works.

11.6 Splicing Reinforcement

Where splicing and/or overlapping in reinforcement are required, the bars shall be provided with such splices or overlaps as are shown on the Drawings or directed by the EIC.

11.7 Butt Welding of Reinforcement

Butt welding of reinforcing steel bars shall only be used where specified or shown on the Drawings unless permission in writing has previously been given by the EIC. Where butt welding is carried out the ends of the bars shall be prepared with single 45 degree V and a backing plate shall be used. The minimum root face will be one quarter of the bar diameter.

11.8 Cover to Reinforcement

Minimum cover to reinforcement shall be equal to that specified or shown on the Drawings. Where two bars cross the outer one shall have the minimum cover.

11.9 Reinforcement to be cleaned

All steel reinforcement before the concrete is deposited shall be cleaned, free from dust, loose scales, oil, rust, grease or any other deleterious material. Particular care shall be taken to avoid contamination of reinforcement with mould oil.

11.10 Depositing Concrete

No concrete shall be deposited until all concrete and reinforcement have been inspected and approved by the EIC. There shall be in attendance on each concreting gang a competent steel fixer who shall ensure that the reinforcement and other embedded fittings are kept in position during placing and compaction of the concrete.

12.0 PRECAST CONCRETE

12.1 General

The requirement of the clauses relating to concrete and reinforced concrete shall be observed in the case of precast concrete work so far as they are applicable, as well as the following requirements relating to the precast concrete work, in particular.

12.2 Pre-casting Yard

The pre-cast units shall be cast on, or their shutters supported from a suitably prepared level, unyielding paved area.

12.3 Shutters

A shutter shall be strongly constructed closely jointed and smooth and shall be such as to ensure true sharp arise and a perfect surface. Shutters are to be so designed that they can be taken apart and reassembled readily.

12.4 Casting Tolerance

Casting tolerances, unless otherwise ordered or directed, shall be within 3 mm of true dimensions. Deflection due to pre-stress shall be allowed for while checking dimensions.

12.5 Striking Shutters

The method and time after casting of units of striking the side shutters shall be subject to approval of the EIC. In the event of any damage resulting from premature removal of shutters or from any other cause, the unit or units concerned will be liable to rejection and to replacement by the Contractor at his own cost.

12.6 Curing

The top and sides of all pre-cast units shall be kept covered in a damp condition for at least 7 days after casting or for such periods as the EIC may decide.

12.7 Lifting and Stacking

Lifting and stacking of pre-cast units shall be undertaken without causing shock, vibration or undue stress to or in the units. Pre-cast units shall not be lifted, transported or used in the works until they are sufficiently matured; the crushing test on the test cubes which are to be kept with the pre-cast units will be used to assess the maturity of the units. The Contractor shall satisfy the EIC that the methods he proposes for lifting, transporting and setting pre-cast units will not overstress or damage the units in any way. In the event of overstress or damage due to whatever cause the unit or units concerned will be liable to rejection and if so rejected shall be immediately broken up and removed from the Site. The Contractor shall replace such rejected units at his own cost.

12.8 Marking

The Contractor shall ensure that all pre-cast units are properly marked in clean and legible manner with the reference number and the date of casting, which information shall be clearly visible where the units are stacked. Reinforced pre-cast members shall be clearly marked to indicate the top face.

12.9 Pre-casting Records

Full and accurate records are to be maintained of all pre-cast work. Every unit shall have a reference number. Date of casting, date of removal from bed and date and position of placing shall be recorded together with test cube results.

13.0 GEOFABRIC

13.1 General

The contractor shall arrange to procure all geo-fabric required for the works. Only prime quality material should be used. Before placing order with supplier, the

contractor shall submit complete technical details and samples of the fabric to be purchased to the EIC and/or his nominated authorities for their scrutiny and approval. If necessary, a representative of the manufacturer should be made available to the EIC to provide any clarifications needed by them. The fabric shall be procured in sufficient quantities and stored carefully in accordance with the instructions of the manufacturer so that at all cases the laying of the fabric at the base proceeds ahead of the stone dumping work.

All required accessories such as for pasting, stitching, etc. should also be procured in sufficient quantity.

13.2 Quality

The geo-fabric shall conform to the following technical specifications.

Material- Poly prop
Breaking strength (5cm X 20 cm. strip)
Warp way > 300 KN
Weft way > 200 KN

Specific gravity: 0.91
Thickness: upto 1 mm
Pore size: 0.15 mm maximum

13.3 Sampling and testing

The contractor should provide the test certificate of the manufacturer confirming specifications for each lot of supply. The EIC shall require certain tests to be performed to ascertain the suitability of the geo-fabric if left necessary. The contractor shall arrange to supply all necessary samples and get the tests performed at a recognized laboratory. All costs of such tests will be to the account of the contractor. If the tests fail to satisfy the criteria specified then any material procured on the basis of samples should forthwith be removed from the site.

13.4 Laying of Geo-fabric

The contractor shall provide all necessary supervision, labour, materials, tools and equipment for carrying out the work.

The site shall first be inspected and all sharp objects, tree stumps, etc. if any, should be removed so as to prevent puncturing or tearing of the fabric. The surface should be made even before placing the fabric and should be free from soft spots etc. The fabric should then be rolled out over the site manually or using construction equipment. At all joints, the fabric must be overlapped by a minimum of 200 mm or as recommended by the manufacturer. All laps shall be stitched unless specifically allowed by the Engineer not to stitch. The stitching procedure shall be as recommended by the manufacturer.

The fabric shall be held in position along the width of the bond using 4 mm wire pegs at 2 m centre to centre spacing or by placing weights such as sand bags. The fabric shall be anchored satisfactorily up to the bottom of the bottom most slab / haunch of the pile and same should extend at the top in to the capping beam.

14.0 METHOD OF ERECTION OF THE PROTECTION

14.1 Record of Pile Driving

The record shall be kept by the contractor in an approved form of the total penetration of every pile and the behavior of each pile during driving. Any deviation from the designed location, alignment or load carrying capacity or any upheaval noticed on any pile during installation shall be immediately reported to the Engineer-in-Charge and adequate corrective measures taken as designed by the Engineer at the cost of the contractor. On the completion of pile installation, pile driving records that were obtained during the installation of piles shall also be filed by the contractor with the Engineer in triplicate.

14.2 Installation of the pile

Piles shall be installed with due consideration for safety of adjacent structures, working equipment by a method which leaves their strength unimpaired and which develops and retains the required load bearing capacity. The permissible positional deviation for piles shall not be greater than 7.5 cm. At the level of the bottom of pile cap and shall not exceed 2% (1 degree) from the specified inclination. This will be measured after the driving of the pile and during the inspection of the tube prior to placing of reinforcement and concrete. Should the deviation to be greater than 2% the contractor shall remove the pile at his own cost and re-drive the pile if ordered so by the Engineer. In the alternative, the Engineer-in-Charge may at his discretion order to driving of additional piles at the contractor's cost, which he considers necessary after checking up the design load.

14.3 Sequence of Installation

The Engineer shall decide the sequence of the groups of piles that the contractor should undertake for driving and the contractor shall have to follow this sequence.

14.4 Jetting of piles

Jetting of pile by means of water shall not be normally permitted. In case, the canal bed is sandy or wherever the site conditions warrant, then the combination of driving and jetting can be considered as directed by the Engineer in Charge.

14.5 Rejection of piles

The Engineer reserves the right of rejecting any pile which in his opinion is not structurally sound or is not on a proper position and alignment. The contractor shall place or leave the defective pile and install at the contractor's cost one or more additional piles to substitute the defective pile as per directions of the Engineer-in-Charge in writing

14.6 Minimum casting Level

Piles shall be cast at least 150mm above the finished cut off level so as to permit the removal of all laitance and weak concrete.

14.7 Concrete work in piles

Cement concrete of grade M-20 shall be used. The specifications laid down for concrete work shall also apply to the concrete work for piles. The contractor shall submit mix design and carry out adequate number of tests to ensure the minimum

strength in accordance with the specifications in IS:456. The clause pertaining to penalty and/or rejection of work as described under concrete shall also be applicable to the work of piles.

If so desired by the Engineer, the contractor shall drive one test pile and carry out the load bearing tests before actually commencing the work under contract. The payment for the tests piles shall be made in the same way as for the piles under the scope of the contract provided the pile is acceptable. The contractor may be allowed to use quick setting cement or add the necessary admixtures to enable him to conduct the test within 7 days after installation.

The price quoted by the contractor shall also include the cost of excavation, breaking of concrete and removal of debris etc. resulting from cutting off piles for constructing the pile cap.

15.0 METHOD OF MEASUREMENT AND PAYMENT

Shifting of pile driving equipment for both land and water shall be paid for each pile along the alignment. This should include all labour, material, equipment (shore based and floating) etc. complete.

Driving of piles both in land and in water shall be paid per linear metre of driving considering the full length of pile. The cost shall include full compensation for furnishing all labour, materials, tools and plants, jetting arrangements, if required, and cutting of piles complete in place as shown in drawing, driving holes in place either in land or under water and all other works necessary to obtain the approved penetration.

No payment will be made for piles driven out of place or for imperfect piles or for piles which are damaged in handling or driving.

Placing in position vertical pre cast slabs.

The pre cast vertical slabs are to be placed in position after driving of piles.

The lower slab should be rested on the corbel provided in the piles. The middle and top slabs should be rested properly on the lower slab and placed in position with the help of temporary supports. Back filling with selected earth to be completed before laying of Geo-textile and sand layer as shown in the drawings. The temporary supports to be removed after all the above sequence is complete.

Measurement and payment:

The quantity of slabs (lower , middle, top) and capping beams to be added along with the quantity of anchor slab to calculate the total quantity of concrete in slabs as indicated in bill of quantities for the finished item of work.

The cost towards placement of slabs etc under water to be included in the rate of this item no extra claim would be entertained.

16.0 PRE-CAST RCC SLABS

16.1 Scope

This section covers furnishing of all labour materials, and equipments, and performing all operations required for the manufacture and transportation of pre-cast slabs, plain or ribbed, hoisting and fixing them in position to correct lines and levels, filling in joints

and otherwise finishing, outings of the lifting in hooks etc. complete and testing of pre-cast elements, structural steel embodiments, if any, indicated in the working drawings shall also be embedded in the slab.

The pre-cast ribbed slabs shall be manufactured at the project site. The contractor shall arrange at his own cost necessary land sheds etc. for coasting, arrange for necessary facilities during and after manufacture, provide for sufficient handling equipment for curing in curing tanks the cost pieces and for stacking. All transportations, handling (including damages) and incidental charges shall be borne by the contractor.

Detailed working drawings of each type of pre-cast slab will be prepared by the contractor as the work progresses. The mix of the concrete to be used will be given in the drawings.

Materials used shall conform to the clause 1.5.030 described elsewhere in the specifications.

The concrete mix shall conform to IS:456 (latest edition) for concrete. The compressive strength as measured by strength test at 28 days shall be as indicated in the drawings for different places of construction.

Aggregates shall be mixed by weight and the water cement ratio shall be controlled so as to obtain the densest concrete and of the strength required.

The forms for the pre-cast elements shall be made up of steel of sufficient thickness so as to be rigid and obtain a smooth surface after the forms are for the approval of the Engineer. Finishing with cement mortar shall not be allowed, vibration shall be carried out with form vibrators mounted on to the form work. In addition, rodding shall be done to ensure that the concrete material is evenly spread and fills all inaccessible regions

Curing shall be carried out for a period of ten days from the day of casting. This shall be done by providing a water tank of adequate size nearby wherein the pre cast element shall be suitably marked to indicate the in the structure and dates of casting in order to facilitate in distinguishing the dates of casting of various members. The contractor shall also maintain a register indicating the date of casting of various members, curing, transportation and erection. to ensure minimum damages during handling the contractor shall provide suitable cranes capable of lifting the heavy places on the curing tanks, stacking sheds and on damage for whatsoever reasons it may be shall be that of the contractor and he shall at his cost replaces the same damaged pieces.

17.0 Special Conditions:

- 17.1 No mobilization charges will be paid to the Contractor. The proposed work is of urgent nature due further damage being suffered by the old / collapsed bank protection day by day. The Contractor is required to commence the works within 7 days of award of work.
- 17.2 No shifting charges will be paid to the Contractor for shifting the construction equipment & its accessories from one location to another or from one area to another. The pile driving equipment / changadam & derrick shall be of sufficient power and size to execute the work safely and efficiently.

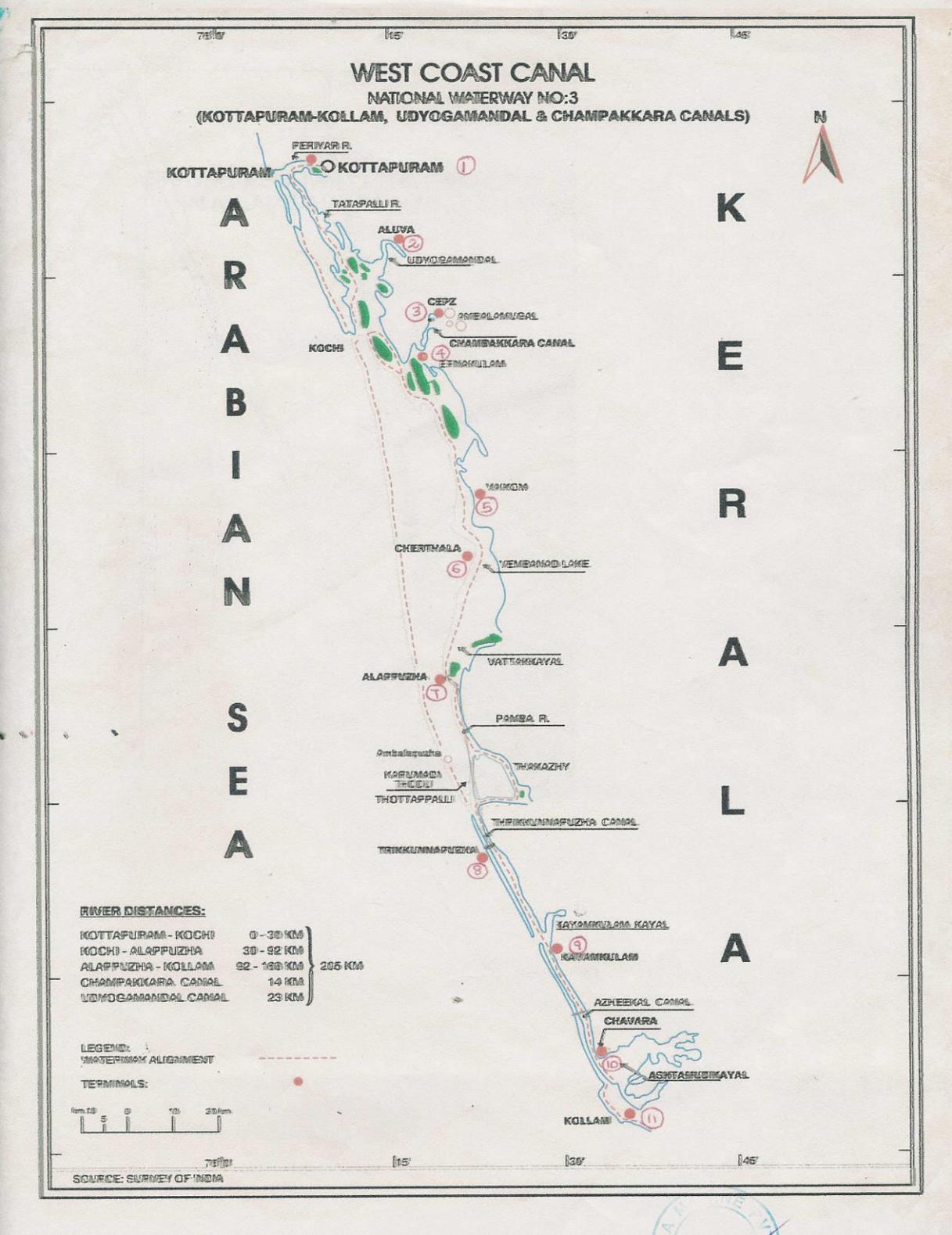
- 17.3 Normal barge and vessels / craft movement in the channel shall not be interrupted by the bank protection works.
- 17.4 Contractor shall arrange the transits, buoys, lights , moorings etc at their own cost as required for cautioning vessels in the waterway.
- 17.5 The contractors shall be liable to rectify any defects noticed in his work for a period of six months from the date of completion of work.
- 17.6 The contractor shall execute the work continuously and good progress throughout the contract period. The Contractor is liable to be terminated, if proportionate progress of the work is not achieved during the Contract period.
- 17.7 No idle time charges will be paid to contractor any account.
- 17.8 The Engineer-in-Charge or his representative will inspect, co-ordinate, measure and certify the construction works. He has the right to inspect the work and materials at any time during the contract period for which contractor or his authorized agent shall be available at the work site.
- 17.9 The Contractor shall provide Engineer- in charge or his representative conveyance from office to work site during inspection, if needed, for specific purposes like measurement of works.
- 17.10 If the contractors or any outside labour employed to work during execution of Contract, breaks or damages/ destroy any vessel, craft, net, fishing stakes etc., building road, kerb, water pipe, fence, bund, wires, trees, crops, fruits, or cultivated ground during the period of Agreement, the same shall be made good by the Contractor at his own cost expenses or in default the IWAI may cause the same to be made good by other sources and deduct the expenses from any sums that may be then or at any time therefore may become due to the Contractor.
- 17.11 The Contractor will submit to the Engineer-in-Charge, the interim bills (in triplicate) after satisfactory completion of works having minimum of Rs.20 lakhs bill value for the actual work done. The decisions taken by the Engineer-in-Charge on interim bills will be final and binding on the contractor.
- 17.12 The Contractor shall not change the type, numbers, size and make of equipments indicated in the proposal without the prior written approval of the Eng.-in-Charge.
- 17.13 If the equipment or its accessories goes out of order, the contractor should arrange for replacement of the same with equivalent capacity suitable equipment with the approval of Engineer-in-Charge to ensure continuity of work. There shall not be any loss of time on this account.

PART - IV

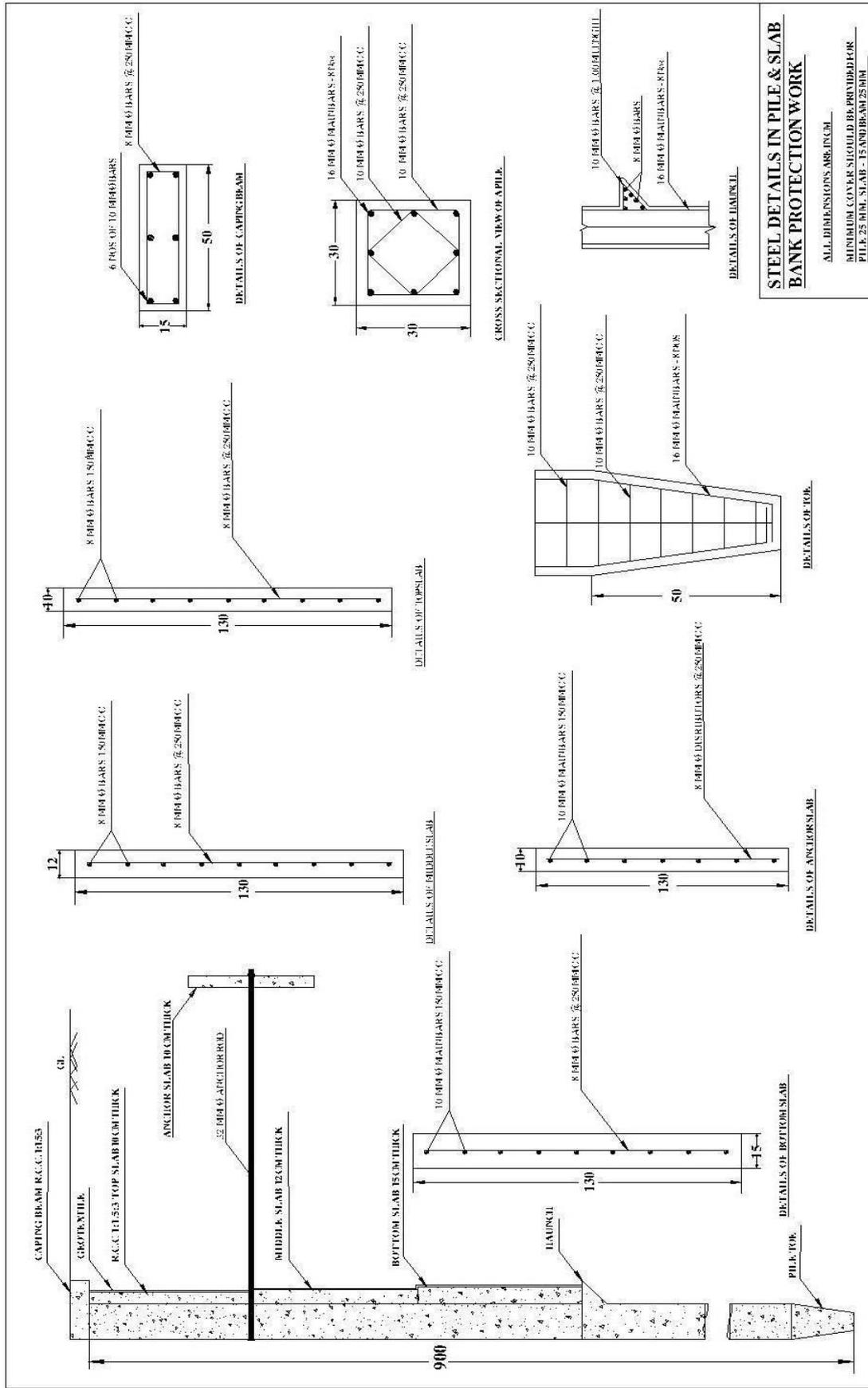
7. DRAWINGS AND ANNEXURES.

- | | | |
|----|--|-------------|
| 1. | Index Map of West Coast Canal | Enclosure.1 |
| 2. | Cross Section of proposed Pile & Slab type Bank Protection | Enclosure.2 |
| 4. | Details of Past Experience of Contractor for Similar Works | Annexure.1 |
| 5. | Agreement Format | Annexure.2 |
| 6. | Sample Form for Site Orders Book | Annexure.3 |
| 7. | Proforma for Hindrance Register | Annexure.4 |
| 8. | Notice for Appointment of Arbitrator | Annexure.5 |

Index Map of West Coast Canal



Cross section



**DETAILS OF PAST EXPERIENCE OF CONTRACTOR
FOR SIMILAR WORKS**

Sl. No.	Name & location of project	Value (Rs. in lakhs)	Particulars of client	Duration of contract			Details of Work.
				Date of Commencement	Scheduled completion date	Actual completion date	

Note: (i) Bidder to enclose copies of completion certificates issued by the owner.

AGREEMENT FORMAT

This agreement made on day year between the Inland Waterways Authority of India (hereinafter called the `IWAI' which expression shall unless excluded by or repugnant, to the context, be deemed to include heir, successors in office) on one part and M/s. (hereinafter called the 'CONTRACTOR' which expression, shall unless excluded by repugnant to the context be deemed to include his heirs, executors, Administrators, representatives and assigns of successors in office) on the other part.

Whereas the IWAI is desirous of undertaking the works Construction of RCC pile & slab type Bank Protection in Champakkara Canal of NW.3, WHEREAS the contractor has offered to execute and complete such works and WHEREAS IWAI has accepted the tender of the contractor and WHEREAS the contractor has furnished as Performance Security for the due fulfilment for all the conditions of this contract.

NOW IN THIS AGREEMENT WITNESSTH AS FOLLOWS

In this agreement words and expression shall have the same meaning as are respectively as assigned to them in the conditions of contract hereinafter referred to:

The following documents shall be deemed to form and be read and construed as part of this agreement Viz.,

- i) E-tender submitted by the Contractor including,
 - (a) Notice Inviting Tenders
 - (b) Tender form
 - (c) Information & instruction for Tenders
 - (d) Schedule : Bill of Quantity
 - (e) Drawings & Annexures
 - (f) General Conditions of Contract and Technical specifications & Special Conditions of Contract
- ii) Correspondences between IWAI and the Contractor dated
- iii) Work order No.....dated.....
- iv) Any other / all other documents relevant for the Contract Agreement

The contract agreement has been compiled by the IWAI from the original tender documents and all the correspondences from the tendering stage till acceptance. In the event of any difference arising from the completion of the contract, the original tender documents, contractor's offer, minutes of meetings and correspondence between the parties ended vide letter no. may be referred to by either party. These documents shall take precedence over the compiled documents.

The contractor hereby covenants with the IWAI to complete and maintain the “Works” in conformity in all respect, with the provisions of the agreement.

The IWAI hereby covenants to pay the contractor in consideration of such completion of works, the contract price at the time and in the manner prescribed by the contract.

IN WITNESS WHEREOF the parties hereunto have set their hands and seals on the day year first written.

For and on behalf of
(Inland Waterways Authority of India)

For and on behalf of
Contractor

Signature _____

Signature _____

Name & Designation _____

Name & Designation _____

Stamp

Stamp

Witness:

Witness:

1) Signature _____

1) Signature _____

2) Name & Designation _____

2) Name & Designation _____

Annexure-3

SAMPLE FORM FOR SITE ORDERS BOOK
(Reference Clause No. 18.4)

Name of work Date of commencement/ period for completion.....

Sl. No.	Date	Remarks of the Inspecting Officer or Contractor	Action taken and by whom	Remarks
1	2	3	4	5

Annexure-4

PROFORMA FOR HINDRANCE REGISTER
(Reference Clause No. 18.5)

Sl. No	Nature of hindrance	Items of work that could not be due executed to this hindrance	Date of start of hindrance	Signature of Representative of EIC	Date of removal of hindrance	Overlapping period, if any	Net hindrance in days	Weightage of this hindrance	Net effective days of hindrance	Remarks of Engineer-in-Charge
1	2	3	4	5	6	7	8	9	10	11

Notice for appointment of Arbitrator
(Refer Clause 47)

To,

The Chairman, IWAI

.....
.....

Dear Sir,

In terms of Clause 47 of the Agreement, particulars of which are given below, I/we hereby give notice to you to appoint an arbitrator for settlement of disputed mentioned below:

1. Name of applicant
2. Whether applicant is Individual/Prop. Firm/Partnership Firm/Ltd. Co.
3. Full address of the applicant
4. Name of the work and contract number in which arbitration sought
5. Name of the Division which entered into contract
6. Contract amount in the work
7. Date of contract
8. Date of imitation of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of request made to Chief Engineer for decision
17. Date of receipt of Chief Engineer's decision
18. Date of appeal made to Chairman, IWAI
19. Date of receipt of the decision of Chairman, IWAI

Specimen signatures of the applicant
(only the person/authority who
signed the contract should sign)

I/We certify that the information given above is true to the best of my/our knowledge. I/We enclose following documents.

1. Statement of claims with amount of claims
- 2.
- 3.

Yours faithfully
(Signatures)

Copy in duplicate to:

1. The Regional Director, IWAI

TENDER No. IWAI/COCH/43(A)/2017-18

PART – V

SCHEDULE OF QUANTITIES / FINANCIAL BID

TENDER FOR
CONSTRUCTION OF RCC PILE & SLAB TYPE BANK
PROTECTION IN CHAMPAKKARA CANAL OF NW.3
(THROUGH e-PROCUREMENT).

(TO BE SUBMITTED THROUGH ONLINE ONLY)



June, 2017

Address of Issuing Office: INLAND WATERWAYS AUTHORITY OF INDIA
National Waterway Road, Kannadikkadu,
Maradu P.O, NH 47 Bypass,
Ernakulam, Kerala.
PIN: 682304

E-mail address of Issuing Officer: iwai_kochi@yahoo.co.in; dirkoc.iwai@nic.in

Head Office: INLAND WATERWAYS AUTHORITY OF INDIA
(Ministry of Shipping, Govt. of India)
A – 13, Sector – 1, Noida-201 301 (U.P.)
Web site: www.iwai.nic.in , <https://eprocure.gov.in/eprocure/app>

Item Rate BoQ

Tender Inviting Authority: Inland Waterways Authority of India

Name of Work: Construction of RCC Pile & Slab type bank protection in Champakkara Canal of NW.3.

Contract No: IWAI/COCH/43(A)/2017-18

Bidder Name :						
<u>PRICE SCHEDULE</u>						
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)						
NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	RATE (including 4% VAT & 1% Labour Welfare Cess) Rs. P	AMOUNT	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
1	Site clearance by cutting and removing the grass, bushes, all obstructions etc., from the top surface and disposal of the same as and when directed by the Engineer.	400.00	Sq. m			INR..... Only
2	Removal of old P & S bank protection and existing paver block laid footpath including stacking of reusable materials like garden chairs, lam posts etc. within 500 m to the proposed site and disposal of unserviceable materials away from the site, without throw into canal as per directions of E - I -C. The rate shall include cost of hiring of machineries and plants, transportation of serviceable materials like pile, slab, anchor rod (if any) and labour charges etc. complete.	80.00	M			INR..... Only
3	Earth work in cutting river bank in all types of soil in required profile and removing the roots, grass and shrubs and disposal of the excavated material at suitable places as directed by Engineer, including all lifts and leads.	252.00	Cu. m			INR..... Only

4	Earth work in filling in required profile in selected soil obtained from the approved borrow pit or any other source, free from logs, stumps, roots rubbish, etc. and placing the earth in layers not exceeding 225mm in thickness levelling dressing watering, ramming and consolidating by approved means to the required profile under the direction of the Engineer, including all leads & lifts etc., complete.	728.10	Cu. m		INR..... Only
5	Supplying and filling river sand behind slabs and below geotextile layer as shown in drawings including watering, ramming consolidating and dressing complete.	48.00	Cu. m		INR..... Only
6	Provide and bring to the site necessary plant equipment for driving 300mm x 300mm square pre-cast vertical piles in position to complete the work within the time schedule.	1.00	No.		INR..... Only
7	Supply and making of concrete square piles of approved quality of size 300mm x 300mm of required length including all fittings and fixtures etc. as shown in drawing for driving at site, etc. all complete as per approved designed and direction of Engineer.	32.93	Cu. m		INR..... Only
8	Providing, hoisting and fixing pre-cast reinforced cement concrete slabs (first lower slab, then middle finally the top slab and anchor slab). Complete including temporary shuttering for placing in position etc., all complete except cost of reinforcement.	48.63	Cu. m		INR..... Only
9	Reinforcement for pre-cast concrete work including straightening, cutting, bending, placing in position and binding all complete HYSD bars.	10240.70	Kg		INR..... Only
10	Extra for driving of pre-cast pile of size 300 x 300 mm at the location as certified by EIC including all labour with already mobilised equipment	369.00	M		INR..... Only
11	Extra for shifting of pile driving equipment from one pile location to other	41.00	No.		

12	Supplying and fixing steel plates of size 100 x 100 x 8 mm to be fixed at each pile location for support of Anchor as per directions of E-I-C. The rate shall include cost of steel plates, cutting into required size, welding and fixing of steel plate into one side of anchor rod, transportation, applying of one coat of metallic primer and two coats of black bituminous paint etc., complete.	41.00	No.		INR..... Only
13	Extra for providing and fixing 32mm dia Anchor rod for length 3.0 m as shown in drawing including cost of materials like washers, nuts etc., threading of rod upto a length of 20cm, applying of one coat of metallic primer and two coats of black bituminous paint and all labour etc. complete.	798.360	Kg		INR..... Only
14	Supply and placing in position in geo-textile as per specification or equivalent filter behind vertical slabs and piles or below revetment as per the approved specification and drawings and any other place as directed by the Engineer including over lapping sticking, stretching with all lead and lift labour, T & P floating crafts, divers, etc. complete.	360.00	Sq. m		INR..... Only
15	Procuring and applying of black bituminous paint to the piles before driving above the bed level as directed by the Engineer, including cost of all material labour etc. complete.	98.40	Sq. m		INR..... Only
16	Procuring and applying of black bituminous paint to the slabs before placing in positional as directed by the Engineer, including cost of all material, labour etc. complete.	104.00	Sq. m		INR..... Only
17	Laying, spreading and compacting stone aggregate of 90 mm to 45 mm & 53 mm to 22.4 mm to WBM to be laid in two layers in uniform thickness of 10cm, hand packing, laying of binding material, watering in each layers, consolidation with light power road-roller in stages to proper grade and camber without causing any damage to new P&S bank protection, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density. The rate shall include cost of all materials, transportation, labour charges for spreading and laying WBM in seperate two layers of 10cm each etc., complete.	72.00	Cu. m		INR..... Only

18	Restoration of bank existing paved footpath etc. by providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction of approved size, design & shape, laid in required colour and pattern including 100mm thick compacted levelled bed of 6mm stone chips, filling the joints with fine sand etc. shall be executed as per the direction of Engineer- in -charge	270.00	Sq. m		INR..... Only
19	Restoration of things like chairs, posts etc., (if reusable) to its original locations and overall cleaning of the work site to ensure safety of people using adjacent road.	1.00	LS		INR..... Only
Total in Figures					
Quoted Rate in Words					INR Only

Signature:

Name & Address of the Bidder:

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