



श्यामा प्रसाद मुखर्जी पोर्ट, कोलकाता
SYAMA PRASAD MOOKERJEE PORT, KOLKATA
Formerly Kolkata Port Trust

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
 (Erstwhile SYAMA PRASAD MOOKERJEE PORT, KOLKATA)
 (AN AUTONOMOUS BODY UNDER THE MINISTRY OF PORTS, SHIPPING AND WATERWAYS,
 GOVERNMENT OF INDIA)
KOLKATA DOCK SYSTEM

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 **

हुगली/भागीरथी नदी के बाएं किनारे पर 3437.00 मीटर (850 मीटर तारिणीपुर से कालीपुर फेरी घाट, 900 मीटर तारिणीपुर (दक्षिण), 1100 मीटर गंगा मनोहरपुर, 387 मीटर चर जात्रा सिद्धि और 200 मीटर सराती और रैडांगा में कटाव रोधी कार्य) ब्लॉक और पीएस में: कल्याणी, जिला। - नादिया।

E-TENDER FOR Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur (South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia.

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Issued by

CHIEF ENGINEER
 Civil Engineering Department
SYAMA PRASAD MOOKERJEE PORT, KOLKATA
 e-mail: ce@kolkataporttrust.gov.in

TENDER NO. : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

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SYAMA PRASAD MOOKERJEE PORT, KOLKATA
Civil Engineering Department

1.0 NOTICE INVITING TENDER

TENDER NO. : SMPK/KDS/CIV/T/2760/32 Dt. 26.05.2023

E-Tender under single stage two part system (Part I: Techno-Commercial Bid and Part II: Price Bid) are invited from reliable, bonafide & experienced agency with required experience as per Prequalification criteria stipulated in Tender Document for **"Anti erosion work to the Left Bank of river Hooghly/ Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia "** as per Bill Of Quantities The Bid Document may be seen from the Central Public Procurement Portal (CPPP).Corrigenda or clarifications, if any, shall be hosted on the above mentioned website only.

The tender is also published on SMPK website (www.kolkataporttrust.gov.in).

SCHEDULE OF TENDER (SOT)

a. TENDER No.	SMPK/KDS/CIV/T/2760/32 Dt. 26.05.2023
b. MODE OF TENDER	e-Procurement System (Online two part Techno-Commercial Bid and Price Bid through Enivida Portal https://smpk.enivida.in/) The intending bidders are required to submit their offers electronically through e-tendering portal. No physical tender is acceptable by SMP,Kolkata.
c) i) Estimated Cost Of Work	Rs. 13,47,45,181.06 (Rupees Thirteen crore forty seven lakh forty five thousand one hundred eighty one & paise six only)
ii) Earnest Money Deposit @2%	The intending firms would require to submit an EMD of 23,47,460.00 (Rupees Twenty three lakh forty seven thousand four hundred sixty only) Payable through DD / RTGS / NEFT / Bank Transfer etc.) to be transferred on A/C: Syama Prasad Mookerjee Port, Kolkata A/c No: 067502000000491 IFSC: IOBA0000675 Bank Name: Indian Overseas Bank Branch Name: KPT Fairlie Place Branch
iii) Tender Document fee	The intending bidders should submit the tender cost of Rs.2950/- (Rupees two thousand nine hundred fifty only including GST @ 18%) (non-refundable) separately to SMPK through DD / RTGS / NEFT / Bank Transfer etc.) to be transferred on A/C: Syama Prasad Mookerjee Port, Kolkata A/c No: 067502000000491 IFSC: IOBA0000675

	Bank Name :Indian Overseas Bank Branch Name: KPT Fairlie Place Branch. Copy of the DD/Banker's Cheque should be uploaded
d. Date of NIT available to parties to download	29.05.2023 to 06.07.2023 (up to 14:00 hrs.)
f. Pre – Bid Meeting date & Time	12-30 PM on 14.06.2023 in the chamber of the Chief Engineer at 6, Fairlie Place, Fairlie WareHouse , 2nd floor,Kolkata-700001.
g. Last date of issue of EMD & Tender Document fee in favour of Syama Prasad Mookerjee Port, Kolkata. Last date of physically submission of Demand Draft/Cheque/Bank Draft.	06.07.2023 (up to 15:00 hrs.) 10.07.2023
h. Date of Starting of e-Tender for submission of online Techno-Commercial Bid and price Bid at CPP Portal	15.06.2023 (From 15:00 hours onwards)
i. Date of closing of online e-tender for submission of Techno-Commercial Bid & Price Bid.	06.07.2023 (Up to 3:00 P.M.)
j. Date & time of opening of Techno-Commercial Bid.	07.07.2023 (At 1:00 P.M.)

Note: In the event of any unforeseen closure of work / holiday on any of the above days, the same will be opened / held on the next working day without any further notice.

List of Annexure:

Important Instructions for E- procurement	:- Annexure - A
Commercial Terms & Conditions	:- Annexure - B
Techno Commercial Bid(Cover-I)	:- Annexure - C
List of Scanned Documents required to be uploaded	:- Annexure - D
Price Bid (Cover-II)	:- Annexure - E
General Conditions of Contract	:- Annexure - F

Chief Engineer
SYAMA PRASAD MOOKERJEE PORT
KOLKATA
Tender Inviting Authority

2.0 Important Instructions for E-Tender

Bidders are requested to use internet Browsers Firefox version below 50 / Internet Explorer version 8 or above, and Java 8 Update 151 or 161.

Further, bidders are requested to go through the following information and instructions available on the Envida Portal <https://kopt.envida.in/> before responding to this e-tender:

- Bidders Manual Kit
- Help for Contractors
- FAQ

Contact Persons (Syama Prasad Mookerjee Port, Kolkata):

1. P.P.Datta, Manager(Env)
2. S.K.Halder, Supdt. Engineer(Contract Cell)
3. Sudhir Das, Ex. Engineer(Contract Cell)

Phone no. 9836298692, 03371012380, 03371012398

e-mail :- ce@kolkataporttrust.gov.in, partha@kolkataporttrust.gov.in &
sk.halder@kolkataporttrust.gov.in

Contact persons (Envida Portal):

Phone No.7278929467/8448288981

Mail id: - envidahelpdesk@gmail.com/ ewizardkumar@gmail.com

1	Bidding in e-tender : a. Bidder(s) need to submit necessary EMD & Tender fees to be eligible to bid online in the e-tender. Tender fees is non refundable. No interest will be paid on EMD. EMD of the unsuccessful bidder(s) will be refunded by SMPK. b. The process involves Electronic Bidding for submission of Technical and Commercial Bid
2	Any order resulting from this tender shall be governed by the terms and conditions mentioned therein.
3	All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
4	E-tender cannot be accessed after the due date and time mentioned in NIT.
5	I.SMPK reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.
6	Any order resulting from this tender shall be governed by the terms and conditions mentioned therein.
7	No deviation to the technical and commercial terms & conditions are allowed.
8	The bidders must upload all the documents required as per terms of tender. Any other document uploaded which is not required as per the terms of the tender shall not be considered.

9.	The bid will be evaluated based on the filled-in technical & commercial formats.
10.	<p>Bidder has fully read and understood the entire Tender Document, GCC, Corrigendum and Addenda, if any downloaded from under the instant e-tender and no other source, and will comply to the said document, GCC, Corrigendum and Addenda"</p> <p>A declaration in this regard is to be made by the bidder.</p>
11.	<p>(A) Part-I i.e. Techno commercial bid will be opened electronically on specified date and time as mentioned in the NIT. Bidder's can witness electronic opening of Bid.</p> <p>(B) Part-II i.e. Price Bid will be opened electronically of only those bidder(s) whose offer will be techno commercially qualified and accepted by SMPK. Such bidder(s) will be intimated the date of opening of Price Bid(Part-II) in due course through valid email confirmed by them.</p> <p>(C) Necessary addendum/corrigendum (if any) of the tender would only be hoisted in the Railtel Envida Portal.</p>

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
 Civil Engineering Department
 6, Fairlie Place, Fairlie WareHouse , 2nd floor
 Kolkata 700 001.
 Tele – 033 2230-3451 Extension: 398,399,400
 Fax - (033) 2230-0413
 e-mail :- ce@kolkataporttrust.gov.in, partha@kolkataporttrust.gov.in
 & sk.halder@kolkataporttrust.gov.in

3.0 Commercial Terms & Conditions

SL. NO.	TERMS
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1. Mere participation in e-tender will not mean that a particular bidder will be automatically considered qualified and their bids will be entertained. Such qualification will be reviewed at the time of techno-commercial evaluation of bids also.
2. Copy of valid NSIC Certificate or **MSME** Certificate has to be submitted along with the bid.
3. **EARNEST MONEY** : As Per NIT
4. E-Tenderers submitted without requisite Earnest Money is liable to be rejected excepting in case of Micro & Small Enterprises (MSEs) registered with NSIC (under single point registration scheme) or with MSME for items for which the tender is invited.
5. **SCOPE OF WORK** :
As per E-Tender Document

The Terms and Conditions of E-Tender shall be read in conjunction with the General Conditions of Contract, Specifications, Bill of Quantities and other documents forming part of this Contract wherever the Contract so requires.

7. The several documents forming the Contract shall be taken, as mutually explanatory to one another and in case of any discrepancies; the Bill of Quantities shall prevail over the Specifications and the Terms and Conditions over the General Conditions of Contract of Ko.P.T. In case of any dispute, question or difference either during the execution of the Contract or any other time as to any matter or thing connected with or arising out of this Contract, the decision of the Chief Engineer , SYAMA PRASAD MOOKERJEE PORT, KOLKATA, thereon shall be final and binding upon all parties.
8. The Contract will include the Client's Bid Documents with the General Conditions of Contract and the Bidder's Offer as finally accepted by the Client, together with Addenda, if there be any. Trustees' General Conditions of contract is the integral part of the tender / contract. The above mentioned General Conditions of Contract may be inspected at the office of the undersigned on any working day before quoting for the Tender.
9. The Trustees are not bound to accept the lowest or any Tender and reserve the right to accept a tender in full or in part and / or reject a tender in full or in part without assigning any reason thereof.

10. The contract shall be governed by all relevant Indian Acts applicable only within the jurisdiction of the High Court at Calcutta.
11. Intending bidders must take into account any cost or expense incurred by them in connection with the preparation and submission of their bids or for any other expenses incurred in connection with such bidding.
12. Bidders are advised to visit the site of work prior to submission of their bid. Bidder shall get himself thoroughly familiarized with the site conditions, existing road facilities for carrying materials etc. before submission of the e-tender. He may contact the Chief Engineer/**Superintending Engineer (RT)** or his authorized representative at his office at 15, Strand Road, Kolkata 700001 in this regard. Non compliance of the same will in no way relieve the successful bidder of any of his obligations in performing the work in accordance with this Bid Document within the quoted price.
13. **VALIDITY :**
The tender shall remain open for acceptance for a period of **4 months** from the date of opening of techno-commercial bid.

If before expiry of this validity period, the Bidder amends his quoted rates or tender, making them unacceptable to the Trustees and / or withdraws his tender, the Earnest Money deposited shall be liable to forfeiture at the option of the Trustees / sanctioning Authority.

14. NON- RESPONSIVE BIDDER :-

The offer/tender shall be treated as non-responsive, if it :

- (i) is not accompanied by requisite earnest money /valid NSIC Registration Certificate /MSME Registration Certificate.
- (ii) Is not accompanied by requisite tender paper cost / or valid NSIC/MSME Registration Certificate.
- (iii) validity of the offer is less than tender stipulation,
- (iv) does not meet the Qualification Criteria as stipulated in the NIT.
- (v) The bidder submits conditional offer / impose own terms and conditions / does not accept tender conditions completely/offer or tender if submitted with any deviation from the tender terms & conditions.

In addition to above, a bidder may be disqualified if –

- i) The bidder provides misleading or false information in the statements and documents submitted.
 - ii) Record of unsatisfactory performance during the last seven years, such as abandoning of work or rescinding of contract for which the reasons are attributable to the non-performance of the contractor or inordinate delays in completion or financial bankruptcy etc.
- The decision of Syama Prasad Mookerjee Port, Kolkata in this regard shall be final and binding on the Bidder. Offer / tender is submitted with any deviation from the tender terms & conditions.

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SYAMA PRASAD MOOKERJEE PORT, KOLKATA
 Civil Engineering Department
 6, Fairlie Place, Fairlie WareHouse , 2nd floor
 Kolkata 700 001.
 Tele – 033 2230-3451 Extension: 398,399,400
 Fax - (033) 2230-0413

No.: TENDER NO. : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

NOTE: Last Date of Download of tender documents : 06.07.2023 (up to 14.00 hours)

Tender is due for submission by 3:00 P.M. On 06.07.2023(upto 3-00 pm)
 Tender is to be opened on 07.07.2023 (At 3-00 PM)

Techno Commercial Bid(Part-I)

.....
 Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M
 (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga
 Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S:
 Kalyani, Dist. - Nadia .

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SHORT TENDER NOTICE

E-Tender under single stage two part system (Part I: Techno-Commercial Bid and Part II: Price Bid) are invited from reliable, bonafide & experienced agency with required experience as per Prequalification criteria stipulated in Tender Document for the following work at Syama Prasad Mookerjee Port, Kolkata.

Name of work	:	Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kallpur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia .
NIT No	:	SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023
Estimated Cost	:	Rs. 13,47,45,181.06 (Rupees Thirteen crore forty seven lakh forty five thousand one hundred eighty one & paise six only)
Period Of Execution	:	10(ten) Months
Earnest Money	:	Rs. 23,47,460/- (Rupees Twenty three lakh forty seven thousand four hundred sixty only)
Period of Download of E-Tender (Both Days Inclusive)	:	29.05.2023 to 06.07.2023 (UPTO 14:00 HRS.) (Bid document will be available on E nvida Portal)
Date and Time for pre-bid meeting & site visit	:	12-30 PM on 14.06.2023 in the chamber of the Chief Engineer at 6, Fairlie Place, Fairlie WareHouse , 2nd floor
Last date of submission of e-tender and opening of the tender	:	Submission: 06.07.2023 Up to 15:00 hrs. Opening: 07.07.2023 at 13:00 hrs.
Cost of Tender Document (Non-refundable)	:	Rs.2950/- (Rupees two thousand nine hundred fifty only)
Contact Person.	:	P.P.Datta, Manager(Env) S.K.Halder Supdt. Engineer(Contract)/Spl.Cell S. Das, Ex. Engineer(Contract) 9836298692/ 9674720075/9830621827

4.0: INSTRUCTIONS TO BIDDER

E-TENDER FOR "Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia..

TENDER NO : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

1.0 GENERAL

The work as described in the tender shall be executed in between **Kalipur ghat & Raidanga at Kalyani, Dist. - Nadia at the left bank of River Hooghly/Bhagirathi** and in accordance with the attached General Conditions of Contract, Special Conditions of Contract, Particular Specifications, Drawings (if any) & detailed Bill Of Quantities. Location Plan of the place of work might be inspected at the office of the **Superintending Engineer (RT)** on any working day before quoting for the tender.

2.0 Earnest money and cost of tender paper are to be physically deposited at the office of Chief Engineer at 6, Fairlie Place, Fairlie Ware House, Kolkata-700 001 by vendors/contractors through Bank Draft/Banker's Cheque/Demand Draft/Pay Order etc. in favour of Syama Prasad Mookerjee Port, Kolkata, payable at Kolkata, within 3 days after opening of tender.

2.1 Details of cost of e-tender paper remitted should be entered by the participating vendor/contractor in the space provided in the e-tender as indicated hereunder:

- | | |
|--|---|
| a) Name of remitting vendor/contractor | : |
| b) Tender No. | : |
| c) Amount remitted | : |
| d) Date of remittance | : |
| e) Bank Draft / Cheque No. | : |

2.2 Details of Earnest money remitted should be entered by the participating vendor/contractor in the space provided in the e-tender as indicated hereunder:

- | | |
|--|---|
| a) Name of remitting vendor/contractor | : |
| b) Tender No. | : |
| c) Amount remitted | : |
| d) Date of remittance | : |
| e) Bank Draft / Cheque No. | : |

Tender submitted without requisite Earnest Money and cost of tender paper will be liable for rejection.

2.3 Performance Security/Guarantee:

The Successful bidder should submit a Performance Security of **10% of contract value** within **21 days** from the date of receipt of LOI/Work Order, failing which the contract would be rescind without any further notice. For the Successful bidder, the Performance Security will be retained by Client (i.e. SMPK) until the completion of the Assignment by the Contractor and be released 90 (Ninety) Days after the completion of the Assignment as per the terms of the Contract.

The Performance Security shall be accepted in form of **Bank Guarantee** from a Nationalized/ Scheduled Bank with branch at Kolkata. In the event of issuing Bank Guarantee by any branch outside Kolkata, any Kolkata Branch of such Bank shall confirm the same and stand by for all the commitments under the Bank Guarantee. In all cases, any dispute regarding such Bank Guarantee will be adjudicated under the jurisdiction of The Calcutta High Court or through the SMPK bank account

details to which amount is to be transferred (accepted only online payable through RTGS / NEFT / Bank Transfer etc.) is mentioned below:

A/C: Syama Prasad Mookerjee Port, Kolkata

A/c No: 067502000000491

IFSC: IOBA0000675

Bank Name: Indian Overseas Bank, Branch Name: KPT Fairlie Place Branch, Kolkata.

The performance security will be forfeited and credited to SMPK's account in the event of a breach of contract by the Contractor.

Refund of performance Security/ Guarantee:

The Performance Security to be refunded to the selected Contractor without interest, after he duly performs and completes all obligations under the contract subject to recovery of damage and / or loss incurred, if any, by SMP Kolkata due to default on the part of the contractor.

Note: While issuing bank Guarantee issuing applicant must mention receiver's details as ICICI bank IFSC: ICIC0006952 Branch- Kolkata Gillander House, in BG text at which SFMS IFIN 760 messages to be sent by issuing bank, to establish the authenticity of given BG.

3.0 MODE OF SUBMISSION OF BID :

3.1 All bidders must submit their offers through e- tendering in accordance with the terms and conditions set out in the bid documents and no deviation will be accepted.

3.2 A Bid shall contain the following *scanned copies* of which are to be uploaded (Refer Annexure D):-

- i) GST registration certificate.
- ii) Valid Trade Licence (Valid for current period & also for type of work).
- iii) Valid Professional Tax Clearance Certificate / Up to date tax payment challan. If this is not applicable, the bidder must submit a declaration in this regard.
- iv) Proof of possessing valid Employees' Provident Fund (EPF) Account. EPF Registration Certificate.
- v) Proof of being registered with Employees' State Insurance Corporation (ESIC), ESI Registration Certificate.
- vi) Details of the firm as per Schedule-O (In Part-I) of the tender document duly filled up.
- vii) Credentials in the form of copies of Letters of Award of Works along with corresponding/successful Completion Certificates from owners to justify that the Intending bidder satisfies the earlier mentioned pre-qualification criteria.
- viii) Last three years balance sheet and profit & loss account in support of Annual Financial turnover (i.e. 2019-2020, 2020-2021 & 2021-2022). The same should be audited as per relevant norms wherever required along with UDIN of the Auditor.
- ix) Bank Draft/ Pay Order etc. regarding EMD & Cost of Tender documents / valid NSIC certificate
- x) PAN Card
- xi) A list of technically qualified and skilled persons would be engaged to supervise and execute the work
- xii) Self declaration of the bidder that the Bidding Firm has Not been debarred / de-listed by any Govt / Quasi Govt. / Public Sector undertaking in India (to be mentioned in the letter head of the Firm).

- xiii) Self-declaration regarding the proprietor/partner(s)/authorized signatory of the bidding firm (in the case of proprietorship firm /partnership firm /limited company, as the case may be) is/are not associated with any other firm bidding for the same work **(to be mentioned in the letter head of the Firm).**
- xiv) A list of works which are in hand at the time of submitting the offer as per the enclosed proforma titled 'Concurrent Commitments of The Bidder' vide 'Annexure-C' (Schedule – T) in Part-I of the tender document.
- xv) Undertaking of the tenderer to be submitted as per enclosed Pro-forma (Annexure –D-1) in lieu of submission of signed copies of the full Tender document ,G.C.C,addenda & corrigendum **in the letter head of the Firm.**
- xvi) Last page of "Bill Of Quantities" & the "Form Of Tender" duly filled up (without price quoted) shall be duly signed and stamped by the Bidder.
- xvii) **Copy of duly Filled up Integrity Pact in Stamp Paper** of valued Rs.100/ .
- xviii) The bidder should submit a **Power of Attorney** as per the format at Appendix-I provided, however, that such Power of Attorney would not be required if the Application is signed by a partner of the Applicant, in case the Applicant is a partnership firm or limited liability partnership.

a) **B.-1** The bidder will have to produce the original documents or any additional documents, if asked for, to satisfy the Authorities for clarification of his documents or credibility.

N. **B.-2** Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements and their **EMD will be forfeited for such action.**

3.3 All the bidders should submit the e-tender in accordance with the Mode of submission of Bid as afore-said.

4.0 SECURITY DEPOSIT:-

4.1 For the successful Bidder, the Earnest Money deposit will be converted to part of Security Deposit and the remaining security deposit will be recovered from the contractors each and every On-Account Bill [including the final bill, if necessary] at the percentage of each such bills as set forth in **Clause. 3.4, 3.5 & 3.6 of the General Conditions of Contract.**

4.2 Refund of S.D. and forfeiture S.D. shall be guided by Cl. 3.5 (i) & (ii) of the G.C.C.

5.0 Delay/ Extension of time/ Liquidated Damage/ Termination of Contract.

Clause 8.0 of G.C.C. to be referred regarding Delay/ Extension of time/ Liquidated Damage/ Termination of Contract.

6.0 REFUND OF EARNEST MONEY:-

The Earnest Money received, will be refunded or released as the case may be to the unsuccessful Bidders without any interest after opening of Price bid (Part – II) of the e-Tender document.

7.0 VALIDITY OF OFFER:-

The e-tender shall remain valid for a period of **4 (four) months** from the date of opening the same. If before expiry of this validity period, the Bidder amends his quoted rates or tender, making them unacceptable to the Trustees and / or withdraws his e-tender, the Earnest Money deposited shall be liable to forfeiture at the option of the Trustees/ Sanctioning Authority/Engineer.

8.0 DETAILED SCRUTINY OF E-TENDERERS :

8.1 During the course of examination of Part-I of the bid, the bidders, if asked for, shall furnish any or additional document(s) for the purpose of evaluation of his / their bids. The price bids i.e. Part-II of those bidders who meet the qualifying criteria of NIT shall be opened.

9.1 During techno-Commercial Evaluation, i.e. evaluation of Part-I of tender, an offer shall be considered non-responsive in case it :-

- (1) is not accompanied by requisite Earnest Money /NSIC /MSME Registration certificate.
- (2) is not accompanied by requisite Tender paper cost /NSIC /MSME Registration certificate.
- (3) validity of the offer is less than tender stipulation,
- (4) does not meet the Qualification Criteria as stipulated in the NIT.
- (5) The bidder submits conditional offer / impose own terms and conditions / does not accept tender conditions completely/offer or tender if submitted with any deviation from the tender terms & conditions.

9.2 In addition to above, a bidder may be disqualified if –

- a) The bidder provides misleading or false information in the statements and documents submitted.
- b) Record of unsatisfactory performance during the last seven years, such as abandoning of work or rescinding of contract for which the reasons are attributable to the non-performance of the contractor or inordinate delays in completion or financial bankruptcy etc.

The decision of Syama Prasad Mookerjee Port, Kolkata in this regard shall be final and binding on the Bidder.

10.0 An amount of Cess calculated at the rate of **1% of the billed amount** shall be progressively recovered from each running bill as well as from the final bill of the contractor for onward transmission of the same by the appropriate authority. Statutory deductions will also be made as applicable at the time of payment.

11.0 For Micro & Small Enterprises (MSEs) registered with NSIC & or MSME:-

- 11.1 Micro & Small Enterprises (MSEs) registered with NSIC (under single point registration scheme) or with MSME are exempted from depositing Cost of Tender Document and Earnest Money.
- 11.2 If Micro & Small Enterprises (MSEs) registered with NSIC or MSME intends to participate in the tender, for the items they are not registered with NSIC, then they will have to deposit cost of Tender Document, full amount of Earnest Money as per NIT. **Otherwise their offer will not be considered.**
- 11.3 Copy of valid NSIC Certificate for MSEs has to be submitted along with bid.

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SPECIAL CONDITIONS OF CONTRACT

E-TENDER FOR "Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

Tender No. SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

1.0 GENERAL:

These provisions though given in a separate section are part of the tender documents which must be read as a whole, the various sections being complementary to one another and are to be taken as mutually explanatory. These provisions shall be read in conjunction with the other parts of the tender documents viz. General Conditions of Contract, Notice Inviting E-Tenders, and Instructions to Bidder, Particular Specifications, Drawings, Bill of Quantities and other documents forming part of the Contract. In case of any discrepancy or ambiguity in the documents, the order of precedence of the documents as stated below will apply. In particular, these provisions will over ride those in the General Conditions provided there is discrepancy between them.

2.0 CORRELATION AND ORDER OF PRECEDENCE OF TENDER DOCUMENTS:

If the stipulations in the various tender documents be found to be at variance in any respect, one will override others (but only to the extent these are at variance) in the order of precedence as given in the list below, i.e. any particular item in the list will take precedence over all those placed lower down in the list.

11. Order letter.
12. Bill of Quantities.
13. Drawings.
14. Particular Specifications of work.
15. Special Conditions of Contract.
16. General Conditions of Contract.

In case of any dispute, question or difference either during the execution of the work or any other time as to any matter or thing connected with or arising out of this Contract, the decision of the Chief Engineer, Syama Prasad Mookerjee Port, Kolkata, thereon shall be final and binding upon all parties.

3. PRE-QUALIFICATION CRITERIA FOR BIDDERS: -

i) The Intending bidder must have successfully Construction of Bank Protection work/ River embankment work or construction/Re-building/Nourishment/Up-gradation of Spurs,Groynes or construction of Break-water in sea. Out of the accepted works ,experience in at least one work must be in the tidal condition in river during the last 7(seven) years ending last day of month previous to one in which applications are invited and the experience should be either of the following:

Either (i) 03 (Three) completed works each costing not less than 40 % of the estimated amount put to tender.

Or (ii) 02 (Two) completed works each costing not less than 50 % of the estimated amount put to tender.

Or (iii) 01 (One) completed work costing not less than 80% of the estimated amount put to tender.

ii) The Average Annual Financial Turnover of the bidding firm during the last three years, ending on 31-03-2022, should be at least 30% of the estimated amount put to tender.

iii) Work experience as a sub contractor **shall not be** considered as the requisite qualification

4.0 SCOPE OF WORK:

The work mainly consists of the followings:

- i) Supplying Nylon cage netting 1 metre x 1 metre x 1 metre size each and filled in gunny/poly cement bags (minimum 25 nos. having capacity 50 kg) with local earth or sand, sewing and tying the crate with nylon wire and same is dumping and placing in position over the Darma mat properly filled in Scour depth upto LWL as guideline introduced by TEC.
- ii) For apron 3/5nos. nylon crate filled with 13 nos earth filled HDPE bags of size 1.00M X 1.00M X 0.6M provided in front of toe for the cover of dumping nylon crate filled with earth/sand filled poly cement bags from the direct sunlight, since polybags exposed to wetting & drying may fast disintegrate.
- iii) Earthwork in excavation are considered to maintained proper slope for pitching and toe wall work.
- iv) Pitching with 1.0m x 1.0m x 0.4 m Nylon Crate filled with HDPE bag on slope (2H:1V) of the bank is proposed instead of single layer HDPE bag with 50% lapping as Tidal effect about 1.50m high to resist the slope from damages along with 1.50m top covering as GL<HFL. Also provided a toe wall, made from boulder sausage having of the size of 1.2 m x 0.9 m.
- v) Due to not availability of Govt. land in this area the Item no. 05 (Pg. No. C-19 item no 2.56 of USoR) has been considered.
- vi) Profile of apron made by providing nylon crates filled up with earth/sand filled polybags is provided in sections of chainage 100m,200m,300m,400m,500m & 600m at Kallpur, 0.00m,100m,300m,800m,900m & 1100m at Gangamanoharpur, 0.00m & 200m at Jatra siddhi and 200m at Sarati-Raidanga for placing the minimum quantity of apron materials as derived in the technical note.
- vii) End protection of 50 m length in each reach considering item Darma Mat and Nylon Crate Dumping is provided as per site requirement.
- viii) End Protection is considered for each stretches as per site condition.

The scope of work also includes all preliminary works like earthwork, dressing of banks, setting out and temporary sight marks etc. as given in the BOQ items and as required for successfully completing the BOQ works as described and set forth in the Bill of Quantities, Special Conditions of Contract, Technical Specifications of works, Specification for materials and workmanship with all additional or varied works which may thereafter be required in accordance with Clause 7 of the General Conditions of Contract and as per the direction and up to the satisfaction of the Engineer.

The Intending tenderer shall inspect the site of work in consultation with the **Superintending Engineer, (RT)** and acquaint himself with the nature of work before preparing his tender. His attention is drawn to **Clause No. 3.1** of the General Conditions of Contract in this regard. No excuse

on ignorance as to the site conditions, availability of space for storing materials and approaches to site etc., will be entertained.

Unless otherwise specified, the work to be provided for by the contractor shall include but not be limited to the following:-

- a) Provide all materials, supervision, services and other tools and plants, transportation, water supply, temporary drainage, dewatering of surface, necessary approaches, temporary fencing and temporary lighting as required for safety and work purposes etc.
- b) Prepare and submit for review and assessment to the Engineer how the work is actually going to be done.
- c) The Contractor shall at all times carry out work in a manner creating least interference to existing services while consistent with the satisfactory execution of the same. The Contractor shall execute the work in accordance with the direction of the Engineer-in-Charge and maintain during the execution of the work, a passage for traffic along a part of the existing carriage way.
- d) Carry out periodical surveys of the work done with the help of suitable floating craft, echo-depth sounder & latest updated software & submit the survey reports regularly to the Engineer-in-Charge.

5.0 LOCATION:

The work shall have to be executed in between **Kalipur ghat & Raidanga at Block Kalyani, Dist. - Nadia at the left bank of River Hooghly/Bhagirathi.**

6.0 ACCESS TO THE SITE:

- (a) By Road: The site of work is in between Kalipur ghat & Raidanga at Kalyani, Distt. Nadia at the left bank of river Hooghly/Bhagirathi & can be accessed through Kalyani Expressway (NH 117). The site is also opposite to Tribeni IWAJ Jetty.
- (b) By Rail: Kalyani Rly Station

7. Work Site:

The work site is located in between **Kalipur ghat & Raidanga at Kalyani, Dist. - Nadia at the left bank of River Hooghly/Bhagirathi.** Tenderer must visit the work site and its surrounding before submission of the tender, so that due consideration is given to the local conditions at site. The intending tenderer should contact **Superintending Engineer (RT), 51, C.G.R. Road, Kolkata 700043** to make the site inspection along with his representative.

8. INSPECTION OF SITE:

The Bidder shall inspect the site of work and thoroughly familiarise himself with the nature of work, site conditions, and access to the site and location before submission of the tender. He should contact the **Superintending Engineer (RT) at his office at 51, C.G.R. Road, Kolkata 700043** for collecting information about the site before submission of the tender. No excuse will be entertained afterwards on the above ground. In case any part of the site cannot be handed over to the successful Bidder in time, no compensation for loss of labour or any other cause nor any claim will be

entertained by the Trustees. Suitable extension of time shall, however, be granted to the successful Bidder on that ground if applied for.

9. SITE CONDITIONS & METHOD OF WORK:

The work shall have to be executed in between **Kalipur ghat & Raidanga at Kalyani , Nadia district at the left bank of River Hooghly/Bhagirathi** as detailed in the Scope of Work & B.O.Q. The contractor shall take adequate measures so as to execute the work with due regard to the above. The cost of which shall have to be included in the quoted rates.

Further, if so required by the Engineer in the interests of normal working of the Port, if it is found necessary to shift / suspend some construction activity for some duration, this shall be done in compliance with the instructions of the Engineer and as per relevant clause of the G.C.C. The bidder shall consider all the above points while quoting as no separate claim for idle charges towards labour, material will be considered for payment.

Proper care should be taken to provide adequate protection to the existing structures and cables (telephone, computer, etc) all such installations against any damage at the Contractor's risk and expense. Any damage / defect to existing structures arising due to the faulty execution of the work shall have to be rectified forthwith as directed to the satisfaction of the Engineer, without charging extra.

Quality Assurance Plan(QAP) to be submitted by the contractor alongwith the Methodology.

10. TIME OF COMPLETION

The work is urgent in nature and must be commenced immediately on receipt of the work order and to be completed in all respects within **10(ten)months** including preliminary time from the date of placement of work order.

11. Sufficiency of Tender:

- i) The tender drawings and all data / information as furnished herein or inspected and / or collected by the tenderer for the purpose of the work should be properly assessed, interpolated or utilised in his offer at his own responsibility and SMPK does not guarantee sufficiency or adequacy of the data / Information so supplied to him or collected or understood by the tenderer.
- ii) 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 stated in the priced Bill of Quantities and the rates shall cover all his obligations under the contract and all matters and things necessary for the proper construction, completion, commissioning and maintenance of the work.
- iii) In case rate of particular item is printed erroneously in B.O.Q., the rate stated in the schedule of rates will prevail over the rate misprinted in B.O.Q.

12. Accessibility for Checking and Supervision.

The engaged Contractor is to provide necessary arrangement for free access to the SMPK officer's and personnel for supervision and checking of the subject work at his own cost.

13. Programme and Progress:

The contractor shall submit a detailed Spur-wise programme of work within 7 [seven] days from the date of Work Order / L.O.I. showing the commencement, duration and completion time of all major items of work including procurement of all materials etc.. The sequence of work shown in the programme must be practicable and compatible with technical specifications and conditions prevailing at site.

The contractor shall maintain the progress of work as per the approved programme. In case of any slippage of programme the engineer may require the contractor to augment the input of plant, equipment, labour of any item as he may deem fit. The contractor shall comply with the engineer's directive in this regard, without any extra charge whatsoever.

In case of delays caused due to conditions or circumstances beyond the control of the contractor, the delays must individually be informed to the Engineer forthwith in writing and his acceptance in writing.

14. Responsibility of the Contractor for methodology of works:

- i) A brief description of works & methodology are mentioned under Special Conditions Of Contract (works & materials).
- ii) However, the bidder should submit his/their own methodology of works in details in the Techno commercial bid stating the item of works to be executed in phases within the stipulated period of time specified in the tender.
- iii) Drawings and sketches, if necessary including those of the plants and machinery, floating crafts etc. that would be used, their arrangements for conveying and handling materials etc for the successful completion of the work, shall have to be submitted in the methodology of work by the bidders. The Engineer reserves the right to suggest modifications or make concrete changes in the methods proposed by the bidder before of the opening of price bid.

15. MATERIALS:

It will be the responsibility of the contractor to make timely procurement of all materials for both temporary and permanent works required in accordance with the Bill of Quantities or for any extra/additional work required as per the directions of the Engineer. The contractor shall procure cement, reinforcement steel and other materials from manufacturers approved by the Engineer.

The contractor will be allowed to take away surplus materials on completion of the work, subject to Engineer's verification of contractor's records of entry and consumption of materials in the works.

16. Quality Control:

Quality control is an essential part in the construction of and must be based on proper objective and qualitative measurement. The Contractor will have the full responsibility for quality control and delivering the acceptable quality in the field. Regular appraisal of the quality control to the Engineer should be made for effecting improvements in the construction techniques to ensure satisfactory quality of work. The quality control function shall include but not be limited to the following items.

17. Sampling and Testing of Construction Materials:

Essentially to be carried out on the materials brought to site for construction work unless permitted otherwise by the Engineer. The Contractor shall undertake all field tests and laboratory tests for all such materials and workmanships as directed by the Engineer or his representative at his own cost. The samples shall be taken for test jointly by the representatives of the Engineer and the contractor at the worksite and tested /sent to a Govt. registered laboratory or Institutional laboratory as may be decided by the Engineer for testing. In case of field test, the contractor shall undertake the test by his

own testing equipments or by any approved agency in presence of the representatives of the Engineer and the contractor at the work site. All the testing charges and all incidental charges like packaging and transporting the test samples, equipments etc. shall be borne by the Contractor any additional reimbursement

18. Specifications/ Codes and Standards:

All works under this contract will be executed according to the Trustees' Specification for works. Whenever the details are not specifically covered in the specifications, relevant provisions in the latest revision and/ or replacements of the Indian Standard Specifications (IS) or any other International Code of Practice/ CPWD /Irrigation & Waterways Directorate specifications will be followed. The Contractor shall have to procure copies of such codes/ standards for ready reference of his own personnel as well as the Engineer or his representative at site at his own cost and without any additional reimbursement.

19. Temporary Works:

The successful tenderer shall allow for providing labour and materials for the construction and removal of all temporary works, e.g. site office, site store, scaffolding, fencing lighting; watching, tube well and pipe lines etc. required for constructional purpose as well as for drinking water purpose of contractor's men, water supply, vats, platform, etc. as may be necessary for the successful execution, completion and maintenance of works without any extra cost to the Trustees and the rates should be quoted accordingly. No rent shall, however, be charged to the contractor for construction/erection of such temporary sheds and structures.

20. Measures against pollution:

The contractor shall have to take proper measures against environmental pollution during execution of work as directed by the Engineer.

21. LABOUR, TOOLS & PLANTS:

The Contractor shall supply all necessary labour, tools and plants required for satisfactory execution of the work.

22. Contract Price:

The "Contract Price" for this contract means the sum named in the tender subject to such additions thereto, deductions there from or reductions due to supply of only materials by the Trustees' as provided for in the contract.

23. Setting out of work and initial measurements:

The Engineer shall provide the initial reference and Bench Mark for the setting out of work. It will be the contractor's responsibility to set out the work accurately and get them checked by the Engineer. The Contractor shall provide at his own expense all necessary instruments, staff and labour for the checking of the survey.

The Contractor shall be responsible for the true setting out of the work and for the correctness of all dimensions, levels, lines, positions and alignment. Any error in any part of the works shall be rectified by the Contractor at his own cost. The Contractor would set up inspection facilities at Site at his own cost.

24. Interim survey

During progress of the dumping operation of crates in correct alignment of the embankment, the contractor shall conduct necessary interim survey works at regular intervals during the execution period and produce survey charts along with cross sections of the profile of the bank to the Engineer-In-Charge to monitor and assess the effect of execution of different item of works. The above stated works are required to be done as per direction of the representatives of the Engineer-In-Charge and the contractor shall have to borne all necessary costs in regards to that.

25. PARTICULARS OF EXISTING WORKS:

Such information as maybe given in the specification as to the existing features and works other than those now under construction as part of "Syama Prasad Mookerjee Port, Kolkata" given without warranty of accuracy and neither the Trustees nor the Engineer will be liable for any discrepancies therein.

26. Port Area Obligations:

The working area is located in between **Kalipur ghat & Raidanga at Kalyani , Nadia district at the left bank of River Hooghly/Bhagirathi** and as such the contractor shall comply with all regulations of the Port authorities and those that may be imposed from time to time in respect of the transit of all of contractors plants, vehicles, materials, and staff in the area. Whenever regulations so require, permits shall have to be obtained for such transit of contractor's plants, vehicles, staff and workmen. The contractor shall instruct his staff and workmen to comply with all requirements in this regard. The contractor shall suitably fence the area that may be allotted to him if required, for stores and other requirements to the full satisfaction of the Port authorities.

The contractor shall, abide by all the regulations and rules of Syama Prasad Mookerjee Port, Kolkata and those that may be issued from time to time without any extra cost to the SMPK.

27. SAFETY MEASURES:

The contractor shall adhere to safe construction practice, guard against hazardous and unsafe working conditions and follow all safety precautions for prevention of injury or accidents and safeguarding life and property. The contractor shall comply with relevant provisions of Dock Workers (Safety, Health and Welfare) Act – 1986 and Dock Workers (Safety, Health and Welfare) Regulation – 1990 and Safety Officer of the Trustees or Safety Inspectors shall be afforded all facilities for inspection of the works, tools, plant, machineries, equipments etc. wherever so required.

The contractor shall further comply with any Instruction issued by the Engineer, Trustees' Safety Officer, Safety Inspector in regards to safety which may relate to temporary, enabling or permanent works, working of tools, plants, machineries, equipments, means of access or any other aspect.

The contractor shall provide all necessary first aid measures, rescue and life saving equipment like Life jacket/vest to be available in proper condition.

The contractor shall provide PPE's (Personal Protective Equipments) such as, helmet, safety shoe etc. to all workers and shall also provide job specific PPE's e.g. safety belts for working at heights; protective face and eye shield, goggles, hand gloves for welding / gas cutting works; protective foot wear and gloves for hot works; facemasks, gloves and overalls for painting works, mixing and handling materials etc , as directed by the Engineer.

All safety rules shall be strictly followed while working on live electrical systems or installations as stipulated in the relevant safety codes.

Use of hoisting machines and tackles including their attachments, construction tools, machineries and equipments shall comply to the relevant safety codes.

Before allowing workers in sewers, manholes, any duct or covered channel etc, the manhole covers shall have to be kept open and ventilated at least one hour in advance and necessary safety torches / lamps should be inserted first before allowing entry to the worker. Suitable hand gloves and other safety gear will be provided to the worker during handling / removing of slushes / sludge etc. without any extra cost. The contractor shall adopt all the above safety measures at his own cost.

The successful bidder shall also ensure that –

- (i) No damage is caused to plants and vegetations unless the same is required for execution of the project proper.
- (ii) The work shall not pollute any source of water / land / air surrounding the work site so as to affect adversely the quality or appearance thereof or cause injury or death to animal and plant life.
- (iii) His office & labour hutment etc. shall be maintained in a clean and hygienic condition throughout the period of their use and different effluents of the labour hutment shall have to be disposed off suitably.

28. HOLIDAY OR SUNDAY WORK:

Subject to provisions in local Acts and any statutes of the State, the Contractor shall arrange for working on Holidays and Sundays whenever so desired by the Engineer to expedite progress and complete the works in time.

The Contractor shall not be entitled to any additional payment for taking up works on Holidays and Sundays. The Contractor should be prepared to resort to round-the-clock working by following shift timings for labour.

29. POWER SUPPLY:

Suitable power supply to be arranged by the Contractor within his quoted rates.

30. WATER:

The Contractor will arrange for supply of water both for drinking and for construction purposes.

31. KEEPING THE SITE AND WORKING AREA CLEAR:

The Contractor shall at all times keep the site and working areas free from all surplus materials, rubbish and offensive matter all of which shall be disposed off in a manner to be approved by the Engineer's Representative. As the works will be carried out mainly inside of operational buildings of SMPK the Contractor has to make necessary arrangement to clear the rubbishes etc. from the buildings, at the end of day's work at his own cost & risk. **Failing to do the above work, suitable deduction will be made from the final bill as per discretion of the Engineer/Engineer's representative**

32. Protection of existing services:

The contractor must pay full attention to the fact that the existing service facilities for users are not distributed at any time due to storing of materials and rubbish and take every precaution to keep the entrance passage clear if the same are being used by the laborers.

The contractor shall be held liable for all damage and interference to the existing service, caused by him in execution of works. Should any damage be done to the existing services, in general, the contractor shall make good the same and any further work considered necessary by the Engineer's representative without any delay otherwise the cost of such repairing shall be recovered for his running bill for which Engineer's decision shall be final and binding.

33. Cleaning during execution and after completion:

On completion of the works the contractor shall reinstate and make good at his own expense any property or land which might have been disturbed and/or damaged by his works. He should also clean the site as required during execution and fully clear the site after completion of all the works.

The contractor shall forward any usable materials found during the course of construction at the work site or its vicinity to SMPK stores/yards, dispose off the debris beyond the port area all at his own expenses by his own transport and labour and clean out all part of the work and leave everything clean and tidy to the entire satisfaction of the Engineer. **Failing to do the above work, suitable deduction will be made from the final bill as per discretion of the Engineer/Engineer's representative**

34. Discrepancies in contract documents

The several documents forming the contract shall be taken as mutually explanatory of one another and in case of discrepancies; the **Specifications and Bill of Quantities** shall prevail over **signed drawings**. **Technical Specifications and other particulars** shall prevail over **Standard Specifications** and **Special Conditions of Contract** shall prevail over the **General Conditions**. The Engineer's decision on this matter however, shall be final and binding and the Tenderers attention is drawn to clause 4.3 of the General Conditions of Contract in this respect. The execution of work shall conform minutely to the approved and assigned drawings and specification and any other details drawings which shall be provided/duly approved by the Engineer during the progress of the work as to such other drawings those have formed part of the contract documents.

35. METHOD OF MEASUREMENT:

Before handing over the site to the contractor for commencement of the work, a survey will be conducted jointly by the SMP officers and contractor's representative. For payment of the work executed, actual quantity of different items of work will be measured jointly by SMP officers and the representative of the contractor on board barges/boats or at work site & recorded. Hydrographic survey will be done frequently to ascertain the nature of filling of bank with respect to corresponding dumping at the specified locations as directed by the Engineer-in-Charge. In this context, the contractor should keep in mind that dumping of any material outside the specified profile of the river bank will not be considered for payment. However, decision of the Engineer will be final for any payment and binding on the contractor.

Final clearance in regard to completion of the work will be given if the desired profile or hydraulic objective of the river bank is achieved.

36. ON ACCOUNT PAYMENT:

On account payment to the Contractor shall be arranged as and when required at the discretion of the Engineer on the basis of measurements of completed works at the quoted rates in the Bill of Quantities. The terms of payment shall be in accordance with Clause-6 of the General Conditions of Contract. The Bills should be submitted by the contractor in quadruplicate to the Office of the respective **Superintending Engineer (RT)** with necessary documents in original.

Subject to the availability and feasibility of system, SMPK may make payment directly to the contractor's designated bank account. For this purpose, the contractor will have to indicate (i) name of bank (ii) branch name (iii) branch code and (iv) designated account number in the "Abstract Form Of Tender". In case payment is made directly through bank, the contractor may be required to submit a pre-receipt as per instruction of SMPK.

37. ESCALATION / VARIATION ON PRICES:

No Escalation / Variation on the prices on any account will be considered for adjustment / payment.

38. CONTRACT LABOUR LAWS:

The contractor shall be required to comply with the Minimum wages Acts 1948, Employees Liability Act, 1938, Industrial Disputes Act, 1947, and The Contract Labour (Regulation and Abolition) Act, 1970, or statutory amendments and the modifications thereof, any other laws relating thereto and the rules made there under from time to time. **Payment to the labourers to be made as per the minimum wage rates fixed by Chief Labour Commissioner (Central) and as per M.W.A. Govt. of W.B. whichever is higher and revision from time to time.**

It will be the duty of the contractor to abide by the provisions of the Act. Ordinances, Rules, Regulations, Byelaws and Procedures as are lawfully necessary in the execution of the works. The contractor will be fully responsible for any delay/damage etc. and keep the Engineer indemnified against all penalties and liabilities of any kind for noncompliance or infringement of such Acts, Ordinances, Rules, Regulations By-laws and Procedures. **The Contractor shall comply to the Employees' Bonus rules & to pay Bonus once a year to his workmen accordingly, for which no extra payment shall be made to the Contractor.**

The contractor shall indemnify the SMPK against payment to be made under or for the observance of the laws aforesaid without prejudice to his right to claim indemnity from his subcontractor.

The aforesaid regulations shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a Breach of Contract. It will be obligatory on the part of Contractor to obtain necessary Labour Licence from the Competent Authority for deploying requisite Nos. of labours in the work and submit to the Engineer-In-Charge prior to commencement of the work.

The contractor shall also be required to comply regarding 'Workmen Compensation Act, 1923 as amended by Amendment Act No.65 of 1976'.

In addition to the above, 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 said financial liabilities in his quoted rates and nothing extra, whatsoever, shall be payable to him on this account.

The Contractor shall indicate maximum number of workmen to be engaged on any day for execution of the work in the appropriate place in the ABSTRACT FORM OF TENDER & he shall have to obtain a regular /permanent license as per sec12(1) of the Contract Labour Act.

Further, whenever a contract work has commenced or completed, the contractor has to intimate the same to the Assistant Labour Commissioner(Central) /labour Enforcement Officer (Central) in Form IV-A, within 15 days of such commencement or completion.

The contractor has to arrange for displaying the name of the Regional Labour Commissioner (Central), Asst. Labour Commissioner (Central) & Labour Enforcement Officer (Central) at his worksite(s). The contractor shall inform the Principal Employer the date, time & venue of disbursement to be made by him to his workers.

The successful bidder shall also be required to put up a notice at the site of work mentioning the date, time & venue of disbursement to be made by him to his workers and he or his authorized representative shall have to be present during period of disbursement. contractor shall inform the Principal Employer the date, time & venue of disbursement to be made by him to his workers.

The successful bidder shall also be required to put up a notice at the site of work mentioning the date, time & venue of disbursement to be made by him to his workers and he or his authorized representative shall have to be present during period of disbursement.

39. COMPLIANCE WITH E.P.F & M. P. ACT:

The successful contractor will have to comply with provision of EPF & MP Act –1952 (along with amendments, if any), issued from time to time.

If asked for by the Employer, the contractor will be required to submit photocopy of all payment challans and produce the original for verification to the representative of the principal employer, i.e. **Superintending Engineer (RT)**.

40. INDEMNIFICATION:

The successful bidder shall be deemed to indemnify and keep indemnified the Trustees from and against all actions, claims, demands and liabilities whatsoever under and in respect of the breach of any of the provisions of any law, rules or regulations having the force of law, including but not limited to –

- a) The Minimum Wages Act, 1948.
- b) The Dock Workers (Regulation Of Employment) Act, 1948.
- c) The Building And Other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996
- d) The Dock Workers' Safety, Health & Welfare Act , 1986
- e) The Payment of Wages Act, 1936.
- f) The Workmen's Compensation Act, 1923.
- g) The Employees Provident Fund Act, 1952.
- h) The Contract Labour (Regulation and Abolition) Act, 1970; Rules 1971.
- i) The Equal Remuneration Act, 1976.
- j) The Employees State Insurance Act, 1948 & Employees State Insurance (Amendment) Act ,1989
- k) Child Labour (Prohibition and Regulation) Act, 1986.
- l) The Maternity Benefits Act 1961
- m) Interstate Migrant Workmen (Regulation Of Employment & Conditions Of Service) Act, 1979.
- n) Motor Vehicle Act, latest revision.
- o) The payment of Bonus Act,1965.

41. TAXES & DUTIES: -

The prices quoted shall be including all statutory levies excluding GST, which shall be paid extra.

Supplier/service provider to confirm that the GST amount charged in invoice is declared in its returns and payment of taxes is also made.

The Supplier/ Service Provider agrees to comply with all applicable GST laws, including GST acts, rules, regulations, procedures, circulars & instructions thereunder applicable in India from time to time and to ensure that such compliance is done within the time prescribed under such laws. Supplier/Service Provider should ensure accurate transaction details, as required by GST laws, are timely uploaded in GSTN. In case there is any mismatch between the details so uploaded in GSTN by Supplier/ Service Provider and details available with Syama Prasad Mookerjee Port, Kolkata, then payments to Supplier/Service Provider to the extent of GST relating to the invoices/s under mismatch may be retained from due payments till such time Syama Prasad Mookerjee Port, Kolkata is not sure that accurate tax amount is finally reflected in the GSTN to SMPK's Account and is finally available to Syama Prasad Mookerjee Port, Kolkata in terms of GST laws and that the credit of GST so taken by Syama Prasad Mookerjee Port, Kolkata is not required to be reversed at a later date along with applicable interest.

Syama Prasad Mookerjee Port, Kolkata has the right to recover monetary loss including interest and penalty suffered by it due to any non-compliance of tax laws by the supplier/service provider. Any loss of input tax credit to Syama Prasad Mookerjee Port, Kolkata for the fault of supplier shall be recovered by Syama Prasad Mookerjee Port, Kolkata by way of adjustment in the consideration payable.

Supplementary invoices/Debit note/credit note for price revisions to enable Syama Prasad Mookerjee Port, Kolkata to claim tax benefit on the same shall be issued by bidder for a particular year before September of the succeeding Financial Year.

The purchase order/ work order shall be void, if at any point of time bidder is found to be a black listed dealer as per GSTN rating system and further no payment shall be entertained.

42. SETTLEMENT OF DISPUTES:

If a dispute of any kind whatsoever arises between the Employer and the Contractor in connection with or arising out of the contract or the execution of the works, the same shall be dealt as per relevant provisions of the General Conditions of Contract.

43. Contractor to execute Contract Agreement:

The contractor after acceptance of his tender shall be required to enter into and execute a Contract Agreement to be prepared in the form annexed to the General Conditions of Contract together with such modifications as may be necessary within one month from the date of placement of the order. The contractor shall have to submit copies in sextuplets of all documents; correspondence, connected papers etc. as detailed in the above form of Contract Agreement together with the instrument of Contract Agreement prepared on Non-Judicial stamped paper of requisite denomination having five more copies made on plain paper all at his own cost. The successful tenderer shall have to submit three sets of such Contract Agreement duly executed, sealed, signed and witnessed for execution by the Trustees. The other three sets shall be completed in all respects but not signed. If the successful tenderer or tenderers are a partnership concern, they will have to get Agreement signed by all the partners or by the partner who is authorized to sign for and on behalf of the other partners.

The contractor shall also comply with the requirements of Security Deposit for the due fulfillment of the contract. The blank proforma of tender documents shall be supplied in

sextuplets to the successful tenderer free of charge for preparing the documents of the aforesaid Contract Agreement.

The successful tenderer shall have to copy out and prepare the documents of the Contract Agreement neatly and correctly. The necessary amendments, corrections etc. (if any) have to be done at his own cost. The successful contractor shall be required to keep close co-ordination and liaison with the Traffic Manager's Department and the Chief Mechanical Engineer's Department while executing the works. The Senior Executive Engineer in charge of the construction will direct the representatives of the contractor to maintain liaison with different sections of the other departments and the contractor must keep the concerned Senior Executive Engineer of the Civil Engineering Department informed and/or posted with the programme contemplated with other departments. The Senior Executive Engineer of the Civil Engineering Department shall be nodal authority in all these co-ordination and / or liaison and all programmes must be vetted by him. In cases of exigencies, the contractor or his representatives may establish direct liaison/co-ordination but in all such case the Senior Executive Engineer should be informed promptly.

44. Employment of Local Resources:

The successful tenderer shall pay special attention to engage the maximum possible number of local Engineer, other technical personnel, office workers; labourers (skilled, semiskilled, unskilled) both at site and in office, details of such recruitment etc. shall be submitted to the Engineer periodically or as and when called for.

45. Kolkata Port Trust:

The expression "**KOLKATA PORT TRUST**" appearing anywhere in the tender documents, shall be construed to read as "**SYAMA PRASAD MOOKERJEE PORT, KOLKATA**".

46. Clarification of Bids:

To assist in the examination and comparison of Tenders, the Employer may, at his discretion, ask any Tenderer for clarification of his Tender, including **breakup/analysis** of unit rates. The request for clarification and the response shall be in writing, but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to conform the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders.

No Tenderer shall contact the Employer on any matter relating to his Tender from the time of the Tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, he should do so in writing.

Any effort by the Tenderer to influence the Employer's Tender evaluation, Tender comparison or contract award decisions, may result in the rejection of his Tender.

47. Workmen and Wages:

The Contractor shall deliver, if ordered, a weekly return for all labour employed in writing in the requisite form as instructed by the Engineer or his representative.

The contractor shall have to engage sufficient number of technically qualified and skilled persons to supervise and execute the work **and this should be mentioned in the "Schedule-T" of the Contract.**

48. Rate for payment against extra Items:

For any unforeseen work not covered under the Bill of Quantities and Condition of Contract, depending on contingent situation at site, if required for successful completion of the work, extra items have to be carried out by the Contractor. If those items are already available in Trustees' Schedule of rate, payment will be made on the basis of Trustees' Schedule of rate; including surcharge in force at the time of acceptance of the tender, if any adopted by the Trustees with due regard to the accepted contractual percentage, if any, thereon, otherwise, if the rates are not available in the SMPK Schedule of Rates, then the Special Rates will be prepared as follows:-

- (i) The rate of payment of work involving labour & material shall be fixed on the following basis:
 - a) Cost of materials consumed including transport and wastage, plus
 - b) Cost of labour actually engaged in the works, plus
 - c) Taxes and Duties as applicable, plus
 - d) 16 % on the aggregate of (a) and (b) towards overhead, profit and cess.
- (ii) For any work involving only labour, rate of payment shall be fixed on cost of labour actually engaged in the work plus 11 % towards profit and cess.
- (iii) For only supply of any material at site, rate of payment shall be fixed on actual cost of material plus transport, loading & unloading (if any) plus 11 % towards profit and cess.

49. Disparity in quoted rate/amount.

If there is any disparity between the quoted rate in percentage and the Tender Amount, the rate quoted in percentage shall prevail as the rate quoted by the tenderer and the Tender Amount shall be derived by adding/subtracting (as the case may be) this percentage with/from the Estimated Value put to tender. Similarly in case of disparity between the rate quoted in figures and in words, the rate quoted in words shall prevail.

50. Working Period:

Normally the work will be carried out depending upon the tidal conditions. However the tenderer should note that he might be required to carry out the job on Sundays, holidays and after normal working hours and at night in addition to the normal working hours to expedite the progress of the work if permitted by **Competent Authority**. The tenderer should include in his rates the cost, if any, involved on those accounts.

Daily tidal variation of water level in the river can be obtained from the "tide tables for the Hooghly River" available from the Trustees' River Surveyor Wing under Chief Hydrographer on payment.

Any delay or damage due to extreme tides or floods or due to unfavorable weather condition shall be deemed to have been taken into account while arriving at the rates to be quoted by the tenderer. The tenderer shall inspect the work sites at his own initiative and obtain relevant information about the site, river condition and any other related matter which may be relevant and necessary. No excuse or ignorance as to the site condition, storage space for materials and any other related local condition will be entertained after submission of the tender. All necessary charges in this regard shall have to be borne by the tenderer and the Trustees shall have no liability in this regard.

[illegible]

SPECIAL CONDITIONS OF CONTRACT
(Works & Methodology)

1. DESCRIPTION OF WORK:

The work essentially comprises of Supplying, fitting, fixing Darma mat in flowing or stagnant water or in dry areas with 16 SWG GI wire.

Dumping & placing of crates of size 1 metre x 1 metre x 1 metre in position by boat/without boat on the correct alignment of the river bank filled in gunny / poly cement bags. Minimum 25 nos. bags having capacity 50 kg will be filled with local earth or sand. Volume of each earth/ sand filled bags should not be less than 0.028 m³.

Dumping & placing of crate of size 1 metre x 1 metre x 0.6 metre in position by boat/without boat on the correct alignment of the river bank filled in HDPE bags of 90 GSM of size 0.84 m x 0.38 m conforming to BIS : 14252 : 2015. Minimum 13 nos. bags will be filled with local earth or sand. Volume of each earth/ sand filled bags should not be less than 0.0328 m³.

Supplying, fitting, fixing end pieces for rectangular / square / circular sausages at the ends, with 10 SWG GI wire net.

Dumping & placing of crate of size 1 metre x 1 metre x 0.4 metre in position by boat/without boat on the correct alignment of the river bank filled in HDPE bags of 90 GSM of size 0.84 m x 0.38 m conforming to BIS : 14252 : 2015. Minimum 15 nos. bags will be filled with local earth or sand. Volume of each earth/ sand filled bags should not be less than 0.0328 m³.

The top level & the slope will be as per the drawings or as directed by the Engineer-in-Charge.

2. LOCATION:

The work is to be executed in between Kalipur ghat & Raidanga at Kalyani, Distt. Nadia at the left bank of river Hooghly/Bhagirathi. The site inspection is perceived to be essential for all intending bidders **before the date of Pre- Bid meeting**. The inspection of site will be arranged by the Superintending Engineer (River Training), 51 C.G.R. Road, Kol- 700043.

3. WORKING CONDITION:

The works are to be executed in the tidal area of the river Hooghly. Daily tidal variation of water level in the river can be obtained from the "tide tables for the Hooghly River" available from the Trustees' River Surveyor Wing under Chief Hydrographer on payment.

Any delay or damage due to extreme tides or floods or due to unfavorable weather condition shall be deemed to have been taken into account while arriving at the rates to be quoted by the tenderer. The tenderer shall inspect the work sites at his own initiative and obtain relevant information about the site, river condition and any other related matter which may be relevant and necessary. No excuse or ignorance as to the site condition, storage space for materials and any other related local condition will be entertained after submission of the tender. All necessary charges in this regard shall have to be borne by the tenderer and the Trustees shall have no liability in this regard.

4. ACCESS TO THE SITE:

The tenderer shall inspect and take into account the existing facilities for access to the working site. It may be noted by the tenderer that in case any part of the site cannot be handed over to the successful tenderer in time for unforeseen reasons no claim for compensation for loss of labour or

any other reason will be entertained by the Trustees. However, suitable extension of time may be granted to the contractor for such unforeseen contingencies.

5. MATERIALS:

All materials required for successful completion of the work shall be procured and supplied by the contractor within the quoted rates.

All materials required for the work shall be in accordance with the tender specifications.

6. LAND & STORAGE AREAS, JETTIES:

The contractor has to make arrangement for temporary structures necessary for keeping his men and materials and all other necessary works at his own cost and risk preferably proximity to sites. For executing of the work in effective manner the contractor has to make arrangement for construction of temporary jetties, landing platform for loading and unloading of materials at his own cost, if considered necessary. The contractor also has to make arrangement of yard for stacking and filling of river sand in geo bags and subsequent loading in the barge / floating crafts, stacking of stone boulders, facility for beaching of boats/barges for loading and unloading of materials in different locations at the closest proximity to the working sites and in the closest approach of banks. Any loss or damage of materials in stacks on bank due to tides, flood, erosion, land slide etc. shall be at the Contractor's risk and cost. Contractor has to identify a suitable location for receiving, stacking, & loading of stone boulder on the barge for which, if required, the contractor has to approach the local authority for necessary permission. The requisite charge for such land rent shall have to be borne by the contractor.

7. ELECTRICITY & WATER:

The contractor has to arrange for his own power supply from the local available agencies, viz. WBSEB, CESC or any other appropriate authority or with the help of Generators at his own cost. The contractor must also make his own arrangements for obtaining water for drinking and construction purposes.

8. SURVEY & SETTING OUT OF WORKS:

The Engineer will provide the centre lines and end points of the works by giving positions on the banks. The contractor has to make these points permanent for setting out of the works. The contractor shall be responsible for the accurate setting out of the works. Any dumping or laying of the materials out of alignment or the correct position shall be entirely at the contractor's risk & responsibility for which no payment will be made. Before handing over the site to the contractor for commencement of the work, a survey will be conducted jointly by the SMPK of and on completion of the work, a joint survey will be carried out by the Engineer, with the help of River Survey Wing of Syama Prasad Mookerjee Port, Kolkata and the survey chart will be provided to the contractor to find out actual levels of the works, during progress of the work or the commencement of work to the contractor as and when required. Any rectification / correction to the works will have to be carried out by the contractor at his own cost.

For correct positioning of barges/boats as well as for the work survey of the works, the contractor will have to arrange for all necessary instruments e.g. total station, sextants, binoculars, tide gauges, distomat, poles, levelling instruments, theodolites, permanent markings on the shore and in the river etc. will be required to be provided, fixed and used by both the contractor and the Engineer or his representatives.

9. FLOATING CRAFT, PLANT, MACHINERY & OTHER FACILITIES:

The contractor shall have to deploy and use adequate floating crafts, plant, machinery and other facilities for execution of the work and as directed by the Engineer, without any reservation. The tentative floating crafts, plant, machinery etc. required are as follows:-

1. Sufficient No. of barges/boats of desirable capacity .
2. Temporary jetties for loading and unloading of materials and for boarding of launches, boats and barges.
3. Any other equipment/floating craft as may be necessary for successful completion of the work.

The above list is only indicative. The Contractor has to submit his own list of plants, equipments, tools and tackles, floating crafts etc. he intends to deploy along with the tender.

All barges/boats used in the work must have proper certification from the appropriate authorities which allows the use of the said floating crafts at the location round the year.

The station barge/boats used for dumping should preferably be equipped with special power winch mounted anchoring mechanism for easy maneuvering facility. Also, the dumping barges should preferably be equipped with GPS & other necessary equipments so that the pontoon of the barge with respect to the spur can clearly be seen on a laptop or in some other digital mode.

10. Inspection & Testing facilities at site

The Contractor would set up inspection & testing facilities at site. The facilities would comprise of standard balances for weighment of stone boulders, gunny/poly bags and HDPE bags and arrangements for determining the specific gravity of the stone boulders & sieve analysis of sand as directed by the Engineer or his representative.

11. Lights & signals:

The contractor shall at his own expense provide lights and warning notices as may be necessary. Lights shall be so placed or screened as not to interfere with any navigational light or signal or other markings.

12. Interference to Navigation of Ships:

The Contractor shall not in any way disturb or obstruct the navigation of Ships to the Kolkata Docks/ Haldia Dock.

13. Night work.

No dumping work will be allowed after dusk. However, some ancillary works like filling of geo-bags, HDPE bags, stacking of stone boulders may be allowed.

15. CHALLANS /FORMS FOR RECORDING WORKS

The Successful tenderer shall have to make all arrangements at his own cost to prepare "Dumping challan" for sand filled gunny /poly bags/ HDPE bags, stone boulders, nylon crates in prescribed printed Proforma in required copies so that at least two copies shall be supplied to the Trustees representatives. The "Dumping challan" shall be prepared and signed by the Contractors and must accompany the loaded Barge / Boat and must be countersigned by the Engineer's authorized representative at loading and dumping points. The dumping challans are the records of work done and shall serve as joint records for works done.

16. SITE REGISTER

For the purpose of quick communication between the Engineer and the Contractor, site register shall be maintained at site. Any communication, relating to the works may be conveyed through records in the Site Registers, such as communication from one party to the other shall be deemed to have been adequately served. Any instruction or order which the Engineer may like to issue to the contractor may be recorded by him in the Site Register.

17. PROGRESS PHOTOGRAPHS

The contractor shall arrange to take Progress Photographs regularly at his cost; the positions from which the photographs are to be taken shall be directed by the Engineer. The contractor shall submit on monthly basis minimum one set of colour photographs (size 15cm x 10cm) each set containing 12 photographs in albums and also in CD form. Prints may not be reproduced without the approval of the Engineer.

No extra rate shall be paid for this purpose and the quoted rate is deemed to cover the cost of this item also.

18. CONSTRUCTION RECORDS

The contractor shall keep and supply to Engineer full and accurate records of the dimensions and positions of all new work and any other information necessary for the Engineer to be able to prepare detailed records of the work as constructed.

19. ACCESS TO CONTRACTOR'S VESSELS, WORKS, SURVEYING ETC.

The Engineer shall have at all time during working hours access to the Contractor's plant, workshop etc., and shall have the right to call for and obtain any information regarding the maintenance and operation of plant, progress of Works, etc., from the contractor. For making such visits to the Plant etc., the Contractor shall make available to the Engineer a suitable transport facilities provided for the purpose.

20. Interruptions of work and idle time charges.

The contractor shall allow in his rates for any loss of working hours due to weather, surveying, positioning of craft, and shifting of plants and other equipment from one area to another area. Any claim for idling of the contractor's plant and machinery or any other inputs shall not be entertained by the Port for reasons whatsoever, and therefore the contractor may consider all such events/operations and submit their offer accordingly. For the reasons stated or for any other reasons no claim for idle time charges shall be entertained by the Port.

21. Tide Gauge.

Tide gauge boards, clearly marked in 10 cm graduations are to be provided and maintained at the contractor's expense at the site throughout the contract period. It should be erected as directed by the Engineer's representative and the zero of the tide gauge is to be set to the Chart Datum.

22. Marker Buoys, Beacons etc.

The contractor shall at his own expense, install and maintain marker buoys to define the extent of the site as directed by the Engineer or other competent authority.

All beacons are to be marked for setting out the works and for defining the limits of the permitted working areas shall be of such size as shall be clearly visible at all times and lights shall be fitted where necessary or required by the appropriate authority.

23. INSPECTION BEFORE CONCEALMENT

Whenever work requiring inspection or testing is subsequently to be concealed, due notice shall be given to the Engineer so that inspection may be made or tests witnessed before concealment. Failure to give such notice may necessitate the Contractor's uncovering the work for inspection purposes and reinstating it all at his own expense. Whenever there is any doubt or inconsistency regarding the levels/datum's etc., indicated in the drawings, the same shall be got clarified from the Engineer before proceeding with the works. The Engineer's decision will be final and binding on the contract.

24. Removal of craft or plant that has sunk:

The contractor's craft and plant (floating or otherwise) belonging to him and engaged at site (including also any plant that shall forthwith dispatch at his own cost, raise and remove by the contractor under agreement for hire purchase) which may be sunk in the course of the construction, completion or maintenance of works and in that occasion the contractor will immediately deploy necessary resources to raise and remove the sunken crafts /plants and retrieve the same on the land otherwise the employer will be forced to deploy all necessary resources to raise and remove the same from the location and finally retrieve the plants/equipments on the land for which the contractor shall reimburse to the employer all costs incurred in connection therewith, failing which the contract cannot be declared complete and necessary action against that will be taken accordingly as per contract and the actual cost incurred will be deducted from his/their dues.

25. Drawings:

All related drawings are enclosed with this tender providing brief detail of the work. However, it must be noted that the drawings are only indicative and the final position of the work will be dictated by the Hydrographic surveys carried out on the spur before and during progress of the work.

26. Working drawings:

Based on the hydrographic surveys carried out by SMPK and/or Contractors' own interim surveys, Contractor will have to prepare and submit working drawings showing the present and proposed profile of the spur. Such working drawings shall be submitted at regular intervals and they should clearly show the progress achieved by the Contractor.

27. Working Calculations:

On receiving of survey charts the Contractor will have to submit detailed calculations regarding quantity of various materials required for the work. These calculations will have to be submitted regularly during various stages of the work.

28. Before excavating sand from the river, the contractor must take permission from SMPK clearly indicating alongwith lat-long co-ordinates from which point/points in the river he wishes to excavate the sand. He will start excavating only on receiving the necessary clearance from SMPK.
29. The sample of the river sand must be submitted to the Engineer's Representative at site for approval of SMPK at regular intervals. If due to any reason the sand at any one location is not found to be suitable, the contractor will have to excavate sand from some other suitable location after taking permission from SMPK as stated above.
30. All dumping /station barges should preferably be fitted with a special projecting platform on both sides along the length of the barge. The crates loaded with gunny/poly bags or HDPE bags should be placed on the platform & the platform will be rotated with a winch thereby dumping the crates into the river.

31. The contractor must make an effort to tie up maximum no. of the loaded gablons with P.P.Ropes so that maximum no. of gabions can be dumped into the river as one unit thereby minimizing the chance of displacement. This work will have to be carried out within his quoted rates.

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SCHEDULE T
SYAMA PRASAD MOOKERJEE PORT, KOLKATA

Annexure-C(Contd)

CONCURRENT COMMITMENT(S) OF THE BIDDER (i.e Works In The Hand Of The Bidder At The Time
Of Submission Of Tender Offer)

(To be submitted with Part-I of Offer)
Bidders must fill in the under noted columns.

	Full particulars of works to be executed concurrently by the bidder. (i) Name of work. (ii) Client. (iii) W.O. No. & Date.	Sanctioned Tender Value. (in Rs.)	Completion time as stated in tender.	Name and address to whom reference can be made.
<u>1</u>	(i)			
	(ii)			
	(iii)			
<u>2</u>	(i)			
	(ii)			
	(iii)			
<u>3</u>	(i)			
	(ii)			
	(iii)			
<u>4</u>	(i)			
	(ii)			
	(iii)			

(To be submitted with Part-I of Offer) Annexure-C(Contd)
SCHEDULE 'O' SHEET – 1

The Bidders are also requested to furnish the following particulars:-

A) In case of Limited Company :-

- 1) Name of Company :
- 2) Address of its present registered office. :
- 3) Date of its Incorporation :
- 4) Full name and address of each of its Directors – any special particulars as to Directors if desire to be stated. :
- 5) Name, address and other necessary particulars of Managing Agents, if any appointed by the Company. :
- 6) Copies of Memorandum, Articles of Association (with the latest amendments, if any). :
- 7) Copies of audited balance sheets of the Company for the last **three** years. :

B) In case of a firm :-

- 10 Name and address of the firm. :
- 10 When business started. :
- 17.0 If registered a certified copy of certificate of registration. :
- 10 A certified copy of the Deed of Partnership. :
- 19.0 Full name and address of each of the partners and the interest of each partner in the partnership – any special particulars as to partners if desired to be stated. :
- 6) Whether the firm pays income tax over Rs.10, 000/- per year. :

(To be submitted with Part-I of Offer)

SCHEDULE 'O' SHEET – 2.

C) In case of an Individual:

1) Full name and address of the Bidder any :
special particulars of the Bidder if desired to
be stated.

i. Name of the father of the Bidder. :

ii. Whether the Bidder carries on business in :
his own name or any other name.

iii. When business was started and by whom. :

iv. Whether any other person is interested in :
the business directly or indirectly, if so,
name and address etc. of such persons and
the nature of such interest.

6) Whether the Bidder pays Income Tax over :
Rs.10,000/- per year.

Dated:

(Full signature of Bidder)

(Proforma of Performance certificate/credential of works)
 [To be issued on issuing authority's letterhead duly signed with office seal]

1.	Name of the Certifying Authority:	
2.	Name of the work :	
3.	Name of the Contractor :	
4.	Schedule date of commencement and completion of the work as per Work Order :	
5.	Date of actual commencement of work & date of actual completion :	
6.	i) If there is time overrun, whether delay is due to the contractor (Yes/No.): ii) If yes, what is the extent of delay attributable to the contractor :	
7.	Sanctioned Tender value & Actual value executed :	
8.	Quality of work (Excellent/satisfactory/poor) :	
9.	Remarks (If any) :	

DOCUMENTS TO BE UPLOADED ALONG WITH PART –IScanned copy of the following documents to be uploaded:-

- i) GST registration certificate.
- ii) Valid Trade Licence(Valid for current period & also for type of work).
- iii) Valid Professional Tax Clearance Certificate / Up to date tax payment challan. If this is not applicable, the bidder must submit a declaration in this regard.
- iv) Proof of possessing valid Employees' Provident Fund (EPF) Account.EPF Registration Certificate.
- v) Proof of being registered with Employees' State Insurance Corporation (ESIC), ESI Registration Certificate
- vi) Details of the firm as per Schedule-O (in Part-I) of the tender document duly filled up.
- vii) Credentials in the form of copies of Letters of Award of Works along with corresponding Completion Certificates from owners to justify that the Intending bidder satisfies the earlier mentioned pre-qualification criteria.
- viii) Balance sheet and Profit and Loss account / Trading account for the last 3 (three) financial years (i.e. 2019-2020, 2020-2021 & 2021-2022). The same should be audited as per relevant norms wherever required along with UDIN of the Auditor.
- ix) Bank Draft/ Pay Order etc. regarding EMD & Cost of Tender documents / valid NSIC certificate
- x) PAN Card
- xi) A list of technically qualified and skilled persons would be engaged to supervise and execute the work
- xii) Self declaration of the bidder that the Bidding Firm has Not been debarred / delisted by any Govt / Quasi Govt. / Public Sector undertaking in India **(to be mentioned in the letter head of the Firm).**
- xiii) Self declaration regarding the proprietor/partner(s)/authorized signatory of the bidding firm (In the case of proprietorship firm /partnership firm /limited company, as the case may be) is/are not associated with any other firm bidding for the same work **(to be mentioned in the letter head of the Firm).**
- xiv) A list of works which are in hand at the time of submitting the offer as per the enclosed proforma titled 'Concurrent Commitments of The Bidder' vide 'Annexure-C' (Schedule – T) in Part-I of the tender document.
- xv) Undertaking of the tenderer to be submitted as per enclosed Pro-forma (Annexure –D-1) in lieu of submission of signed copies of the full Tender document ,G.C.C.addenda & corrigendum **in the letter head of the Firm.** 39
- xvi) Last page of "Bill Of Quantities" & the "Form Of Tender" duly filled up (without price quoted) shall be duly signed and stamped by the Bidder.
- xvii) **Copy of duly Filled up Integrity Pact in Stamp Paper of valued Rs.100/ .**
- xviii) The bidder should submit a **Power of Attorney** as per the format at Appendix-I provided, however, that such Power of Attorney would not be required if the Application is signed by a partner of the Applicant, in case the Applicant is a partnership firm or limited liability partnership.

N.B.-1 The bidder will have to produce the original documents or any additional documents, if asked for, to satisfy the Authorities.

N.B.-2 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements and their **EMD will be forfeited for such action.**

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ANNEXURE –D-1

NIT NO. SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

[DOCUMENT TO BE DOWNLOADED, FILLED IN UNDER BIDDER'S LETTERHEAD, SIGNED,
SCANNED AND UPLOADED]

Undertaking to be submitted in lieu of uploading/submitting signed copy of full tender document

Ref. No.....

Dated:

The Chief Engineer,
Syama Prasad Mookerjee Port, Kolkata,
Civil Engineering Department,
6, Fairlie Ware House, Fairlie Place,
Kolkata – 700 001
Dated:

Dear Sir,

1. We,(Name of Tenderer) have fully read and understood the entire Tender Document, GCC, Corrigendum and Addenda, if any, downloaded from under the instant e-tender and no other source, and will comply to the said document, GCC, Corrigendum and Addenda.

We are submitting this undertaking in lieu of submission of signed copy of the full tender documents GCC, Corrigendum and Addenda,

Yours faithfully,

Signature of Tenderer

Name:

Designation:

Date :

Seal of the tenderer

Annexure –E

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
 Civil Engineering Department
 6, Fairlie Place, Fairlie WareHouse , 2nd floor
 Kolkata 700 001.
 Tele – 033 2230-3451 Extension: 398,399,400
 Fax - (033) 2230-0413

NIT No.: TENDER NO. : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

NOTE: Last Date of Download of tender documents : 06.07.2023 (up to 14.00 hours)

Tender is due for submission by 3:00 P.M. On 06.07.2023(upto 3-00 pm)
 Tender is to be opened on 07.07.2023 (At 3-00 PM)

PRICE BID(PART-II)

Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia .

Annexure-E(Contd.)

E-TENDER FOR "Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat; 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia..

NIT NO : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

PART –II/PRICE BID

TENDER PARTICULARS

ESTIMATED COST	: Rs. 13,47,45,181.06 (Rupees Thirteen crore forty seven lakh forty five thousand one hundred eighty one & paise six only)
EARNEST MONEY	: Rs.23,47,460.00 (Rupees Twenty three lakh forty seven thousand four hundred sixtyonly)
TIME OF COMPLETION	: 10(ten) Months
COST OF TENDER DOCUMENTS	Rs.2950/- (Rupees two thousand nine hundred fifty only)
PERIOD OF DOWNLOAD OF E-TENDER (Both Days Inclusive)	29.05.2023 to 06.07.23(UPTO 14:00 HRS.)
DATE AND TIME FOR PRE-BID MEETING & SITE VISIT	: 12-30 PM on 14.06.2023 in the chamber of the Chief Engineer at 6, Fairlie Place, Fairlie WareHouse , 2nd floor
LAST DATE OF SUBMISSION OF E-TENDER AND OPENING OF THE TENDER	: 06.07.2023 Submission Up to 15:00 hrs. Opening at 1-00 P.M on 07.07.2023

SYAMA PRASAD MOOKERJEE PORT, KOLKATA

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CIVIL ENGINEERING DEPARTMENT**PREAMBLE TO THE BILL OF QUANTITIES**

E-TENDER FOR "Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia.

TENDER NO : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

The Bill of Quantities must be read with the General Conditions of Contract, the Special Conditions of Contract and the Particular Specifications of Work and the Bidder is deemed to have examined the above documents and to have thoroughly familiarise himself with the total scope of work and its mode of execution.

1.2 The quantities given in the Bill of Quantities are approximate only and are given to provide a common basis for tendering. Payment will be made according to the quantities of each item of work actually carried out at the accepted rates as per Order Letter. The measurements of each item of work shall be measured jointly by the Engineer or his Representative.

1.3 General direction and description of work or materials given elsewhere in the contract documents are not necessarily repeated in the description of items in the Bill of Quantities.

1.4 The prices and rates entered by the Contractor in the Bill of Quantities shall be deemed to cover the complete and finished work, inter-alia, all costs and expenses which may be required for successful completion of the works together with all risks, liabilities, contingencies, insurance, octroi, royalties, taxes and obligations imposed or implied by the Contractor.

1.5 Where separate items such mobilisation, demobilisation, temporary works etc., have not been provided in the Bill of Quantities for works required under the Contract, then the cost of such works shall be deemed to have been included in the prices and rates of other items.

1.6 Without affecting the generality of the foregoing provisions, the prices and rates entered in the Bill of Quantities by the Contractor shall include inter-alia, all costs and expenses involved in or arising out the followings:-

1.7 The provision, storage, transport, handling, use distribution and maintenance of all materials, plants, equipment machineries and tools including all costs, charges dues demurrages or other outlays involved in the transportation.

1.8 The provision and maintenance of all his staff and labours and their payments, accommodation, transport, taxes and other requirements.

1.9 Setting out including the location and preservation of survey markers, measurement and supervision.

2.0 The provision, storage, transport, use handling, distribution and maintenance of consumable stores, fuel, water and electricity.

2.1 All First Aid, Welfare and safety requirements.

2.2 Damage caused to the works, plants, materials and consumables stores caused by weather.

2.3 Licence, fees and other charges for compliance of Government Acts and Rules that are in force and applicable.

- 2.4 The Contractor should be held responsible for the safe custody of materials, machineries etc. at site procured by him or issued to him by the Trustees.
- 2.5 This being a **percentage rate tender**, the Bidder shall quote his rates as percentage above / below / at par with the estimated amount put to tender **on line** based on his own analysis .
The Tender Price thus established would be taken for comparative evaluation of E-Tenderer.
- 2.6 The Contractor shall at all times keep the site and working areas free from all surplus materials, rubbish , other excavated/offensive matter etc. all of which shall be disposed off in a manner to be approved by the Engineer's Representative.
- 2.7 On completion of the works the contractor shall reinstate and make good at his own expense any property or land which might have been disturbed and/or damaged by his works. He should also clean the site as required during execution and fully clear the site after completion of all the works.
The contractor shall forward any usable materials found during the course of construction at the work site or its vicinity to SMPK stores/yards, dispose off the debris beyond the port area all at his own expenses by his own transport and labour and clean out all part of the work and leave everything clean and tidy to the entire satisfaction of the Engineer, failing which suitable deduction will be made from final bill as per discretion of the Engineer/Engineer's representative.

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SYAMA PRASAD MOOKERJEE PORT, KOLKATA

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CIVIL ENGINEERING DEPARTMENT

BILL OF QUANTITIES

E-TENDER FOR "Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

TENDER NO : SMPK/KDS/CIV /T/2760/32 Dt. 26.05.2023

BILL OF QUANTITIES

Item No.	Description Of Item	Quantity	Unit	Rate Rs. P.	Amount Rs. P.
1	Supplying fitting, fixing Darma mat in flowing or stagnant water or in dry areas with 16 SWG GI wire as per direction of the Engineer-in-charge. (a) Where boats are necessary				
	i.At Tarinipur to Kalipur Ferry Ghat	7600.00	SqM		
	ii.At Tarinipur(South)	7600.00	SqM		
	iii.At Ganga Manoharpur	9600.00	SqM		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	5896.00	SqM		
	Total=	30696.00	SqM	174.00	53,41,104.00
2	Supplying Nylon cage netting 1 metre x 1 metre x 1 metre size with knot having mesh size 17.5 cm x 17.5 cm constructed with nylon thread (210 x 24) having tensile strength not less than 250 Kg. / sq. cm. Including carriage, delivery and stacking at site inclusive of all taxes complete.				
	i.At Tarinipur to Kalipur Ferry Ghat	42783.00	Nos		
	ii.At Tarinipur(South)	52073.00	Nos		
	iii.At Ganga Manoharpur	48158.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	28174.00	Nos		
	Total=	171188.00	Nos	117.00	2,00,28,996.00

3	<p>Labour charges for dumping and placing in position properly filled in Nylon crates with filled in gunny / poly cement bags (minimum 25 nos. having capacity 50 kg) with local earth or sand, sewing and tying the crate with nylon wire within a lead of 150 m. and all lifts in river slope or bed by cutting trenches upto 50 cms depth, if necessary, or by boat including cost of hire charges of boat, boatmen and other necessary equipments and also including cost of bags, carriage and charge of filling bags with earth / sand but excluding cost of nylon crate as per direction of the Engineer – in – Charge.</p> <p>NB:- Volume of each earth/ sand filled bags should not be less than 0.028 m³. Size of Nylon crate is 1metre X 1metre X 1metre.</p> <p>(a) Where boats are not necessary</p>				
	i.At Tarinipur to Kalipur Ferry Ghat	4278.00	Nos		
	ii.At Tarinipur(South)	5207.00	Nos		
	iii.At Ganga Manoharpur	4816.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	2817.00	Nos		
	Total=	17118.00	Nos	386.00	66,07,548.00
	(b) Where boats are necessary				
	i.At Tarinipur to Kalipur Ferry Ghat	38505.00	Nos		
	ii.At Tarinipur(South)	46866.00	Nos		
	iii.At Ganga Manoharpur	43342.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	25357.00	Nos		
	Total=	154070.00	Nos	397.00	2,00,28,996.00
4	<p>Earthwork from borrow pits over existing embankment or for repairs to embankment, closing breaches etc. within an Initial lead of 30 metre and lift of 1.50 metre including breaking clods and depositing the same in layers not exceeding 25 cm. and rough dressing etc. complete as per profile.</p>				
	i.At Tarinipur to Kalipur Ferry Ghat	14263.00	Cum		
	ii.At Tarinipur(South)	17838.00	Cum		
	iii.At Ganga Manoharpur	16424.00	Cum		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	11813.00	Cum		
	Total=	60338.00	Cum	74.00	44,65,012.00

5	Supplying Nylon cage netting 1 metre x 1 metre x 0.6 metre size with knot having mesh size 17.5 cm x 17.5 cm constructed with nylon thread (210 x 24) having tensile strength not less than 250 Kg. / sq. cm. Including carriage, delivery and stacking at site inclusive of all taxes complete.				
	i.At Tarinipur to Kalipur Ferry Ghat	2550.00	Nos		
	ii.At Tarinipur(South)	2700.00	Nos		
	iii.At Ganga Manoharpur	5500.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	2535.00	Nos		
	Total=	13285.00	Nos	.85.80	11,39,853.00
6	Supplying and Labour charges for dumping and placing in position properly filled in Nylon crates with filled in HDPE bags (min. 13nos.) with local earth or sand, sewing and tying the crate with nylon wire within a lead of 150 m. and all lifts in river slope or bed by cutting trenches upto 50 cms depth, if necessary, or by boat including cost of hire charges of boat, boatmen and other necessary equipments and also including cost of bags, carriage and charge of filling bags with earth/sand but excluding cost of nylon crate as per direction of the Engineer-in-Charge. NB:- Volume of each earth/ sand filled bags should not be less than 0.0328 m3. Size of Nylon crate is 1metre X 1metre X 0.60metre. (a) Where boats are not necessary.				
	i.At Tarinipur to Kalipur Ferry Ghat	2550.00	Nos		
	ii.At Tarinipur(South)	2700.00	Nos		
	iii.At Ganga Manoharpur	5500.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	2535.00	Nos		
	Total=	13285.00	Nos	433.60	57,60,376.00

7	<p>Making rectangular sausage cage with 10 SWG galvanized iron wire of 125mm. x 125mm. mesh wire netting with proper lapping of minimum 150 mm. including sewing the joints with 12 SWG G I wire and supply of all materials and equipments including placing the sausage cage in position, filling the same with boulder or lump aggregates</p> <p>complete as per direction of the Engineer-in-charge but excluding the cost of boulder / lump aggregates and its carriage upto site.(Cost is excluding the cost of end pieces)</p> <p>a) 1.20 metre x 0.90 metre Nominal Section</p>				
	i.At Tarinipur to Kalipur Ferry Ghat	850.00	Nos		
	ii.At Tarinipur(South)	900.00	Nos		
	iii.At Ganga Manoharpur	1100.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	587.00	Nos		
	Total=	3437.00	Nos	673.00	23,13,101.00
8	<p>Supplying, fitting, fixing end pieces for rectangular / square / circular sausages at the ends, with 10 SWG G I wire net of different mesh sizes tying & sewing the same maintaining a lap length of 150 mm all around with 12 SWG G.I. wire complete, including the cost of supply of wire netting,fitting etc, complete as per direction of the Engineer - in charge.</p> <p>a) Mesh size 125 mm x 125 mm with 10 SWG wire</p>				
	i.At Tarinipur to Kalipur Ferry Ghat	104.00	SqM		
	ii.At Tarinipur(South)	110.00	SqM		
	iii.At Ganga Manoharpur	134.00	SqM		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	75.00	SqM		
	Total=	423.00	SqM	107.00	45,261.00

9	Supply of Panchami stone boulders (Each weighing 25 kg & above) at site including cost of material, loading, unloading, stacking and carriage and including all incidental charges like Royalty, complete. (Royalty certificate in original from concerned authority are to be submitted along with the bill) a) Panchami source (Each weighing 25 kg & above)				
	i. At Tarinipur to Kalipur Ferry Ghat	787.00	Cum	2680.78	21,09,773.86
	ii. At Tarinipur (South)	834.00	Cum	2680.78	22,35,770.52
	iii. At Ganga Manoharpur	1019.00	Cum	2712.38	27,63,915.22
	iv. At Char Jatra Siddhi, Sarati & Raidanga > Jatrasiddhi	359.00	Cum	2728.18	9,79,416.62
	> Raidanga & Sarati	186.00	Cum	2688.68	5,00,094.48
10	Extra rate for stacking unloaded boulder on private land (where Govt. land is not available) to make them convenient for measurement as per direction of the Engineer-in-charge. (Land to be arranged by the contractor at his own cost.) Note :- This item is payable only when the Engineer-in-charge in his discretion is satisfied about the necessity.				
	i. At Tarinipur to Kalipur Ferry Ghat	787.00	Cum		
	ii. At Tarinipur (South)	834.00	Cum		
	iii. At Ganga Manoharpur	1019.00	Cum		
	iv. At Char Jatra Siddhi, Sarati & Raidanga	545.00	Cum		
	Total=	3185.00	Cum	8.00	25,480.00
11	Labour charges for stacking unloaded boulder / shingles to make them convenient for measurement as per direction of the Engineer-in-charge. a) Boulder of size above 20kg				
	i. At Tarinipur to Kalipur Ferry Ghat	787.00	Cum		
	ii. At Tarinipur (South)	834.00	Cum		
	iii. At Ganga Manoharpur	1019.00	Cum		
	iv. At Char Jatra Siddhi, Sarati & Raidanga	545.00	Cum		
	Total=	3185.00	Cum	64.00	2,03,840.00

12	Supplying Nylon cage netting 1 metre x 1 metre x 0.40 metre size with knot having mesh size 17.5 cm x 17.5 cm constructed with nylon thread (210x 24) having tensile strength not less than 250 Kg. / sq. cm. Including carriage, delivery and stacking at site inclusive of all taxes complete				
	i.At Tarinipur to Kalipur Ferry Ghat	7940.00	Nos		
	ii.At Tarinipur(South)	8918.00	Nos		
	iii.At Ganga Manoharpur	9567.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	6032.00	Nos		
	Total=	32457.00	Nos	70.20	22,78,481.40
13	Labour charges for dumping and placing in position properly filled in nylon crates with filled in HDPE bags (maximum 15 nos.) with local earth/sand, sewing and tying the crate with nylon wire within a lead of 150m and all lifts in river slope or bed by cutting trenches upto 50 cms depth, if necessary, or by boat including cost of hire charges of boat, boatmen and other necessary equipments and also including cost of bags, carriage and charges of filling bags with earth/sand but excluding cost of nylon crate as per direction of the Engineer-in Charge. NB:Volume of each earth/sand filled HDPE bags should not be less than 0.0328 cum. Size of Nylon crate is 1metre X1metre X 0.40metre. Considering 85% filling of the each bag for compaction in the crate for slope pitching as per guideline. (a) Where boats are not necessary.				
	i.At Tarinipur to Kalipur Ferry Ghat	7940.00	Nos		
	ii.At Tarinipur(South)	8918.00	Nos		
	iii.At Ganga Manoharpur	9567.00	Nos		
	iv.At Char Jatra Siddhi, Sarati & Raidanga	6032.00	Nos		
	Total=	32457.00	Nos	500.28	1,62,37,587.96
14	Testing of Geo-textile materials including UV Test from well equipped laboratories like Jadavpur University, BITRA, CIPET etc.) This item is applicable only if third party testing conducted by the Engineer-in-charge to assure the quality of the Material)				

i. At Tarinipur to Kalipur Ferry Ghat	6.00	Nos		
ii. At Tarinipur (South)	7.00	Nos		
iii. At Ganga Manoharpur	9.00	Nos		
iv. At Char Jatra Siddhi, Sarati & Raidanga	5.00	Nos		
Total=	27.00	Nos	20140.00	5,43,780.00
Total amount =				13,47,45,181.06

C.O from pre-page....

Total= Rs. 13,47,45,181.06

(Rupees Thirteen Crore forty seven lakh forty five thousand one hundred eighty one & paise six only)

Tenderer to fill up the following [score out which is not applicable]

(a)%
(in figures)

.....Percent
(in words)

price not to be quoted here

Below par (-) Rs. }
}

(b) At par NIL

(c)%
(in figures)

.....Percent
(in words)

Above par (+) Rs. }
}

Total Tendered Amount: Rs. _____

Total tendered amount (in words).....

[The rate quoted shall include all taxes and duties as applicable excluding Service Tax.

Service Tax will be reimbursed by SMPK on submission of actual payment of Service Tax at full rate for the work as per Finance Act 1994.]

Maximum number of workmen likely to be engaged in days work..... numbers

Permanent Income Tax A/C.No.....

Date: _____

(Signature of Tenderer)

[Total amount of tender, completion time and preliminary time as quoted /
stated above are to be carried over to Form of Tender attached]

Witness: -

(Name in block letters)

Address:

Occupation:

THE BOARD FOR THE PORT OF KOLKATAFORM OF TENDER

To
The Chief Engineer,
Syama Prasad Mookerjee Port, Kolkata.

I/We _____
having examined the site of work, inspected the Drawings and read the specifications, General & Special Conditions of Contract and Conditions of the Tender, hereby tender and undertake to execute and complete all the works required to be performed in accordance with the Specification, Bill of Quantities, General & Special Conditions of Contract and Drawings prepared by or on behalf of the Trustees and at the rates & prices set out in the annexed Bill of Quantities within **ten months** from the date of order to commence the work and in the event of our tender being accepted in full or in part. I / We also undertake to enter into a Contract Agreement in the form hereto annexed with such alterations or additions thereto which may be necessary to give effect to the acceptance of the Tender and incorporating such Specification, Bill of Quantities, Drawing and Special & General Conditions of Contract and I / We hereby agree that until such Contract Agreement is executed the said Specification, Bill of Quantities, Conditions of Contract and the Tender, together with the acceptance thereof in writing by or on behalf of the Trustees shall be the Contract.

THE TOTAL AMOUNT OF TENDER Rs: Not to mention here

(Repeat in words) Not to mention here

I / We require _____ days / months preliminary time to arrange and procure the materials required by the work from the date of acceptance of tender before I We could commence the work.

I / We have deposited with the Board for the Port of Kolkata's' FA & CAO, vide Receipt No. _____ of _____ as Earnest Money.

I / We agree that the period for which the tender shall remain open for acceptance shall not be less than four months.

Dated:

(Signature of Bidder with Seal)

WITNESS :

Signature :

Name of the Bidder :

Name :

Address :

(In Block Letters)

Address :

Occupation:

APPENDIX-I

Format for Power of Attorney

Know all men by these presents, We, (name of Firm and address of the registered office) do hereby constitute, nominate, appoint and authorize Mr / Ms..... son/daughter/wife and presently residing at

who is presently employed with/ retained by us and holding the position of as our true

and lawful attorney (hereinafter referred to as the "Authorised Representative") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Proposal for and selection as the Technical Consultant for the

..... Project, proposed to be developed by the

..... (the "Authority") including but not limited to signing and submission of all applications, proposals and other documents and writings, participating in pre-bid and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with the Authority in all matters in connection with or relating to or arising out of our Proposal for the said Project and/or upon award thereof to us till the entering into of the Agreement with the Authority.

AND, we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Authorised Representative pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Authorised Representative in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,
NAMED PRINCIPAL

THE ABOVE

HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS
DAY OF

..... 20.....

For
(Signature, name, designation and address)

Witnesses:

1.

2.

Notarised Accepted

.....

(Signature, name, designation and address of the Attorney)

Notes:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- Wherever required, the Applicant should submit for verification the extract of the charter documents and other documents such as a resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Applicant.
- For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Applicants from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Apostille certificate.

ANNEXURE - FGeneral Conditions of Contract
Forms and Agreements

Sanctioned by the Trustees under Resolution No. 92 of the 6th Meeting held on 27th May, 1993

Including Addendum Sanctioned by the Trustees Meeting held on July, 2014

KOLKATA PORT TRUST

KOLKATA DOCK SYSTEM & HALDIA DOCK COMPLEX

JULY , 2014

GENERAL CONDITIONS OF CONTRACT

	CLAUSe		PAGES
1.	AMENDMENT TO GENERAL CONDITIONS OF CONTRACT	...	GC 1
2.	DEFINITION	...	GC 2 – GC 3
3.	DUTIES & POWERS OF ENGINEER & ENGINEER'S REPRESENTATIVE	...	GC 3 – GC 5
4.	THE TENDER/OFFER AND ITS PRE-REQUISITES	...	GC 5 – GC 9
5.	THE CONTRACT & GENERAL OBLIGATIONS OF CONTRACTOR	...	GC 9 – GC 14
6.	COMMENCEMENT, EXECUTION AND COMPLETION OF WORK	...	GC 14 – GC 17
7.	TERMS OF PAYMENT	...	GC 18 – GC 20
8.	VARIATION AND ITS VALUATION	...	GC 20 – GC 22
9.	DELAY/EXTENSION OF COMPLETION TIME/LIQUIDATED DAMAGE/TERMINATION OF CONTRACT	...	GC 22 – GC 24
10.	MAINTENANCE AND REFUND OF SECURITY DEPOSIT	...	GC 24 – GC 25
11.	INTERPRETATION OF CONTRACT DOCUMENTS, DISPUTES & ARBITRATION	...	GC 25 – GC 27
12.	FORMS GC-1, GC-2, GC-3		
13.	FORM OF AGREEMENT		
14.	PROFORMA FOR B.G. FOR CONTRACT PERFORMANCE		
15.	INTEGRITY PACT DOCUMENT: PROFORMA		
16.	DRAFT Memorandum of Understanding between Ko.P.T. & Transparency International India		

GC-1
**AMENDMENT
TO**

GENERAL CONDITIONS OF CONTRACT

❖ **CI-3.4 THE TENDER /OFFER & ITS PRE-REQUISITES**

Table under sub-clause (a)

PREVIOUS			AS AMENDED		
Estimated Value of Work	Amount of Earnest Money		Estimated Value of Work	Amount of Earnest Money	
	For Works Contract	For Contract of Supplying Materials or Equipment only		For Works Contract	For Contract of Supplying Materials or Equipment only
Up to Rs. 1,00,000/-	5% of the estimated value of work	1% of the estimated value of work	Up to Rs. 10 Crore	2% of the estimated value of work	1% of the estimated value of work
Over Rs. 1,00,000/-	2% of the estimated value of work subject to a maximum of Rs. 20,000/- and minimum of Rs. 5,000/-.	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs. 1,000/-.	Over Rs. 10 Crore	2% on first Rs. 10 Crore + 1% on the balance	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs. 1,000/-.

[AMENDMENT SANCTIONED BY THE BOARD OF PORT AUTHORITY VIDE RESOLUTION NO 210 OF THE TRUSTEES' MEETING HELD ON 26.02.2013]

Table under sub-clause (d)

PREVIOUS			AS AMENDED		
Class of Registration	Amount Of Fixed Security	Financial Limit Of Each Tender	Class of Registration	Amount Of Fixed Security	Financial Limit Of Each Tender
A	Rs 10,000/-	Any tender priced upto Rs 2,00,000/-	A	Rs 50,000/-	Any tender priced up to Rs 10,00,000/-
B	Rs 5,000/-	Any tender priced upto Rs 1,00,000/-	B	Rs 25,000/-	Any tender priced upto Rs 5,00,000/-
C	Rs 2,500/-	Any tender priced upto Rs 50,000/-	C	Rs 15,000/-	Any tender priced upto Rs 3,00,000/-

[AMENDMENT SANCTIONED BY THE BOARD OF PORT AUTHORITY VIDE RESOLUTION NO 82 OF THE TRUSTEES' MEETING HELD ON 12.10.2012]

GC-2

1. DEFINITIONS

- 1.0 In the contract, as here in after defined, the following words and expressions shall have the meaning herein assigned to them, except where the context otherwise required.
- 1.1 "Employer" or "Board" or "Trustees" means of the Board of Port Authority for the Port of Calcutta, a body corporate under Section 3 of the Major Port Trusts Act, 1963, including their successors, representatives and assigns. Employer
- 1.2 "Chairman" means the Chairman of the Board and includes the person appointed to act in his place under Sections 14 and 14A of the Major Port Trusts Act, 1963 Chairman
- 1.3 "Contractor" means the person or persons, Firm or Company whose tender/offer has been accepted by the Trustees and includes the Contractor's representatives, heirs, successor and assigns, if any, permitted by the Board/Chairman. Contractor
- 1.4 "Engineer" means the Board's official who has invited the tender on its behalf and includes the Manager (Infrastructure & Civic Facilities) or other official as may be appointed from time to time by the Employer, with written notification to the Contractor, to act as Engineer for the purpose of the Contract, in place of the "Engineer" so designated. Engineer
- 1.5 "Engineer's Representative" means any subordinate or Assistant to the Engineer or any other official appointed from time to time by the Engineer to perform the duties set forth in Clauses 2.4 to 2.6 hereof. Engineer's Representative
- 1.6 "Work" means the work to be executed in accordance with the Contract and includes authorised "Extra Works" and "Excess Works" and "Temporary Works". Works
- 1.7 "Temporary Works" means all temporary works of every kind required in or about the execution, completion or maintenance of the works and includes (without thereby limiting the foregoing definitions) all temporary erections, scaffolding, ladders, timbering, soaking vats, site offices, cement and other godowns, platforms and bins for stacking building materials, gantries, temporary tracks and roads, temporary culverts and mixing platforms. Temporary works
- 1.8 "Extra Works" means those works required by the Engineer for completion of the Contract which were not specifically and separately included in the schedule of items of the works i.e. (Bill of Quantities) of the tender. "Excess Works" means the required quantities of work in excess of the provision made against any item of the bill of Quantities. Extra works and Excess works
- 1.9 "Specifications" means the relevant and appropriate Bureau of Indian Standard's specifications / International Standard's Specifications (latest revisions) for materials and workmanship unless stated otherwise in the Tender. Specification

GC-3

- | | | |
|------|---|---------------------------------|
| 1.10 | "Drawings" means the drawings referred to in the Tender and specification and any modification of such drawings approved in writing by the Engineer and such other drawings as may from time to time be furnished or approved in writing by the Engineer. | Drawings |
| 1.11 | "Contract" means and includes the General and Special Conditions of Contract, Specifications, Drawings, priced Bill of Quantities, the Tender / Offer, the letter of acceptance of the Tender/Offer, the Contract Agreement, if separately entered into and the Schedule of Rates and Price, if any, adopted by the Trustees at their discretion. | Contract |
| 1.12 | "Constructional Plant" means all appliances or things of whatsoever nature required or about the execution, completion or maintenance of the works or temporary works and includes (without thereby limiting the foregoing definition) all machinery and tools but does not include materials or other things intended to form or forming part of the permanent works. | Construction
al Plant |
| 1.13 | "Site" means the land, waterways and other places, on, under, in or through which the works are to be executed by the Trustees for the purpose of the Contract. | Site |
| 1.14 | "Contract Price" means the sum named in the letter of acceptance of the Tender/Offer of the Contractor, subject to such additions thereto and deductions therefrom as may be made by the Engineer under the provisions here in after contained. | Contract
Price |
| 1.15 | "Month" means English Calendar Month. | Month |
| 1.16 | "Excepted Risks" are riot in so far as it is uninsurable, war, invasion, act of foreign enemies, hostilities) whether war be declared or not), Civil War, rebellion, revolution, insurrection or military or usurped power or use or occupation by the Trustees of any portion of the works in respect of which a certificate of completion has been issued (all of which are herein collectively referred to as the excepted risks). | Excepted
Risks |
| 1.17 | Word importing the singular only, also includes the plural and vice-versa where the context so requires. | Singular/
Plural |
| 1.18 | The heading and marginal notes in these General Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the contract. | Headings/
Marginal
Notes. |
| 1.19 | Unless otherwise stipulated the work "Cost" shall be deemed to include overhead costs of the Contractor, whether on or off the site. | Cost |

2.0 DUTIES & POWERS OF ENGINEER & ENGINEER'S REPRESENTATIVE.

- 2.1 The Contractor shall execute, complete and maintain the works in terms of the contract to the entire satisfaction of the Engineer and Shall comply with the Engineer's direction on any matter whatsoever. Engineer's Authority

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- 2.2 The Contractor shall take instructions from the Engineer and subject to limitation of Clause 2.5 hereof, from the Engineer's Representative. Authority of Engineer's Representative
- 2.3 *The Engineer shall have full power and authority :* Engineer's Power
- (a) to supply to the contractor from time to time during the progress of the works such further drawings and instructions as shall be necessary for the purpose of proper and adequate execution and maintenance of the works and the contractor shall carry out and be bound by the same.
 - (b) to alter or modify the specification of any material and workmanship and to inspect the work at any time.
 - (c) to order for any variation, alteration and modification of the work and for extra works.
 - (d) to issue certificates as per contract.
 - (e) to settle the claims & disputes of the Contractor and Trustees, as the first referee.
 - (f) To grant extension of completion time.
- 2.4 *The Engineer's Representative shall :* Power of Engineer's Representative.
- 36. watch and supervise the works.
 - 37. test and examine any material to be used or workmanship employed in connection with the work.
 - 38. have power to disapprove any material and workmanship not in accordance with the contract and the contractor shall comply with his direction in this regard.
 - 39. take measurements of work done by the contractor for the purpose of payment or otherwise.

- 40. order demolition of defectively done work for its reconstruction all by the Contractor at his own expense.
- 41. have powers to issue alteration order not implying modification of design and extension of completion time of the work and
- 42. have such other powers and authorities vested in the Engineer, which have been delegated to him in writing by the Engineer under intimation to the Contractor.

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- 2.5 *Provided always that the Engineer's Representative shall have no power :* Limitation of Engineer's Representative's Power
- c) to order any work involving delay or any extra payment by the Trustees,
 - d) to make variation of or in the works; and
 - e) to relieve the Contractor of any of his duties or obligations under the Contract.
- 2.6 *Provided also as follows :* Engineer's Overriding Power
- (a) Failure of Engineer's Representative to disapprove any work or materials shall not prejudice the power of the Engineer thereafter to disapprove such work or materials and to order the pulling down, removal, breaking-up thereof and re-constructing at the contractor's cost and the contractor shall have no claim to compensation for the loss if any sustained by him.
 - (b) If the contractor shall be dissatisfied by reason of any decision of the Engineer's Representative, he shall be entitled to refer the matter to the Engineer who shall thereupon confirm, reverse or vary such decision.
 - (c) Any written instructions or written approval given by the Engineer's Representative to the contractor, within the terms of delegation of power and authority vested in the Engineer to his Representative in writing, shall bind the contractor and the Trustees as though it had been given by the Engineer, who may from time to time make such delegation.
- 3.0 THE TENDER/OFFER AND ITS PRE-REQUISITES
- 3.1 The Contractor shall, before making out and submitting his tender/offer, be deemed to have inspected and examined the site, fully considered all The tender must

factors, risks and contingencies, which will have direct and indirect impact on his expenses and profit from the work and shall be specifically deemed to have taken the following aspects into consideration :

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| (a) | The form and nature of the site and its surroundings including their sub-surface, hydrological, tidal and climatic conditions, the means of access to the site and all other local conditions, including the likely charges and costs for temporary way-leave, if any, required for the work. | encompass all relevant aspects/ issues.
Site & Local condition. |
| (b) | The drawings, specifications, the nature and extent of work to be executed and the quality, quantity and availability of the required materials and labour for the work and the need to execute the work to the entire satisfaction of the Engineer, and also by complying with the General and Special Conditions of Contract. | Drawing/ Specification/ Nature & extent of work to be done. |

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| (c) | The accommodation required for the workmen and site office, mobilisation/demobilisation and storage of all plant, equipment and Construction materials. | Accommodation for Contractor's men/materials. |
| (d) | The sources and means of procurement of water for drinking, washing and execution of work, and source and availability of electrical power, all at Contractor's cost. | Water for drinking etc. /Electrical power. |
| (e) | Payment of taxes and duties and compliance of all applicable statutes, ordinances and law together with the rules made thereunder, the rules, regulations and bye-laws of public bodies or any local or other authority by the Contractor, keeping the Trustees indemnified against penalties and liabilities of every kind arising from the Contractor's failure in such compliance. | Payment of Taxes/duties and observance of all statutes. |
| (f) | Payment of all kinds of stamp-duty for executing the agreement or for any legal instrument including Bank Guarantees and Indemnity Bonds. | Payment of Stamp Duty by the Contractor. |

3.2 The Contractor's tender shall be in ink on the Tender Forms supplied by the Trustees, unless stipulated otherwise in the Notice Inviting the Tender and shall be faultless in figures and free from erasing. Corrections, if any, shall only be made by scoring out and initialling of the revised figure.

3.3 If required by the Engineer or the Trustees, the Contractors in their tender or subsequently, shall disclose the names of their owners/partners/share holders at the required points of time. The Disclosure of Owner's name.

failure in this regard shall be treated as a breach and a contract, if entered into, shall be liable to be cancelled.

- 3.4 (a) Unless otherwise stipulated in the Notice Inviting Tender / Offer, every tender must be submitted with Earnest Money of the amount calculated as per the following scale. Earnest Money and Security Deposit.

Estimated Value of Work	Amount of Earnest Money	
	For Works Contract	For Contract of Supplying Materials or Equipment only
Up to Rs. 1,00,000=00	5% of the estimated value of work	1% of the estimated value of work
Over Rs. 1,00,000=00	2% of the estimated value of work subject to a maximum of Rs. 20,000/- and minimum of Rs. 5,000/-.	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs. 1,000/-.

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- (b) Earnest Money shall be deposited with the Trustees' treasurer in cash or by Banker's Cheque of any Calcutta Branch of a Nationalised Bank of India drawn in favour of Calcutta Port Trust or in the form of any "Account Payee" Draft of any Nationalised Bank of India drawn in favour of "Calcutta Port Trust" and payable at Calcutta/Haldia, as the case may be, and the receipt granted therefor be kept attached to the Tender/Offer in the Sealed Cover. Method of Paying E.M.

- (c) Earnest Money of unaccepted tender shall be refunded without any Interest through A/c. Payee Cheque drawn on a Nationalised Bank of Calcutta / Haldia. Refund of E.M.

- (d) The enlisted (registered) Contractors of the Trustees who have deposited fixed Security with the Trustees' FA & CAO / Manager (Finance) according to his Class of Registration, shall be exempt from depositing the Earnest Money, as per the following scale : Exemption from E.M. to Regd. Firms

Class of Registration	Amount of Fixed Security	Financial Limit of Each Tender
A	Rs. 25,000/-	Any tender priced up to Rs.5,00,000/-
B	Rs. 10,000/-	Any tender priced up to Rs.2,00,000/-

C	Rs. 5,000/-	Any tender priced up to Rs.1,00,000/-
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- (e) (i) Tender submitted without requisite Earnest Money may be liable to rejection. Tender without EM liable to rejection.
- (ii) If before expiry of the validity period of his Tender/Offer, the tenderer amends his quoted rates or tender/offer making them unacceptable to the Trustees and/or withdraws his tender/offer, the Earnest Money deposited shall be liable to forfeiture at the option of the Trustees. Forfeiture of E.M. before Acceptance of offer.
- (f) The Earnest Money of accepted tender/offer shall be retained by the Trustees as part of the Security Deposit, for which a separate Treasury Receipt shall be issued to the Contractor after cancellation of the previous Receipt of Earnest Money. E.M. to be converted to part S.D.
- (g) Balance security for works contract shall be recovered by deduction from all progressive Bill (including final Bill, if necessary) @ 10% of the gross value of work in each such bill, so that the total recovery may not exceed the quantum computed as per the under noted percentages of the total value of work actually done up to the stage of completion. Mode of recovery of balance S.D.

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Value of Work	% of Security Deposit for works contract.	% of Security Deposit For contract of supply- ing materials & equipment only.	Scale of S.D. recovery.
For works up to Rs.10,00,000/-.	10% (Ten percent)	1% (One percent)	
For works costing more than Rs.10,00,000/- and up to Rs.20,00,000/-	10% on first Rs.10,00,000/- + 7½% on the balance.	1% on first Rs.10,00,000/- + ½% on the balance.	
For works costing more than Rs.20,00,000/-	10% on first Rs.10,00,000/- + 7 ½% on the next Rs.10,00,000/- + 5% on the balance.	1% on first Rs.10,00,000/- + ½% on the next Rs.10,00,000/- + ¼% on the balance.	

- (h) Balance Security for Contract of supplying materials and equipment computed in terms of the percentages given above, shall have to be deposited with the Trustees' Treasurer in advance and within 30 days S.D. for supply contracts to be deposited in

from the date of placement of supply order, either in cash or by A/c advance, Payee Draft of a Nationalised Bank of India drawn in favour of Calcutta Port Trust and payable at Calcutta/Haldia, as the case may be.

- (i) No interest shall be paid by the Trustees to the Tenderer/Contractor on the amount of Earnest Money/Security Deposit held by the Trustees, at any stage. No interest payable on E.M. /S.D

- 3.5 (i) The Security Deposit shall be refunded to the Contractor in terms of Clause 9.3 hereinafter and subject to deduction, if any, under the provision of Sub-clause 3.5 (ii) herein below. It, however, the Contract provides for any maintenance period. 50% of the Security Deposit may be refunded against any of the treasury Receipt for that amount on expiry of half of the maintenance period and the balance deposit on the expiry of the said maintenance period and after the Engineer has certified the final completion of work in Form G.C.2 and the Contractor has submitted his "No Claim" Certificate in Form G.C.3. Mode of refund of S.D.

- (ii) The Security Deposit/Earnest Money may be liable to forfeiture at the option of the Trustees, if the Contractor fails to carry out the work or to perform/observe any of the conditions of the Contract. The Trustees shall also be at liberty to deduct any of their dues from the Security Deposit, fixed Security, Earnest Money or from any sum due or to become due to the Contractor under any other contract. Forfeiture of S.D.

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- 3.6 If stipulated in the contract as a Special Condition, the contractor shall have to submit to the Engineer a performance Bond in the form of an irrevocable guarantee from Calcutta/Haldia Branch, as the case may be, of any Nationalised Bank of India in the proforma annexed hereto and for the sum and period as mentioned in the letter of acceptance of the Tender/Offer, within 15 days from the date of such letter, failing which the Contract shall be liable to be terminated and the earnest money shall be liable to forfeiture; all at the discretion of the Engineer. The cost of obtaining this or any other Bank Guarantee and/or the revalidation thereof, wherever required, has to be borne by the Contractor and it shall be his sole responsibility to arrange for timely revalidation of such Bank Guarantee, failing which and for non-fulfilment of any contractual obligation by the Contractor, the Engineer and/or the Trustees shall be at liberty to raise claim against the Guarantee and/or enforce the same unilaterally. Bank Guarantee in lieu of Cash S.D. in certain cases
- 3.7 "Every Tenderer/ Bidder shall submit, in respect of a tender value of more than Rs.5 Crore, along with their tender comprising Special Conditions of Contract, General Conditions of Contract, BOQ, Earnest Money, etc. a document called Integrity Pact

Agreement duly signed by their authorized representative. The Proforma of the Integrity Pact Agreement shall as specified in the GCC. In case of tender value more than Rs 5 Crore, the Integrity Pact Agreement is an essential part and parcel of bid document to be submitted by each tenderer, without which the tender shall not be considered."

4.0 THE CONTRACT & GENERAL OBLIGATIONS OF CONTRACTOR

- 4.1 (a) The contract documents shall be drawn-up in English language. English language to be used
- (b) The contract shall be governed by all relevant Indian Acts, As applicable only within the jurisdiction of the High Court at Calcutta, India, including the following Acts : Applicability of laws on the contract
- 43. The Contract Act (India), 1872.
 - 44. The Major Port Trusts Act, 1963.
 - 45. The Workmen's Compensation Act, 1923.
 - 46. The Minimum Wages Act, 1948.
 - 47. The Contract Labour (Regulation & Abolition) Act, 1970.
 - 48. The Dock Workers' Act, 1948.
 - 49. The Arbitration and Conciliation Act (1996) (In the case of a definite Arbitration Agreement only).
- 4.2 After acceptance of his Tender/Offer and when called on to do so by the engineer or his representative, the contractor shall, at his own expense, enter into and execute a Contract Agreement to be prepared by him in the form annexed hereto. Until such Contract Agreement is executed, the other documents referred to in the definition of the term 'Contract' here-in-before, shall collectively be the Contract. Contractor to Execute Contract Agreement.
- 4.3 Several documents forming the contract are to be taken as mutually explanatory of one another. Should there be any discrepancy, ambiguity, omission or error in the various contract documents, the Engineer shall have the power to correct the same and his decision shall be final and binding on the parties to the Contract. Interpretation of contract documents –Engineers' Power

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- 4.4 Two copies of the Drawings referred to in the general and special Conditions of Contract and in the Bill of Quantities, shall be furnished by the Engineer to the Contractors free of cost for his use on the work, but these shall remain the property of the Trustees and hence, the Contractor shall return them to the Engineer or his Representative on completion of the work, if not torn or mutilated on being regularly used at site. All Drawings are Trustees' property.
- 4.5 The Contractor shall prove and make at his own expense any working or progress drawings required by him or necessary for the proper execution of Contractor to prepare

the works and shall, when required, furnish copies of the same free of cost to the Engineer for his information and/or approval, without meaning thereby the shifting of Contractor's responsibility on the Engineer in any way whatsoever.

working /
progress-
drawings

- 4.6 The Contractor shall not directly or indirectly transfer, assign or sublet the Contract or any part thereof without the written permission of the Engineer. Even if such permission be granted, the Contractor shall remain responsible (a) for the acts, defaults and neglect of any sub-contractor, his agents, servants or workmen as fully as if these were the acts, defaults or neglects of the Contractor himself or his agents, servants or workmen and (b) for his full and entire responsibility of the contract and for active superintendence of the works by him despite being sublet, provided always that the provision of labourers on a "piece rate" basis shall not be deemed to be sub-letting under this clause.
- 4.7 Unless otherwise specified, the Contractor shall be deemed to have included in his Tender/Offer all his cost for supplying and providing all constructional plant, temporary work. Materials both for temporary and permanent works, labour including supervision thereof, transporting to and from the site and in and about the work, including loading, unloading, fencing, watching, lighting, payment of fees, taxes and duties to the appropriate authorities and other things of every kind required for the construction, erection, completion and maintenance of the work.
- 4.8 The Contractor shall be solely responsible for the adequacy, stability and safety of all site operations and methods of construction, even if any prior approval thereto has been taken from the Engineer or his Representative. The Contractor shall not be responsible for the correctness of the design or specification of the Temporary and Permanent works formulated by the Engineer; but the Contractor shall be fully responsible for the correct implementation thereof, as also for any design and specification prepared/proposed/used by the Contractor.
- 4.9 Whenever required by the Engineer or his representative, the Contractor shall submit to him the details of his (a) programme for execution of the work, (b) proposed procedure and methods of work, (c) proposed deployment of plant, equipment, labour, materials and temporary works. The submission to and/or any approval by the Engineer or his Representative to any such programme or particulars shall not relieve the Contractor of any of his obligations under the contract.

Contractor
cannot sub-let
the work

Contractors'
price is
inclusive of all
costs

Contractor is
responsible for
all construction
process, except
for correctness
of design and
specification
formulated by
the Engineer

Contractor to
submit his
programme of
work

If for any reason the contractor be unable to adhere to his earlier programme, he shall submit his revised programme for completion of work within the stipulated time whenever asked to do so.

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| 4.10 | Necessary and adequate supervision shall be provided by the Contractor during execution of the works and as long thereafter as the Engineer or his representative shall consider necessary during the maintenance period. The Contractor or his competent and authorised agent or representative shall be constantly at site and instructions given to him by the Engineer or his representative in writing shall be binding upon the Contractor subject to limitation in Clause 2.5 hereof. The Contractor shall inform the Engineer or his representative in writing about such representative/agent of him at site. | Contractor to supervise the works |
| 4.11 | The Contractor shall employ in execution of the Contract only qualified careful and experienced persons and the Engineer shall be at liberty to direct the Contractor to stop deployment of any of its staff, workmen or official at site and the Contractor shall within 48 hours comply with such instruction without any demur whenever the Engineer shall feel that the deployment of the person concerned will not be conducive to the proper and timely completion of the work. | Contractor to deploy qualified men and Engineer's power to remove Contractor's men |
| 4.12 | The Contractor shall be responsible for the true and proper setting out of the works in relation to reference points/lines/levels given by the Engineer in writing. The checking of any setting-out or of any alignment or level by the Engineer or his Representative shall not in any way relieve the contractor of his responsibility for the correctness thereof and he shall fully provide protect and preserve all stakes, templates, bench marks, sight rails, pegs, level marks, profile marks and other things used in setting out the works. | Contractor is responsible for line, level, setting out etc. |
| 4.13 | From the commencement of the works till issue of the completion certificate in Form G.C.1, vide Clause 5.12 hereof, the contractor shall take full responsibility for the care thereof. Save for the excepted risks, any damage, loss or injury to the work or any part thereof shall be made good by the Contractor at his own cost as per instruction and to the satisfaction of the engineer, failing which the Engineer or his Representative may cause the same to be made good by any other agency and the expenses incurred and certified by the Engineer shall deem proper. This Clause will not apply to that part of the work, which might have been taken over by the Trustees on partial completion of the work and in such case the Contractor's obligation will be limited to repairs and replacement for manufacturing or construction defects during the Maintenance period (Guarantee Period) as per the directions of the Engineer as also for defects/damages if any caused to the work by the Contractor during such repairs and replacement in the maintenance period. | Contractor is responsible to protect the work |

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- 4.14 The Contractor shall at his own cost protect support and take all precautions in regard to the personnel or structure or services or properties belonging to the Trustees or not which may be interfered with or affected or disturbed or endangered and shall indemnify and keep indemnified the Trustees against claim for injury, loss or damage caused by the Contractor in connection with the execution and maintenance of the work to the aforesaid properties, structures and services and/or to any person including the Contractor's workmen. Cost of Insurance Cover, if any, taken by the Contractor shall not be reimbursed by the Trustees, unless otherwise stipulated in the Contract.
- Contractor is responsible for all damages to other structures / persons caused by him in executing the work.
- 4.15 The Contractor shall immediately inform the Engineer's Representatives if any fossil, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological importance be discovered at site which shall remain the property of the Trustees and protect them from being damaged by his workmen and arrange for disposal of them at the Trustees' expense as per the instruction of the Engineer's Representative.
- Fossils, Treasure trawls, etc. are Trustees' property
- 4.16 The Contractor shall be deemed to have indemnified and shall indemnify the Trustees against all claims, demands, actions and proceedings and all costs arising therefrom on account of :
- Contractor to Indemnify the Trustees against all claims for loss, damage, etc.
- x) Infringement of any patent right, design, trademark or name or other protected right in connection with the works or temporary work.
 - xi) Payment of all royalties, rent, toll charges, local taxes, other payments or compensation, if any, for getting all materials and equipment required for the work.
 - xii) Unauthorised obstruction or nuisance caused by the contractor in respect of Public or Private or Private road, railway tracks, footpaths, crane tracks, waterways, quays and other properties belonging to the Trustees or any other person.
 - xiii) Damage/Injury caused to any highway and bridge on account of the movement of Contractor's plants and materials in connection with the work.
 - xiv) Pollution of waterway and damage caused to river, lock, sea-wall or other structure related to waterway, in transporting contractor's plants and materials.
 - xv) The Contractor's default in affording all reasonable facilities and

accommodation as per the direction of the Engineer or his Representative to the workmen of the Trustees and other agencies employed by or with the permission and/or knowledge of the Trustees on or near the site of work.

- 4.17 Debris and materials, if obtained by demolishing any property, building or structure in terms of the Contract shall remain the property of the Trustees. Dismantled materials Trustees' property

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- 4.18 The Contractor's quoted rates shall be deemed to have been inclusive of the following : Contractor's quoted rates/price must be all inclusive
- (a) Keeping the site free of unnecessary obstruction and removal from site of constructional plant wreckage, rubbish, surplus earth or temporary works no longer required.
 - (b) Cleaning and removal from site all the surplus materials of every kind to leave the site clean and tidy after completion of the work, without which payment against final bill may be liable to be withheld.
 - (c) Precautionary measures to secure efficient protection of Docks, the River Hooghly and other waterways against pollution of whatever nature during execution and maintenance of the works and to prevent rubbish, refuse and other materials from being thrown into the water by the Contractor's men or those of his agency.
 - (d) Making arrangements for deployment of all labourer and workers, local or otherwise including payment for their wages, transport, accommodation, medical and all other statutory benefits and entry permits, wherever necessary.
 - (e) Making arrangements in or around the site, as per the requirements of local authority or the Engineer or his Representative for preventing (i) spread of any infectious disease like smallpox, cholera, plague or malaria by taking effective actions for destruction of rats, mice, vermin, mosquitoes, etc. and by maintaining healthy and sanitary condition, (ii) illegal storage and distribution of Drugs, Narcotics, Alcoholic liquor, Arms and Ammunitions, (iii) unlawful, riotous or disorderly conduct of the Contractor's or

his Sub-Contractor's workmen, (iv) deployment of workmen of age less than 16 years.

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| 4.19 | Every direction or notice to be given to the Contractor shall be deemed to have been duly served on or received by the Contractor, if the same is posted or sent by hand to the address given in the tender or to the Contractor's Site Office or to the Registered Office of the Contractor. The time mentioned in these conditions for doing any act after direction or notice shall be reckoned from the time of such posting or despatch. | Notice to Contractor. |
| 4.20 | The Contractor and his Sub-contractor or their agents and men and any firm supplying plant, materials and equipment shall not publish or caused to be published any photographs or description of the works without the prior authority of the Engineer in writing. | Contractor not to publish photograph or particulars of work |

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| 4.21 | The Contractor shall at the Trustees' cost to be decided by the Engineer render all reasonable facilities and Co-operation as per direction of the Engineer or his representative to any other Contractor engaged by the Trustees and their workmen to the Trustees' own staff and to the men of other Public Body on or near the site of work and in default the Contractor shall be liable to the Trustees for any delay or expense incurred by reason of such default. | Contractor to provide facilities to outsiders |
| 4.22 | The work has to be carried out by the Contractor causing the minimum of hindrance for any maritime traffic or surface traffic. | Work to cause minimum possible hindrance to traffic movement |
| 4.23 | All constructional plants, temporary works and materials when brought to the site by the Contractor shall be deemed to be the property of the Trustees who will have lien on the same until the satisfactory completion of the work and shall only be removed from the site in part or in full with the written permission of the Engineer or his Representative. | Trustees' lien on Contractor's Plant & Equipment. |
| 5.0 COMMENCEMENT, EXECUTION AND COMPLETION OF WORK. | | |
| 5.1 | The Contractor shall commence the work within 7 days of the receipt of Engineer's letter informing acceptance of the Contractor's tender/offer by the Trustees or within such preliminary time as mentioned by the Contractor in the Form of Tender or the time | Preliminary time to commence work an maintenance of |

accepted by the Trustees. The Contractor shall then proceed with the work with due expedition and without delay, except as may be expressly sanctioned or ordered by the Engineer or his Representatives, time being deemed the essence of the contract on the part of the contractor.

5.2 The Contractor shall provide and maintain a suitable office at or near the site to which the Engineer's Representative may send communications and instructions for use of the Contractor. Contractor's site office

5.3 Unless specified otherwise in the contract or prior permission of the Engineer has been taken, the contractor shall not execute the work beyond the working hours observed by the Engineer's Representative and on Sundays and Holidays observed in the Trustees' system, except in so far as it becomes essential on account of tidal work or for safety of the work. If the progress of the work lags behind schedule or the work has been endangered by any act or neglect on the part of the contractor, then the Engineer or his Representative shall order and the contractor at his own expense shall work by day and by night and on Sundays and Public Holidays. Any failure of the Engineer or his Representative to pass such an order shall not relieve the contractor from any of his obligations. The Engineer's decision in this regard shall be final binding and conclusive. Contractor to observe Trustees' working hours

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5.4 Unless stipulated otherwise in the contract all materials required for the work shall be procured and supplied by the contractor with the approval of the Engineer or his Representative and subject to subsequent testing as may be required by the Engineer or his Representative. The Engineer shall exercise his sole discretion to accept any such materials. Contractor to supply all materials as per requirement of the Engineer or his representative

5.5 Unless stipulated otherwise in the contract all materials, workmanship and method of measurement shall be in accordance with the relevant Codes (Latest Revision) of the Bureau of Indian Standards and the written instructions of the Engineer or his Representative. Where no specific reference is available in the contract, the material and workmanship shall be of the best of their respective kinds to the satisfaction of the Engineer. Materials & Works

5.6 Samples shall be prepared and submitted for approval of the Engineer or his representative, whenever required to do so, all at the Contractor's cost. Contractor to submit samples for approval

Unless stipulated otherwise in the contract, the cost of any test required by the Engineer or his representative in respect of materials and workmanship deployed on the work, shall be borne by the Contractor.

Contractor to arrange all testing at his own cost.

5.8 Regarding the supply of any materials by the Trustees to the contractor in accordance with the contract, the following conditions shall apply :

50. The Contractor shall, at his own expense, arrange for transporting the materials from the Trustees' Stores, watching, storing and keeping them in his safe custody, furnishing of statement of consumption thereof in the manner required by the Engineer or his representative, return of surplus and empty container to the Trustees' Stores as per the direction of the Engineer or his Representative.

The Contractor shall account for and look after the Trustees' materials

51. Being the custodian of the Trustees' materials, the contractor shall remain solely responsible for any such materials issued to him and for any loss or damage thereof for any reason other than "Excepted Risks", the Contractor shall compensate the Trustees' in the manner decided by the Engineer and shall at no stage remove or cause to be removed any such material from the site without his permission in writing.

Contractor to compensate for loss and damage to Trustees' materials

(c) The Trustees' materials will generally be supplied in stages and in accordance with the rate of progress of work but except for grant of suitable extension of completion time of work as decided by the Engineer. The Contractor shall not be entitled to any other compensation, monetary or otherwise, for any delay in the supply of Trustees' materials to him. The Contractor shall, however, communicate his requirement of such materials to the Engineer from time to time.

Delay in supply of Trustees' materials will only entitle the Contractor for extension of completion time of work

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(d) Unless stipulated otherwise in the contract, the value of the Trustees' materials issued to the contractor shall be recovered from the contractor's bills and/or any of his other dues, progressively according to the consumption thereof on the work and/or in the manner decided by the Engineer or his representative and at the rate/s stipulated in the contract. These rates shall only be considered by the contractor in the preparation of his tender/offer and these will form the basis of

Recovery from Contractor for Trustees' materials under normal circumstances

escalation/variation, if in future the contractor is required to procure and provide any such material on the written order of the Engineer consequent on the Trustees' failure to effect timely supply thereof.

- (e) If the Engineer decides that due to the contractor's negligence, any of the Trustees' materials issued to the contractor has been – (i) lost or damaged, (ii) consumed in excess of requirement and (iii) wasted by the contractor in excess of normal wastage, then the value thereof shall be recovered from the contractor's bills or from any of his other dues, after adding 19 % extra over the higher one of the followings -
- Recovery from Contractor for Trustees' materials under other circumstances.
- (6) The issue rate of the materials at the Trustees' Stores and
- (7) The market price of the material on the date of issue as would be determined by the Engineer.

- 5.9 The Engineer or his Representative shall have the power to inspect any material and work at any time and to order at any time – (i) for removal from the site of any material which in his opinion is not in accordance with the contract or the instruction of the engineer or his representative, (ii) for the substitution of the proper and suitable materials, or (iii) the removal and proper re-execution of any work which in respect of material and workmanship is not in accordance with the contract or the instructions of the Engineer. The Contractor shall comply with such order at his own expense and within the time specified in the order. If the contractor fails to comply, the Engineer shall be at liberty to dispose any such materials and re-do any work in the manner convenient to the Trustees by engaging any outside agency at the risk and expense of the contractor and after giving him a written prior notice of 7 days.
- Contractor to replace materials/work not acceptable to the Engineer or his Representative

- 5.10 No work shall be covered up and put out of view by the contractor without approval of the Engineer or his Representative and whenever required by him, the contractor shall uncover any part or parts of the work or make openings in or through the same as may be directed by the Engineer or his representative from time to time and shall reinstate or make good those part of works thus affected to the satisfaction of the Engineer, all at the cost of the contractor.
- Contractor to seek approval of Engineer or his Representative before covering up any portion of work

The Trustees shall reimburse such cost as determined by the Engineer, if the initial covering up was with prior written order of the Engineer or his Representative.

- 5.11 On a written order of the Engineer or his Representative, the Contractor to suspend work on Order from Engineer or his Representative
- the contractor shall delay or suspend the progress of the work till such time the written order to resume the execution is received by him. During such suspension the contractor shall protect and secure the work to the satisfaction of the Engineer or his Representative. All extra expenses in giving effect to such order shall be considered by the Trustees, unless such suspension is –

- (a) otherwise provided for in the contract, or
- (b) necessary by reason of some default on the part of the contractor, or
- (c) necessary by reason of climatic conditions on the site, or
- (d) necessary for proper execution of the works or for the safety of the works or any part thereof.

The Engineer shall settle and determine such extra payment and/or Extension of completion time to be allowed to the contractor, as shall, in the opinion of the Engineer be fair and reasonable, and the same shall be final and binding on the Contractor.

- 5.11. If at any time before or after commencement of the work the Trustees do not require the whole of the work tendered for the Engineer shall notify the same to the contractor in writing and the contractor shall stop further works in compliance of the same. The Contractor shall not be entitled to any claim for compensation for underived profit or for such premature stoppage of work or on account of curtailment of the originally intended work by reason of alteration made by the Engineer in the original specifications, drawings, designs and instructions.

- 5.12 When the whole of the work has been completed to the satisfaction of the Engineer and has passed any final test prescribed in the contract, the contractor shall, within 21 days of submission of his application to the Engineer, be entitled to receive from him a certificate for completion of work in Form G.C.1, annexed hereto. If any part of the total work having been completed to the satisfaction of the Engineer, be taken over and/or used by the Trustees, the Contractor shall on application be entitled to partial completion certificate in the Form G.C.1 indicating the portion of the work covered by it, so that the Contractor's liability during maintenance period of the contract, if any, shall commence from the date mentioned in such certificate so far as the completed portion of the work is concerned.
- Completion Certificate G.C.1

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6.0 TERMS OF PAYMENT :

- 6.1 No sum shall be considered as earned by or due to the Contractor in respect of the work till final and satisfactory completion thereof and until a certificate of final completion in Form G.C.2 has been given by the Engineer.
- On account payments, if any, made prior to issue of the certificate in Form G.C.2, shall all be treated as mere advance, which shall stand recoverable in full or in part, if the Engineer so decides in the context of Contractor's unfulfilled contract condition, if any.
- 6.2 All payments shall be made to the Contractor only on the basis of measurements of actual work done, as recorded in the Trustees' measurement books and at accepted tendered or at agreed rates, as the case may be, except as otherwise provided in the contract and when the Engineer decides any other rate for change in the scope of work or omission, if any, on the part of the Contractor.
- 6.3 For work of sanctioned tender value more than Rs.50,000/- or having an initially stipulated completion period of 4 months or more, on account payments may be made at the discretion of the Engineer or his Representative at intervals deemed suitable and justified by him. Provided always that subject to execution of work of substantial value in the context of the contract price, the interval of such on account payments shall be decided by the Engineer or his Representative, which shall ordinarily not be less than 1 month in between two payments for on account bill and/or advance.
- 6.4 Measurement for works done shall be progressively taken by the Engineer's Representative and entered in the Trustees' Measurement Book, at intervals deemed suitable and proper by him and/or the Engineer. The Contractor or his duly accredited Representative or Agent shall remain present at the time of such measurement and assist the engineer's Representative in every manner required by him. After the measurements taken have been entered in the Measurement Book, the Contractor or his Agent shall sign the Measurement Book at the end of such Measurements over the Contractor's Rubber Stamp as a token of acceptance of all such measurements, recorded above and prior to such signature. If the

All Interim
payments are
advances till
issue of
Certificate in
Form G.C.2

Payment on the
basis of
measurements at
agreed rates.

Limitation for on
account payment

Recording of
measurements

Contractor or his Agent fails to participate even after 3 days written notice from the Engineer's Representative, the measurement shall be taken ex-parte by the Engineer's Representative and those shall be accepted by the Contractor.

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- 6.5 Based on the quantum of work and the value thereof computed in the Measurement Book, the Contractor shall type out his bill in the proforma approved by the Engineer and submit the same to the Engineer's Representative in quadruplicate, duly signed by him or his accredited Agent over his Rubber Stamp. The Engineer or his Representative may in his absolute discretion, allow advance payment against such bill to the extent of an amount not exceeding 75% of the "net payable" sum of the said bill, subject to adjustment thereof against the bill at the time of checking and auditing the bill at the Trustees' end. The measurement Book will not be handed over to the Contractor; but he will obtain the abstracts of quantities, amounts and recoveries to type out the bill.
- 6.6 At the discretion of the Engineer or his Representative and only in respect of accepted offers/where estimated amount put to tender would be Rs.2,00,000/- or more, advance payment may be made to the extent of 75% of the value of any material purchased and brought to the site by the Contractor. Provided always that –
- (i) the materials shall, in the opinion of the Engineer or his Representative be of Imperishable nature,
 - 17. the value of such materials shall be assessed by the engineer or his Representative at their own discretion,
 - 18. a formal agreement has been drawn up with the contractor, under which the Trustees secure a lien on the contractor's materials,
 - 19. the materials are safe-guarded by the contractor against losses, shortage and misuse due to the contractor postponing the execution of the work or otherwise,
- Contractor to prepare and submit his bills
- Advance payment against Non-perishable materials

20. In the event of storage of such materials within the Trustees' protected areas in the Docks, the contractor shall submit an Indemnity Bond in the proforma and manner acceptable to Trustees' whereby the contractor shall indemnify the Trustees against all financial loss/damage, on account of loss/damage to such materials for whatever reasons;

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21. In the event of storage of such materials outside the Trustees' protected areas the Contractor shall submit to the Engineer an Irrevocable Bank Guarantee favouring the Trustees and for the same sum as is being advance, in the proforma and manner acceptable to the Trustees. The Guarantee shall be of a Calcutta/Haldia Branch of any Nationalised Bank or a Schedule Commercial Bank, as the case may be, acceptable to the Trustees and shall remain valid till the anticipated period of consumption of such materials in the work. The Bank Guarantee must bear an undertaking by the issuing Bank guaranteeing automatic payment of the guaranteed sum to the Trustees by the Bank on the date of expiry of the validity of the Guarantee, unless with the prior written approval of the Engineer on behalf of the Trustees, the Bank has extended the validity of the Guarantee.
22. The amount of advance shall be recoverable from the contractor's bills or any other dues, progressively with the consumption of the materials on the basis of quantity consumed. Consequent on full recovery of the advance the Indemnity Bond/Bank Guarantee, vide Sub-clause (v) & (vi) above, shall be returned to the Contractor duly discharged by the Engineer on behalf of the Trustees.

- 6.7 No certificate of the Engineer or his representative shall protect the Contractor against or prevent the Trustees from obtaining repayment from the Contractor, In case the Engineer or his representative should overcertify for payment or the Trustees should over-pay the Contractor on any account. Recovery for wrong and over payment
- 6.8 No claim for interest shall be admissible or payable to the Contractor at any stage and in respect of any money or balance or Bank Guarantee, which may be due to the Contractor from the Trustees, owing to dispute or otherwise or for any delay on the part of the Trustees in making interim or final payment or otherwise. Interest not admissible to Contractor
- 7.0 VARIATION AND ITS VALUATION :
- 7.1 The Quantities set out in the Bill of Quantities of the tender shall be treated as estimated quantities of the work and shall never be deemed as actual or correct quantities of the works to be executed by the contractor in fulfilment of his obligation under the contract. Quantities in Bill of Quantities of Tender
- 7.2 The Engineer shall have the power to order the Contractor in writing to make any variation of the quantity, quality or form of the works or any part thereof that may, in his opinion, be necessary and the Contractor upon receipt of such an order shall act as follows : Engineer's power to vary the works

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- 7.2 (a) Increase or decrease the quantity of any work included in the contract.
- (b) Omit any work included in the contract.
- (c) Change the Character or quality or kind of any work Included in the contract.
- (d) Change the levels, lines, position and dimensions of any part of the work, and
- (e) Execute extra and additional work of any kind necessary for completion of the works
- 7.3 No such variation shall in any way vitiate or invalidate the contract or be treated as revocation of the contract, but the value (if any) of all such variations evaluated in accordance with the Engineer's sole decision shall be taken into account and the contract price shall be Variation by engineer do not vitiate the contract

varied accordingly.

- | | | |
|-----|---|--|
| 7.4 | <p>Provided always that written order of the Engineer shall not be required for increase or decrease in the quantity of any work upto 15% where such increase or decrease is not the result of any variation order given under this clause but is the result of the quantities exceeding or being less than those stated in the bill of quantities. Provided also that verbal order of variation from the Engineer shall be complied with by the Contractor and the Engineer's subsequent written confirmation of such verbal order shall be deemed to be an order in writing within the meaning of this clause.</p> | <p>Where written order for variation is not needed</p> |
| 7.5 | <p>(a) The Contractor shall not be entitled to any claim of extra or additional work unless they have been carried out under the written orders of the Engineer.</p> <p>(b) The Engineer shall solely determine the amount (if any) to be added to or deducted from the sum named in the tender in respect of any extra work done or work omitted by his order.</p> <p>(c) All extra, additional or substituted work done or work omitted by order of the Engineer shall be valued on the basis of the rates and prices set out in the contract, if in the opinion of the Engineer, the same shall be applicable. If the contract does not contain any rates or prices directly applicable to the extra, additional or substituted work, then the Engineer may decide the suitable rates on the basis of Schedule of Rates (including surcharge in force at the time of acceptance of tender), if any, adopted by the Trustees with due regard to the accepted contractual percentage, if any thereon. In all other cases the Engineer shall solely determine suitable rates in the manner deemed by him as fair and reasonable, and his decision shall be final, binding and conclusive.</p> | <p>Payment for extra or additional, or omitted work or substituted work, Engineer's powers</p> |

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- (d) If the nature or amount of any omission or addition relative to the nature or amount of the whole of the contract work or to any part thereof shall be such that, in the opinion of the Engineer, the rate of prices contained in the contract for any item of the works or the rate as evaluated under sub-clauses (b) and (c) of this clause, is by reason of such omission or addition rendered unreasonable or in-applicable, the Engineer shall fix such other rate or price as he deems proper and the Engineer's decision shall be final, binding and conclusive.

8.0 DELAY / EXTENSION OF COMPLETION TIME / LIQUIDATED DAMAGE /

TERMINATION OF CONTRACT

- 8.1 Should the quantum of extra or additional work of any kind or delayed availability of the Trustees' materials to be supplied as per contract or exceptionally adverse climatic conditions and natural phenomenon or strikes, lock-outs, civil commotion or other special circumstances of any kind beyond the control of the Contractor, cause delay in completing the work, the contractor shall apply to the Engineer in writing for suitable extension of completion time within 7 days from the date of occurrence of the reason and the Engineer shall thereupon consider the stated reasons in the manner deemed necessary and shall either reject the application or determine and allow in writing the extension period as he would deem proper for completion of the work with or without the imposition of "Liquidated Damage" Clause (No.8.3 hereof) on the Contractor and his decision shall be final and binding on the Contractor. If an extension of completion time is granted by the Engineer without imposition of liquidated damage, from the Clause No.8.3 of the Liquidated damage shall apply from its date of expiry, if the work be not completed within the extended time, unless stated otherwise in the decision communicated by the Engineer, as aforesaid.
- 8.2 (a) If the Contractor fails to complete the work within the stipulated dates or such extension thereof as communicated by the Engineer in writing, the Contractor shall pay as compensation (Liquidated Damage) to the Trustees and not as a penalty, ½% (half percent) of the total value of work (contract piece) as mentioned in the letter of acceptance of the tender/offer, for every week or part thereof the work remains unfinished. Provided always that the amount of such compensation shall not exceed 10% of the said value of work. The amount of Liquidated damages shall be determined by the Engineer, which shall be final and binding.
- Extension of completion time
- 'Liquidated Damage' and other compensation due to Trustees

- (b) Without prejudice to any of their legal rights, the Trustees shall have the power to recover the said amount of compensation/damage in Sub-clause (a) of this clause, from any money due or likely to become due to the Contractor. The payment

or deduction of such compensation/damage shall not relieve the Contractor from his obligation to complete the work or from any of his other obligations/liabilities under the contract and in case of the Contractor's failure and at the absolute discretion of the Engineer, the work may be ordered to be completed by some other agency at the risk and expense of the Contractor, after a minimum three days notice in writing has been given to the Contractor by the Engineer or his Representative.

- 8.3 Without being liable for any compensation to the Contractor, the Trustees may, in their absolute discretion, terminate the contract and enter upon the site and works and expel the Contractor there from after giving him a minimum 3 days' notice in writing, due to occurrence of any of the following reasons and decision of the Trustees in this respect, as communicated by the Engineer shall be final and conclusive :
- Default of the Contractors remedies & powers/Termination of Contract.
- (i) The Contractor has abandoned the contract.
 - (ii) In the opinion of the Engineer, either the progress of work is not satisfactory or the work is not likely to be completed within the agreed period on account of Contractor's lapses.
 - (iii) The Contractor has failed to commence the works or has without any lawful excuse under these conditions has kept the work suspended for at least 15 days despite receiving the Engineer" or his Representative" written notice to proceed with the work.
 - (iv) The Contractor has failed to remove materials from site or to dismantle or demolish and replace work for 7 days after receiving from the Engineer or his representative the written notice stating that the said materials or work were condemned and rejected by him under these conditions.
 - (v) The Contractor is not executing the works in accordance with the contract or is persistently or flagrantly neglecting to carry out his obligations under the contract.
 - (vi) Any bribe, commission, gift or advantage is given, promised or offered by or on behalf of the contractor to any officer, servant or representative of the Trustees or to any person on his or their behalf in relation to the obtaining or to the execution of the contract.
 - (vii) The Contractor is adjusted insolvent or enters into composition with his creditors or being a company goes into liquidation either compulsory or voluntary.

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- 8.3.1 Upon receipt of the letter of termination of work, which may be issued by the Engineer on behalf of the Trustees, the Contractor shall hand over all the Trustees' tools, plant and materials issued to him at the place to be ascertained from the Engineer, within 7 days of receipt of such letter.
- 8.3.2 In all such cases of Termination of work, the Trustees shall have the power to complete the work through any other agency at the Contractor's risk and expense and the Contractor shall be debited any sum or sums that may be expended in completing the work beyond the amount that would have been due to the Contractor, had he duly completed the work of the work in accordance with the contract.
- 8.3.3 Upon termination of contract, the Contractor shall be entitled to receipt payment of only 90% of the value of work actually done or materials actually supplied by him and subject to recoveries as per contract, provided the work done and materials conform to specifications at the time of taking over by the Trustees. The payment for work shall be based on measurements of actual work done and priced at approved contract rates or other rates, as decided by the Engineer. The payment for materials supplied shall be at the rates as decided by the Engineer, which shall in no case be more than market rates prevailing at the time of taking over by the Trustees. The Engineer's decision in all such case shall be final, binding and conclusive.
- 8.3.4 The Trustees shall have the power to retain all moneys due to the Contractor until the work is completed by other agency and the Contractor's liabilities to the Trustees are known in all respect.

9.0 MAINTENANCE AND REFUND OF SECURITY DEPOSIT

- 9.1 On completion of execution of the work the Contractor shall maintain the same for a period, as may be specified in the form of a Special Condition of the Contract, from the date mentioned in the Initial Completion Certificate in Form G.C.1. Any defect/fault, which may appear in the work during aforesaid maintenance period, arising, in the sole opinion of the Engineer or his representative, from materials or workmanship not in accordance with the contract or the instruction of the Engineer or his representative, shall, upon the written notice of the Engineer or his representative, be amended and made good by the Contractor at his own cost within seven days of the date of such notice, to the satisfaction of the Engineer or his representative, failing which the Engineer or his representative shall have the defects amended and made good through other agency at the Contractor's risk and cost and all expenses, consequent thereon or incidental thereto, shall be Contractor's obligation for maintenance of work.

recoverable from the Contractor in any manner deemed suitable by the Engineer.

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|------|---|---------------------------------|
| 9.2 | The Contractor shall not be considered completed and the work shall not be treated as finally accepted by the Trustees, until a Final Completion Certificate in Form G.C.2 annexed hereto shall have been signed and issued by the Engineer to the contractor after all obligations under the Contract including that in the maintenance period, if any, have been fulfilled by the Contractor. Previous entry on the works or taking possession, working or using thereof by the Trustees shall not relieve the Contractor of his obligations under the contract for full and final completion of the work. | Certificate of final completion |
| 9.3 | On completion of the contract in the manner aforesaid, the Contractor may apply for the refund of his Security Deposit by submitting to the Engineer (i) The Treasury Receipts granted for the amount of Security held by the Trustees, and (ii) his "No further claim" Certificate in Form G.C.3 annexed hereto (in original), where upon the Engineer shall issue Certificate in Form G.C.2 and within two months of the Engineer's recommendation, the Trustees shall refund the balance due against the Security Deposit to the Contractor, after making deduction therefrom in respect of any sum due to the Trustees from the Contractor. | Refund of Security Deposit |
| 10.0 | INTERPRETATION OF CONTRACT DOCUMENTS, DISPUTES AND ARBITRATION | |
| 10.1 | In all disputes, matters, claims, demands or questions arising out of or connected with the interpretation of the Contract including the meaning of Specifications, drawings, designs and instructions or as to the quality of workmanship or as to the materials used in the work or the execution of the work whether during the progress of the works or after the completion and whether before or after the determination, abandonment or breach of the contract the decision of the Engineer shall be final and binding on all parties to the contract and shall forthwith be given effect to by the Contractor. | Engineer's decision |
| 10.2 | If the Contractor be dissatisfied with any such decision of the Engineer, he shall within 15 days after receiving notice of such decision require that the matter shall be referred to Chairman, who shall thereupon consider and give a decision. | Chairman's award. |
| 10.3 | If, however, the Contractor be still dissatisfied with the decision of the Chairman, he shall within 15 days after receiving notice of such decision | Arbitration. |

require that within 60 days from his written notice, the Chairman shall refer the matter to an Arbitrator of the panel of Arbitrators to be maintained by the Trustees for the purpose and any such reference shall be deemed to be a submission to arbitration within the meaning of Indian Arbitration Act, 1940 or any statutory modification thereof.

- 10.3.1. If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever, another person from panel shall be appointed as Sole Arbitrator and he shall proceed from the stage at which his predecessor left it.

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- 10.3.2 The Arbitrator shall be deemed to have entered on reference on the date he issues notice to both the parties fixing the date of first hearing.
- 10.3.3 The time limit within which the Arbitrator shall submit his award shall normally be 4 months as provided in Indian Arbitration Act, 1940 or any amendment thereof. The Arbitrator may, if found necessary, enlarge the time for making and publishing the award, with the consent of the parties..
- 10.3.4 The venue of the arbitration shall be either Calcutta or Haldia as may be fixed by the Arbitrator in his sole discretion. Upon every or any such reference the cost of any incidental to the reference and award respectively shall be in the discretion of the Arbitrator who may determine, the amount thereof or by whom and to whom and in what manner the same shall be borne and paid.
- 10.3.5 The Award of the Arbitrator shall be final and binding on all parties subject to the provisions of the Indian Arbitration Act 1940 or any amendment thereof. The Arbitrator shall give a separate award in respect of each item of disputes and respective claim referred to him by each party and give reason for the award.
- 10.3.6 The Arbitrator shall consider the claims of all the parties to the contract – within only the parameters of scope and conditions of the contract in question.
- 10.3.7 Save as otherwise provided in the contract the provisions of the Arbitration Act, 1940 and rules made thereunder, for the time being in force, shall apply to the arbitration proceedings under this Clause.
- 10.4. The Contractor shall not suspend or delay the work and proceed with the work with due diligence in accordance with Engineer's decision. The Engineer also shall not withhold any payment, which, according to him, is

due or payable to the Contractor, on the ground that certain disputes have cropped up and are likely to be referred to arbitration.

- 10.5 Provided always as follows:
- [a] Nothing of the provisions in paragraphs 10.3 to 10.3.7 hereinabove would apply in the cases of contracts, where tendered amount appearing in the letter of acceptance of the tender / offer is less than Rs.40,00,000/-.
 - [b] The Contractor shall have to raise disputes or differences of any kind whatsoever in relation to the execution of the work to the Engineer within 30 days from the date of occurrence of the cause of dispute and before the preparation of the final bill, giving detailed justifications, in the context of contract conditions.

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- [c] Contractor's dispute if any arising only during the maintenance period, if any, stipulated in the contract, must be submitted to the Engineer, with detailed justification in the context of contract conditions, before the issuance of final completion certificate in Form G.C.-2 ibid.
No dispute or difference on any matters whatsoever, the Contractor can raise pertaining to the Contract after submission of certificate in form G.C.3 by him.
- [d] Contractor's claim / dispute raised beyond the time limits prescribed in sub-clauses 10.5[b] and 10.5 [c] hereinabove, shall not be entertained by the Engineer and / or by any Arbitrator subsequently.
- [e] The Chairman / Trustees shall have the right to alter the panel of Arbitrators, vide Clause 10.3 hereinabove, on their sole discretion, by adding the names of new Arbitrators and / or by deleting the names of existing Arbitrators, without making any reference to the Contractor.

(TO BE SUBMITTED WITH COVER- I OFFER)

THE BOARD OF PORT AUTHORITY FOR THE PORT OF KOLKATA
FORM OF TENDER (UNPRICED)

To
The Chief Engineer,
Kolkata Dock System.

I/We _____

having examined the site of work, inspected the Drawings and read the specifications, General & Special Conditions of Contract and Conditions of the Tender, hereby tender and undertake to execute and complete all the works required to be performed in accordance with the Specification, Bill of Quantities, General & Special Conditions of Contract and Drawings prepared by or on behalf of the Trustees and at the rates & prices set out in the annexed Bill of Quantities within _____ months / weeks from the

date of order to commence the work and in the event of our tender being accepted in full or in part. I / We also undertake to enter into a Contract Agreement in the form hereto annexed with such alterations or additions thereto which may be necessary to give effect to the acceptance of the Tender and incorporating such Specification, Bill of Quantities, Drawing and Special & General Conditions of Contract and I / We hereby agree that until such Contract Agreement is executed the said Specification, Bill of Quantities, Conditions of Contract and the Tender, together with the acceptance thereof in writing by or on behalf of the Trustees shall be the Contract.

THE TOTAL AMOUNT OF TENDER RS. NOT TO BE QUOTED IN COVER I OFFER

(Repeat in words) NOT TO BE QUOTED IN COVER I OFFER

I / We require _____ days / months preliminary time to arrange and procure the materials required by the work from the date of acceptance of tender before I We could commence the work.

I / We have deposited with the Trustees' Manager (Finance), HDC, vide Receipt No. _____ of _____ as Earnest Money.

I / We agree that the period for which the tender shall remain open for acceptance shall not be less than four months.

Dated :

(Signature of Bidder with Seal)

WITNESS :

Name of the Bidder :

Signature :

Name : (In
Block Letters)

Address :

Address :

Occupation
:

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
KOLKATA DOCK SYSTEM

FORM G.C.1

Contractor _____

Address

Date of completion :

Dear sir(s),

This is to certify that the following work viz :-

Name of work :

Estimate No. E.E.O. Dt.

C.E.O. Dt.

Work Order No.

Allocation

Contract No.

which was carried out by you is in the opinion of the undersigned complete in every respect on the _____ day of _____ 2000 in accordance with terms of the Contract and you are required to maintain the work as per Clause 62 of the General Conditions of Contract and under provisions of the Contract for a period of _____ weeks / months / years

from the _____ day of _____ 2000 to _____ day of _____ 2000 .

Yours faithfully,

Signature.....
(ENGINEER/ENGINEER'S REPRESENTATIVE)

Name.....

Designation.....

OFFICE SEAL

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
Kolkata Dock System

FORM G.C.2.

Certificate of Final Completion.

The Financial Adviser & Chief Accounts Officer
 Kolkata Dock System

This is to certify that the following work viz:-

Name of work :

Estimate No. E.E.O.....dt.....

C.E.O.....dt.....

Work Order No.....

Contract No.

Resolution & Meeting No.

Allocation :

which was carried out by Shri/Messrs..... is now complete in every respect in accordance with the terms of the Contract and that all obligations under the Contract have been fulfilled by the Contractor.

Signature.....
 (ENGINEER/ENGINEER'S REPRESENTATIVE)
 NAME.....
 DESIGNATION.....
 OFFICE SEAL

**SYAMA PRASAD MOOKERJEE PORT, KOLKATA
KOLKATA DOCK SYSTEM**

FORM G.C.3

('NO CLAIM ' CERTIFICATE FROM CONTRACTOR)

The Chief Engineer,
Syama Prasad Mookerjee Port, Kolkata,
Civil Engineering Department,
6, Fairlie Ware House, Fairlie Place,
Kolkata – 700 001

Dated;

(Atten:.....)

Dear Sir,

I / We do hereby declare that I / we have received full and final payment from the Calcutta Port Trust for the execution of the following work viz:-

Name of work : _____

Work Order No :- _____

Contract No. _____

Agreement No.....Dt.....

and I / we have no further claim against the Calcutta Port Trust in respect of the above-mentioned job.

Yours faithfully,

(Signature of the

Contractor)

Dated _____

Name of Contractor.....

Address:.....

(OFFICIAL SEAL OF THE CONTRACTOR)

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
PROFORMA OF FORM OF AGREEMENT

THIS AGREEMENT made _____ day of _____ 20____ between the "Board of Port Authority for the Port Of Calcutta , a statutory body constituted under the Major port Authorities Act,2021 under the rules there under and statutory modification thereto having Registered Office at 15, Strand Road , Calcutta -700001 (hereinafter called "EMPLOYER" which expression unless excluded by or repugnant to the context be deemed to include his successor/s in office) on the one part and _____ (hereinafter called the "CONTRACTOR" which expression shall unless excluded by or repugnant to the context he deemed to include his heirs, executors, administrators, representative, successor in officer and permitted assigns) of the other part.

WHEREAS The TRUSTEES are desirous that certain works should be executed viz _____ and have accepted a Tender/Offer by the contractor for the execution, completion and maintenance of such works .

NOW THIS CONTRACT AGREEMENT WITNESSETH as follows :-

1. In this agreement words expressions shall have the same meanings as are respectively assigned to them in General Conditions Of Contract, hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement , viz :-

52. The said Tender/Offer & the acceptance of Tender/ Offer.
53. The Drawings.
54. The General Conditions Of Contract.
55. Special Conditions Of Contract (If any).
56. The Conditions Of Tender.
57. The Specifications.
58. The Bill Of Quantities.
59. All correspondences by which the contract is added, amended, varied or modified in any way by mutual consent.

3. In consideration of the payments to be made by the Trustees to the Contractor as hereinafter mentioned the contractor hereby covenant with the Trustees to execute ,complete and maintain the work in conformity in all respects with the provisions of Contract.
4. The Trustees hereby covenants to pay to the contractor in consideration of such execution ,completion and maintenance of the works the Contract Prices at the times and in the manner prescribed by the contractor .

IN WITNESS whereof the parties hereto have caused their respective Common Seals to be hereunto as fixed (or have set their respective hands and seals) the day and year first above written.
have executed these presents on the day and year first above written.

The Seal of _____

Was hereunto affixed in the presence of :

Name :- _____

Address :- _____

OR

SIGNED SEALED AND DELIVERED

By the said _____

In the presence of :

Name :- _____

Address :- _____

The Common Seal of the Trustees was hereunto affixed in he presence of :

Name :- _____

Address :- _____

Proforma Of Irrevocable Bank Guarantee (PERFORMANCE BOND) in lieu of cash Security Deposit, to be issued by the Kolkata/ Haldia Branch, as the case may be, of any nationalised Bank of India on Non-Judicial Stamp Paper worth Rs 50/- or as decided by the Engineer/ Legal Adviser of the Trustees.

Ref. _____ Bank Guarantee No. _____
Date _____

To
The Board of Port Authority for the Port of Kolkata,
15, Strand Road
Kolkata – 700 001

Dear Sirs,

In consideration of the Board of Port Authority For the Port of Kolkata, - (hereinafter referred to as the "EMPLOYER" which expression shall unless repugnant to the context or meaning thereof include its successors administrators and assigns) having awarded to _____ with registered office at _____ (hereinafter referred to as the "CONTRACTOR" which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) a CONTRACT by Issue of EMPLOYER'S work order dated _____ the same having been unequivocally accepted by the Contractor resulting in a 'CONTRACT' bearing Letter Of Award No _____ dated _____ Valued at Rs _____ for " _____ and the contractor having agreed to prove a Contract performance Guarantee for the faithful performance of the entire Contract equivalent to Rs. _____ (rupees only) to the EMPLOYER.

We, the _____ Bank, _____, Kolkata/ Haldia having its Head Office at _____ (hereinafter referred to as the "Bank", which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer on demand any and all monies payable by the Contractor to the extent of Rs. -(_____ only) as aforesaid at any time upto _____ without any demur, reservation, contest, recourse or protest an/or without any reference to the CONTRACTOR, Any such demand made by Employer on the Bank shall be conclusive and binding notwithstanding any difference between EMPLOYER and CONTRACTOR or any dispute pending before any Court, tribunal, Arbitrator or any other Authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of employer and further agrees that the guarantee herein contained shall continue to be enforceable till the Employer discharges his guarantee.

EMPLOYER shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee from time to time to extend the time for performance of the CONTRACT by CONTRACTOR. Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or any right which they might have against Contractor, and to exercise the same at any time in any manner, and other to enforce or to forebear to enforce any covenants, contained or implied, in the CONTRACT between EMPLOYER and CONTRACTOR or any other course of remedy or security available to EMPLOYER. The Bank shall not be released of its obligations

under these presents by any exercise by EMPLOYER of its liberty with reference to the matters aforesaid or any of them or by reason or any other acts of omission or commission on the part of employer or any other indulgence shown by EMPLOYER or by any other matter or thing whatsoever which under Law would, but for this provision, have the effect of relieving the bank.

The Bank also agreed that EMPLOYER at its option shall be entitled to enforce this Guarantee against the Bank as principal debtor, in the first instance without proceeding against CONTRACTOR and notwithstanding any security or other guarantee that EMPLOYER may have in relation to the CONTRACTOR'S liabilities.

Notwithstanding anything contained herein above our liability under this guarantee is restricted to Rs _____ (rupees _____ only) and it shall remain in force up to and including _____ and shall be extended from time to time for such period, on whose behalf this guarantee has been given.

Dated, this _____ day of _____, 2010 _____ at _____

WITNESSES

(Signature)

(Signature)

(Name)

(Name)

(Official address)

(Designation with Bank Stamp)
+ Attorney as per power of Attorney No. _____

Dated _____

Integrity Pact

Between

Syama Prasad Mookerjee Port, Kolkata (SMPK) hereinafter referred to as "The Principal/ Employer".

And

..... hereinafter referred to as "The Bidder/Contractor"

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for
The Principal values full compliances with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, an Independent External Monitor (IEM) appointed by the principal, will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the PRINCIPAL/EMPLOYER to get the contractual work executed and/or to obtain/dispose the desired said stores/ equipment at a competitive price in conformity with the defined specifications/ scope of work by avoiding the high cost and the distortionary impact of corruption on such work /procurement/ disposal and Enabling BIDDERS/ CONTRACTORS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the PRINCIPAL/EMPLOYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

Section 1 – Commitments of the Principal/ Employer.

- (1) The Principal commits itself to take measures necessary to prevent corruption and to observe the following principles:
 1. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a 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.
 2. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal 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.
 3. The Principal will exclude from the process all known prejudiced persons.
- (2). If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal Code (IPC)/Prevention of Corruption (PC) Act, or if there be a

substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section-2 –Commitments of the Bidder(s) / Contractor(s)

- (1) 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's employees involved in the tender process or the 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 Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contract, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization 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 purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal 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 name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principles, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines, all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is annexed and marked as Annex-A.
 - 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.
- (2). The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section-3-Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/Contractor(s) before award or during execution has committed a transgression through a violation of Section 2 above, or in any other form such as to put his reliability or credibility in question,

the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as considered appropriate.

Section 4-Compensation for damages

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.
- (2) If the Principal has terminated the contract according to Section 3 or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5-Previous transgression

- (1) The Bidder declares that no previous transgressions occurred in the last 3 years from the date of signing the Integrity pact with any other Company in any country conforming to the anti corruption approach or with any other Public Sector Undertaking / Enterprise in India, Major Ports/ Govt. Departments of 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 as considered appropriate.

Section 6- Equal treatment of all Bidders/Contractors/Sub-Contractors

- (1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal, will enter into agreements with identical conditions as this one with all Bidders, Contractors and Sub-contractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7- Other Legal actions against violating Bidder(s)/ Contractor(s)/ Sub Contractor(s)

The actions stipulated in this Integrity pact are without prejudice to any other legal action that may follow in accordance with provisions of the extant law in force relating to any civil or criminal proceedings.

Section 8 – Role of Independent External Monitor(IEM):

(a) The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this pact.

(b) The Monitors shall not be subject to instructions by the representatives of the parties and shall perform their functions neutrally and independently.

(c) Both the parties accept that the Monitors have the right to access all the documents relating to the contract.

(d) As soon as the Monitor notices, or has reason to believe, a violation of this pact, he will so inform the authority designated by the Principal and the Chief Vigilance Officer of Kolkata Port Trust.

(e) The BIDDER/ CONTRACTOR(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the PRINCIPAL including that provided by the BIDDER/ CONTRACTOR. The BIDDER/ CONTRACTOR will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation, if any. The same is applicable to sub-contractors. The Monitor shall be under contractual obligation to treat the information and documents of the Bidder/Contractor/ Sub-contractor(s) with confidentiality.

(f) The Principal/ Employer will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor, the option to participate in such meetings.

(g) The Monitor will submit a written report to the designated Authority of Principal/ Employer/ Chief Vigilance Officer of Syama Prasad Mookerjee Port, Kolkata within 8 to 10 weeks from the date of reference or intimation to him by the Principal/ Employer/ Bidder/ Contractor and should the occasion arise, submit proposals for correcting problematic situation. BIDDER/ CONTRACTOR can approach the Independent External Monitor (s) appointed for the purposes of this Pact.

(h) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or to take corrective action, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(i) If the Monitor has reported to the Principal substantiated suspicion of an offence under the relevant IPC/PCA, and the Principal/ Employer has not, within reasonable time, taken visible action to proceed against such offence or reported to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

(j) The word 'Monitor' would include both singular and plural.

8.a) The Name and Correspondence Particulars of Independent External Monitors:

a) Shri Anand Deep; IRS (Retd)
117/363, H — 1, Next to Gurdwara
Pandu Nagar, Kanpur,
Uttar Pradesh — 208 005
Mobile : 9044797181
Mail : anand.deep117@gmail.com

b) Shri Bipin Behari Mallick, IAS, (Retd)
 293, Naval Technical Officers,
 CGHS, Sector-22
 Dwarka
 New Delhi-110077
 Mobile : 9643002222
 9968150900
 E-mail ID : bipinmallick@gmail.com

Section 9 – Facilitation of Investigation:

In case of any allegation of violation of any provisions of this Pact or payment of commission, the PRINCIPAL/EMPLOYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER/CONTRACTORS and the BIDDER/CONTRACTOR shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

Section 10 – Pact Duration:

The pact begins with when both parties have legally signed it and will extend upto 2 years or the complete execution of the contract including warranty period whichever is later. In case bidder/contractor is unsuccessful this Integrity Pact shall expire after 6 months from the date of signing of the contract.

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

Section 11 – Other Provisions:

- (1) This agreement is subject to Indian Law, Place of performance and Jurisdiction is the Registered Office of the Principal in Kolkata.
- (2) Changes and supplements as well as termination notices need to be made in writing in English.
- (3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the reminder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & on behalf of the Principal)

(For & on behalf of Bidder/Contractor).

(Office Seal)

(Office Seal)

Place :

Date :

Witness 1:

(Name & Address)

.....

.....

Witness 2:

(Name & Address)

.....

.....

GUIDELINES FOR INDIAN AGENTS OF FOREIGN SUPPLIERS

- 1.1 There shall be compulsory registration of Indian agents of Foreign suppliers for all Tenders. An agent who is not registered with SMPK shall apply for registration in the prescribed Application-Form.
- 1.2 Registered agents will file an authenticated Photostat copy (duly attested by a Notary Public)/Original certificate of the principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/salary/retainer ship being paid by the principal to the agent before the placement of order by SMPK.
- 1.3 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (I.e. Principal) before finalizing the order.
- 2.0 DISCLOSURE OF PARTICULARS OF AGENTS/REPRESENTATIVES IN INDIA, IF ANY.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offer:
 - 2.1.1 The name and address of the agents/representatives in India, if any and the extent of authorization and authority given to commit the Principals. In case the agent/representative be a foreign Company, it is to be conformed whether it is real substantial Company and details of the same shall be furnished.
 - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
 - 2.1.3 Confirmation of the Tenderer that the commission/remuneration if any, payable to his agents/ representatives in India, is to be paid by SMPK in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:**
 - 2.2.1 The name and address of the foreign principals indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents /representatives.
 - 2.2.2 The amount of commission/remuneration included in the price(s) quoted by the Tenderer for himself.
 - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/remunerations, if any, reserved for the Tenderer in the quoted price(s), is to be paid by SMPK in India in equivalent Indian Rupees.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/remuneration, if any payable to the agents/representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.

- 2.4 Failure to furnish correct and detailed information as called for in paragraph-2.0 above will render the concerned tender liable for rejection or in the event of a contract materializing, the same liable to termination by SMPK. Besides this there would be a penalty of banning business dealings with SMPK or damage or payment of a named sum.

TYPICAL CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT VILL-KALIPUR AT CH. 0.00 M/ADCP-200M

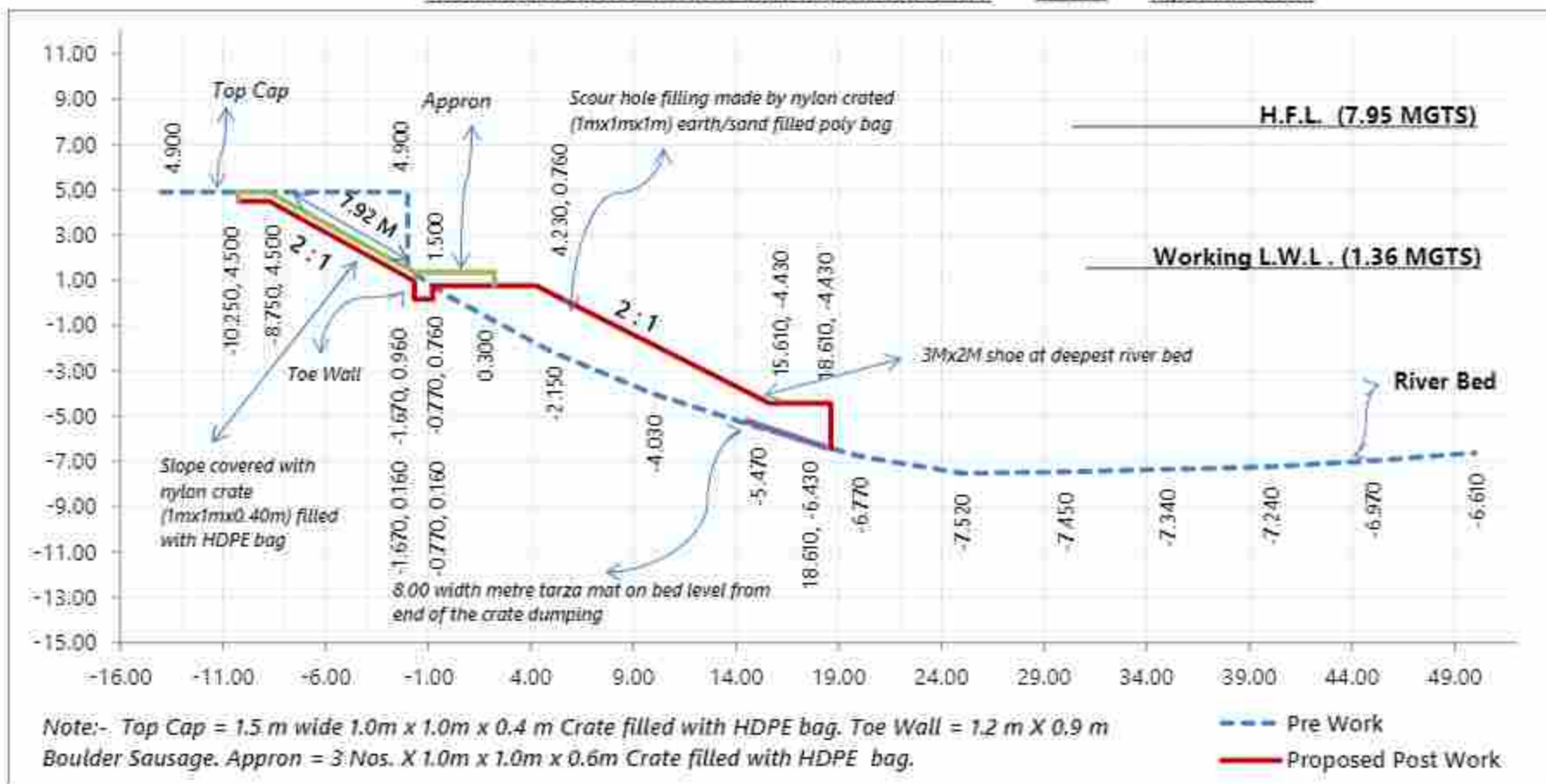


Sour Hole Filling	Pre-Work	Ch. (Di)	-2.56	0.00	5.00	10.00	15.00	16.82	Total
		R.L.(RLi)	0.760	-3.590	-5.760	-7.160	-7.500	-7.430	Area
		Area (Ai)		-3.62	-23.38	-32.30	-36.65	-13.59	-109.54
	Post-Work	Ch. (Di)	-2.56	0.44	13.82	16.82	16.82	Total	
		R.L.(RLi)	0.760	0.760	-5.430	-5.430	-7.430	Area	
		Area (Ai)		2.28	-31.24	-16.29	0.00	-45.25	
	Post Work -Pre Work =								64.29


Superintending Engineer
North Irrigation Circle- II
Berhampore, Murshidabad

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 100.00 M/ADCP-300M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.900
-2.000	4.900
-2.000	1.500
0.000	0.300
5.000	-2.150
10.000	-4.030
15.000	-5.470
20.000	-6.770
25.000	-7.520
30.000	-7.450
35.000	-7.340
40.000	-7.240
45.000	-6.970
50.000	-6.610

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.250	4.500
-8.750	4.500
-1.670	0.960
-1.670	0.160
-0.770	0.160
-0.770	0.760
4.230	0.760
15.610	-4.430
18.610	-4.430
18.610	-6.430

Earth Work	Pre-Work	Ch. (Di)	-10.25	-2.00	-2.00	-0.77			Total
		R.L.(RLi)	4.90	4.90	1.50	0.76			Area
		Area (Ai)		40.43	0.00	1.39			41.82
	Post Work	Ch. (Di)	-10.25	-8.75	-1.67	-1.67	-0.77	-0.77	Total
		R.L.(RLi)	4.50	4.50	0.96	0.16	0.16	0.76	Area
		Area (Ai)		6.75	19.33	0.00	0.14	0.00	26.22
	Pre Work - Post Work =								15.60 Sqm

Scour Hole Filling	Pre-Work	Ch. (Di)	-0.77	0.00	5.00	10.00	15.00	18.61	Total
		R.L.(RLi)	0.760	0.300	-2.150	-4.030	-5.470	-6.430	Area
		Area (Ai)		0.41	-4.63	-15.45	-23.75	-21.48	-64.90
	Post-Work	Ch. (Di)	-0.77	4.23	15.61	18.61	18.61	Total	
		R.L.(RLi)	0.760	0.760	-4.430	-4.430	-6.430	Area	
		Area (Ai)		3.80	-20.88	-13.29	0.00	-30.37	
	Post Work - Pre Work = 34.53								Sqm

Note:- * Length of Slope for Pitching = 7.92 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

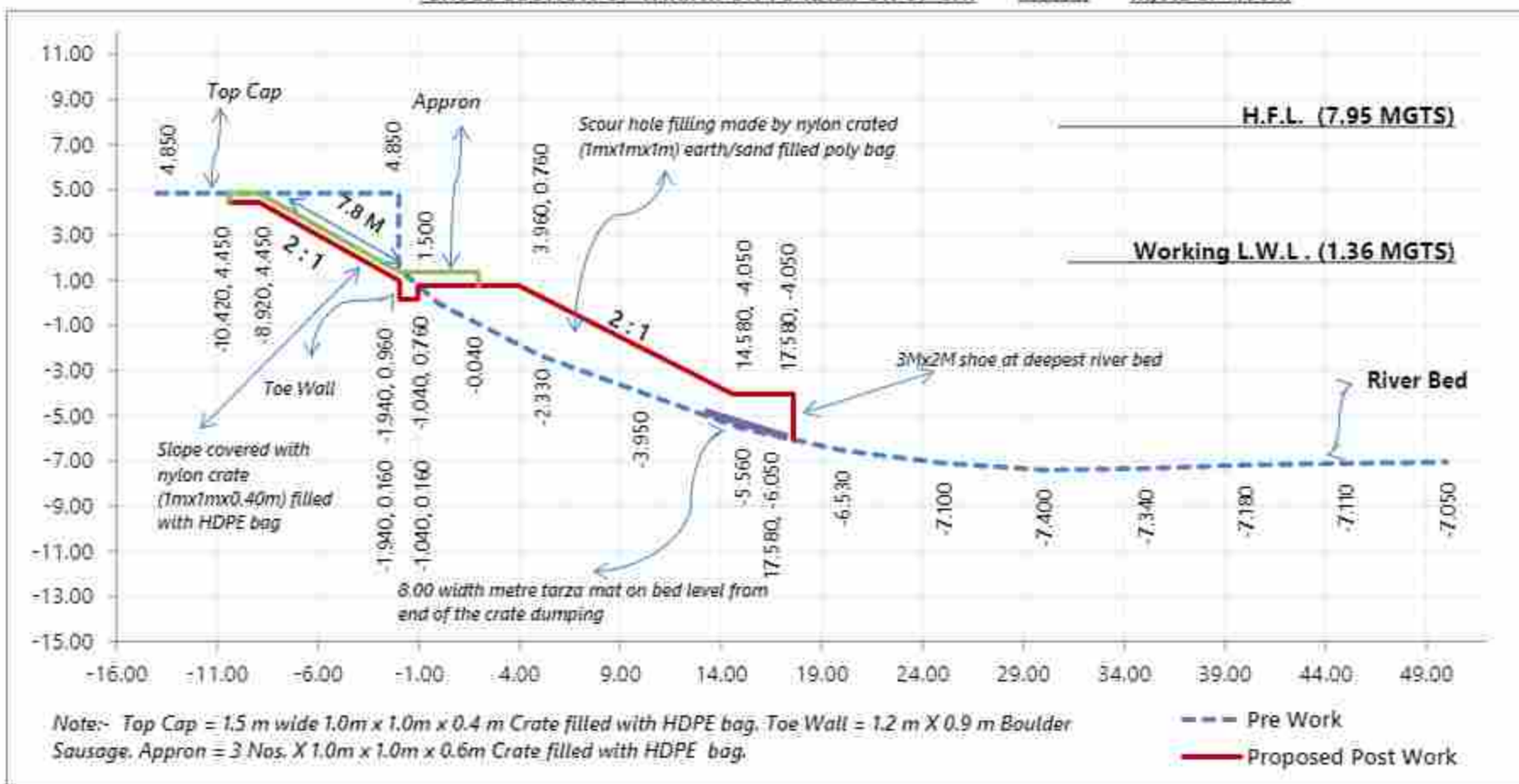
Sectional Officer
Chakdaha Irrigation Section

Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 200.00 M/ADCP-400M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.850
-2.000	4.850
-2.000	1.500
0.000	-0.040
5.000	-2.330
10.000	-3.950
15.000	-5.560
20.000	-6.530
25.000	-7.100
30.000	-7.400
35.000	-7.340
40.000	-7.180
45.000	-7.110
50.000	-7.050

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.420	4.450
-8.920	4.450
-1.940	0.960
-1.940	0.160
-1.040	0.160
-1.040	0.760
-3.960	0.760
14.580	-4.050
17.580	-4.050
17.580	-6.050

Earth Work	Pre-Work	Ch. (Di)	-10.42	-2.00	-2.00	-1.04		Total	
		R.L.(RLi)	4.85	4.85	1.50	0.76		Area	
		Area (Ai)		40.84	0.00	1.08		41.92	
	Post Work	Ch. (Di)	-10.42	-8.92	-1.94	-1.94	-1.04	-1.04	Total
		R.L.(RLi)	4.45	4.45	0.96	0.16	0.16	0.76	Area
		Area (Ai)		6.68	18.88	0.00	0.14	0.00	25.70
	Pre Work -Post Work =							16.22 Sqm	

Scour Hole Filling	Pre-Work	Ch. (Di)	-1.04	0.00	5.00	10.00	15.00	17.58	Total
		R.L.(RLi)	0.760	-0.040	-2.330	-3.950	-5.560	-6.050	Area
		Area (Ai)		0.37	-5.93	-15.70	-23.78	-14.98	-60.02
	Post-Work	Ch. (Di)	-1.04	3.96	14.58	17.58	17.58	Total	
		R.L.(RLi)	0.760	0.760	-4.050	-4.050	-6.050	Area	
		Area (Ai)		3.80	-17.47	-12.15	0.00	-25.82	
	Post Work -Pre Work = 34.20								Sqm

Note:- * Length of Slope for Pitching = 7.8 M, **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

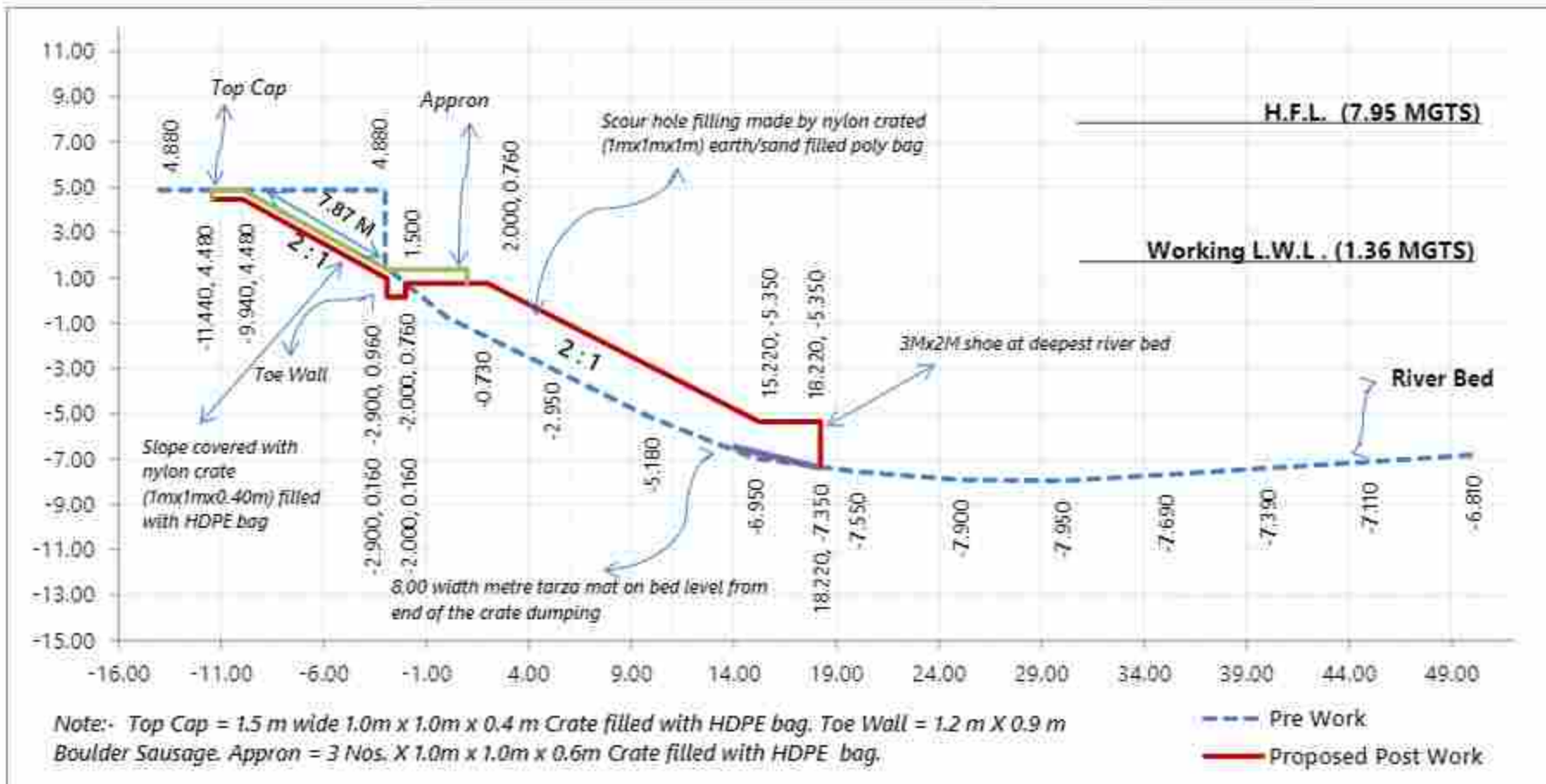
K. Sanyal
Sectional Officer
Chakdaha Irrigation Section

P. Mitra
Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

S. Chakraborty
Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 300.00 M/ADCP-500m



Earth Work	Pre - Work	Ch. (Di)	-11.44	-3.00	-3.00	-2.00			Total
		R.L.(RLi)	4.88	4.88	1.50	0.76			Area
		Area (Ai)	41.19	0.00	1.13				42.32
	Post Work	Ch. (Di)	-11.44	-9.94	-2.90	-2.90	-2.00	-2.00	Total
		R.L.(RLi)	4.48	4.48	0.96	0.16	0.16	0.76	Area
		Area (Ai)	6.72	19.15	0.00	0.14	0.00		26.01
Pre Work - Post Work = 16.31 Sqm									

Scour Hole Filling	Pre - Work	Ch. (Di)	-2.00	0.00	5.00	10.00	15.00	18.22	Total
		R.L.(RLi)	0.760	-0.730	-2.950	-5.180	-6.950	-7.350	Area
		Area (Ai)		0.03	-9.20	-20.33	-30.33	-23.02	-82.85
	Post - Work	Ch. (Di)	-2.00	2.00	15.22	18.22	18.22	Total	
		R.L.(RLi)	0.760	0.760	-5.350	-5.350	-7.350	Area	
		Area (Ai)		3.04	-30.34	-16.05	0.00	-43.35	
	Post Work -Pre Work =							39.50	Sqm

Note:- * Length of Slope for Pitching = 7.87 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

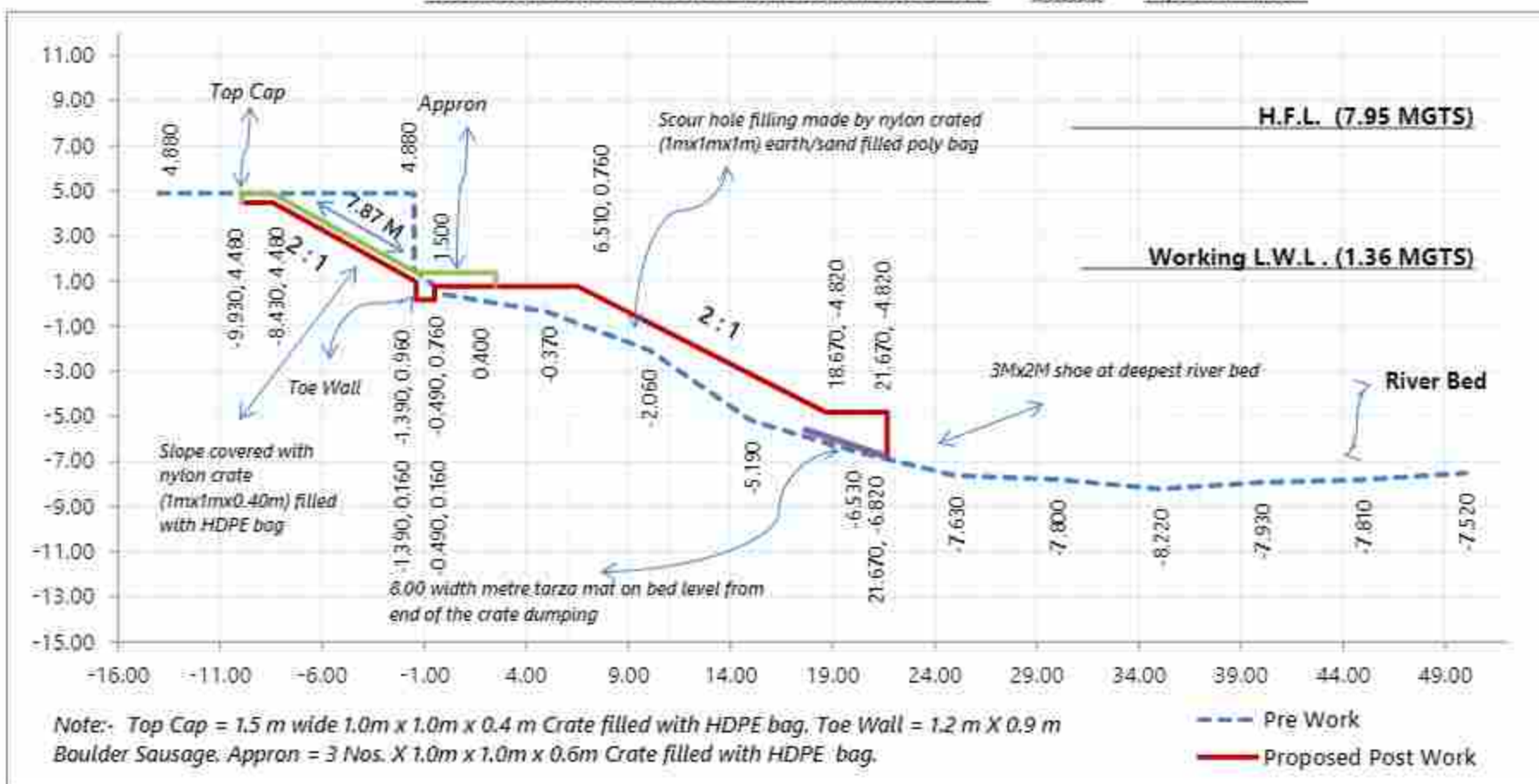
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 400.00 M/ADCP-600m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.880
-1.500	4.880
-1.500	1.500
0.000	0.400
5.000	-0.370
10.000	-2.060
15.000	-5.190
20.000	-6.530
25.000	-7.630
30.000	-7.800
35.000	-8.220
40.000	-7.930
45.000	-7.810
50.000	-7.520

Proposed Post Work	
Dist. (M)	R.L.(M)
-9.930	4.480
-8.430	4.480
-1.390	0.960
-1.390	0.160
-0.490	0.160
-0.490	0.760
6.510	0.760
18.670	-4.820
21.670	-4.820
21.670	-6.820

Earth Work	Pre-Work	Ch. (Di)	-9.93	-1.50	-1.50	-0.49		Total
		R.L.(RLi)	4.88	4.88	1.50	0.76		Area
		Area (Ai)		41.14	0.00	1.14		42.28
	Post-Work	Ch. (Di)	-9.93	-8.43	-1.39	-1.39	-0.49	Total
		R.L.(RLi)	4.48	4.48	0.96	0.16	0.76	Area
		Area (Ai)		6.72	19.15	0.00	0.14	26.01
		Pre Work -Post Work = 16.27 Sqm						

Scour Hole Filling	Pre-Work	Ch. (Di)	-0.49	0.00	5.00	10.00	15.00	20.00	21.67	Total
		R.L.(RLi)	0.760	0.400	-0.370	-2.060	-5.190	-6.530	-6.820	Area
		Area (Ai)		0.28	0.07	-6.08	-18.13	-29.30	-11.15	-64.31
	Post-Work	Ch. (Di)	-0.49	6.51	18.67	21.67	21.67	21.67		Total
		R.L.(RLi)	0.760	0.760	-4.820	-4.820	-6.820	-6.820		Area
		Area (Ai)		5.32	-24.68	-14.46	0.00	0.00		-33.82
		Post Work -Pre Work = 30.49 Sqm								

Note:- * Length of Slope for Pitching = 7.87 M . **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

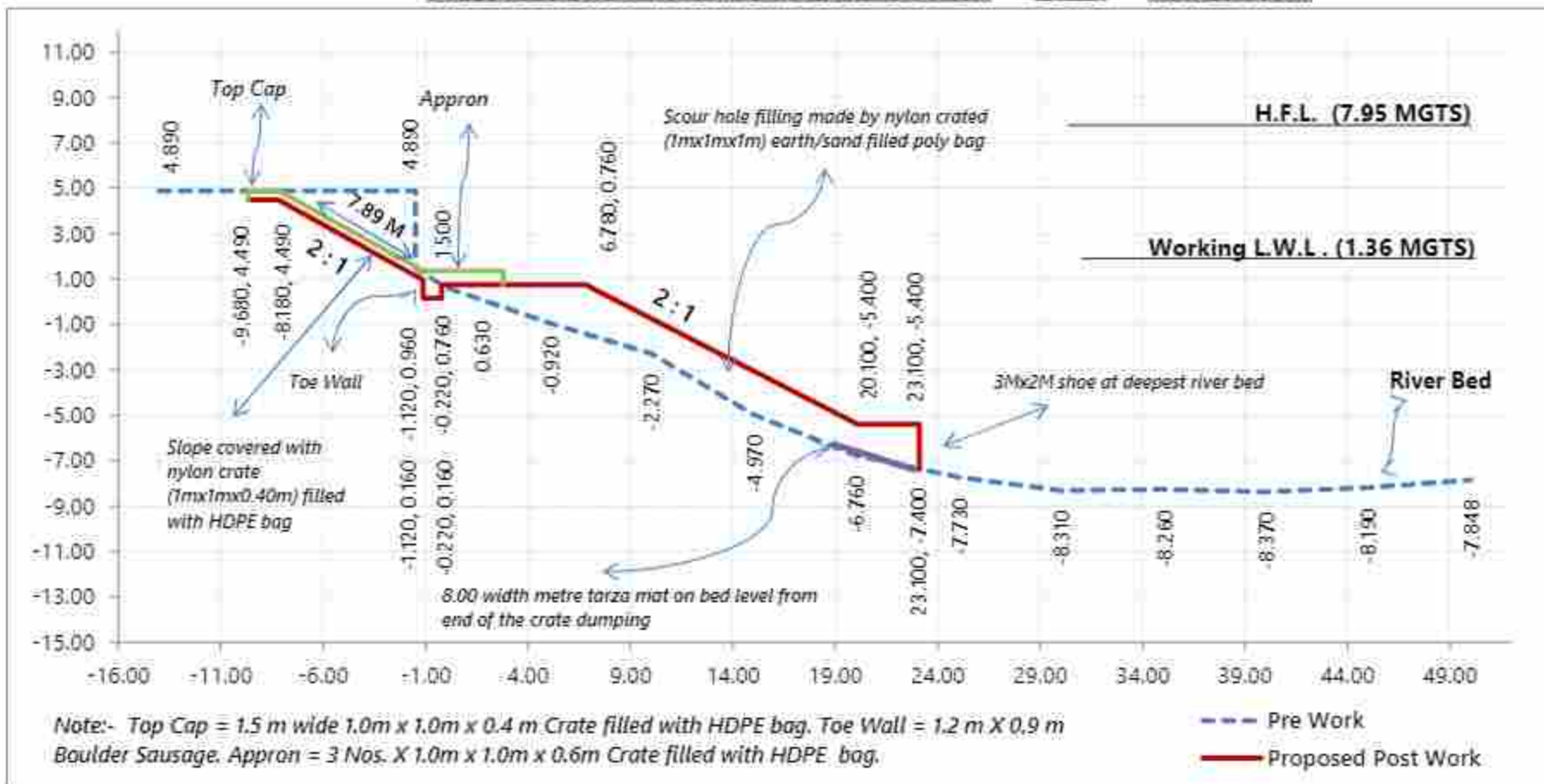
S. Sanyal
15/07/22
Sectional Officer
Chakdaha Irrigation Section

S. Sanyal
Sub-Divisional Officer
Ranaghat Irrigation Sub- Division

S. Sanyal
15/7/22
Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 500.00 M/ADCP-700m



Earth Work	Pre-Work	Ch. (Di)	-9.68	-1.50	-1.50	-0.22			Total
		R.L.(RLi)	4.89	4.89	1.50	0.76			Area
		Area (Ai)		40.00	0.00	1.45			41.45
Post Work		Ch. (Di)	-9.68	-8.18	-1.12	-1.12	-0.22	-0.22	Total
		R.L.(RLi)	4.49	4.49	0.96	0.16	0.16	0.76	Area
		Area (Ai)		6.74	19.24	0.00	0.14	0.00	26.12
Pre Work - Post Work =									15.33 Sqm

Scour Hole Filling	Pre-Work	Ch. (Di)	-0.22	0.00	5.00	10.00	15.00	20.00	23.10	Total
		R.L.(RLi)	0.760	0.630	-0.920	-2.270	-4.970	-6.760	-7.400	Area
		Area (Ai)		0.15	-0.73	-7.98	-18.1	-29.33	-21.95	-77.94
Post Work		Ch. (Di)	-0.22	6.78	20.10	23.10	23.10	23.10		Total
		R.L.(RLi)	0.760	0.760	-5.40	-5.400	-7.400	-7.400		Area
		Area (Ai)		5.32	-30.90	-16.20	0.00	0.00		-41.78
Post Work - Pre Work =									36.16	Sqm

Note:- * Length of Slope for Pitching = 7.89 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

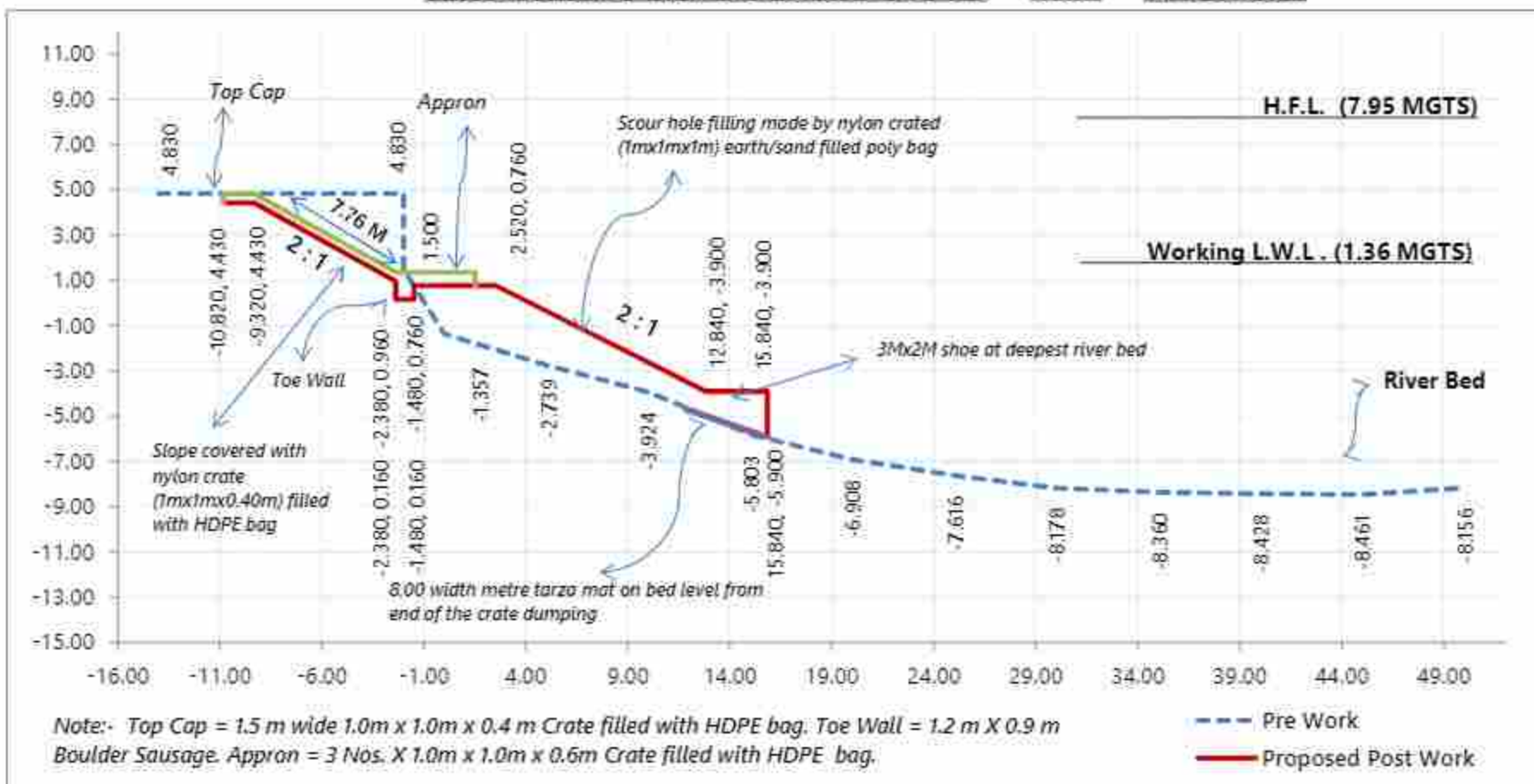
K. Sanyal
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"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 600.00 M/ADCP-800m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.830
-2.000	4.830
-2.000	1.500
0.000	-1.357
5.000	-2.739
10.000	-3.924
15.000	-5.803
20.000	-6.908
25.000	-7.616
30.000	-8.178
35.000	-8.360
40.000	-8.428
45.000	-8.461
50.000	-8.156

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.820	4.430
-9.320	4.430
-2.380	0.960
-2.380	0.160
-1.480	0.160
-1.480	0.760
2.520	0.760
12.840	-3.900
15.840	-3.900
15.840	-5.900

Earth Work	Pre-Work	Ch. (Di)	-10.82	-2.00	-2.00	-1.48			Total
		R.L.(RLi)	4.83	4.83	1.50	0.76			Area
		Area (Ai)		42.60	0.00	0.59			43.19
	Post Work	Ch. (Di)	-10.82	-9.32	-2.38	-2.38	-1.48	-1.48	Total
		R.L.(RLi)	4.43	4.43	0.96	0.16	0.16	0.76	Area
		Area (Ai)		6.65	18.70	0.00	0.14	0.00	25.49
	Pre Work -Post Work =								17.70 Sqm

Scour Hole Filling	Pre-Work	Ch. (Di)	-1.48	0.00	5.00	10.00	15.00	15.84	Total
		R.L.(RLi)	0.760	-1.357	-2.739	-3.924	-5.803	-5.900	Area
		Area (Ai)		-0.44	-10.24	-16.66	-24.32	-4.92	-56.58
	Post-Work	Ch. (Di)	-1.48	2.52	12.84	15.84	15.84	Total	
		R.L.(RLi)	0.760	0.760	-3.900	-3.900	-5.900	Area	
		Area (Ai)		3.04	-16.20	-11.70	0.00	-24.86	
	Post Work -Pre Work =							31.72	Sqm

Note:- * Length of Slope for Pitching = 7.76 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

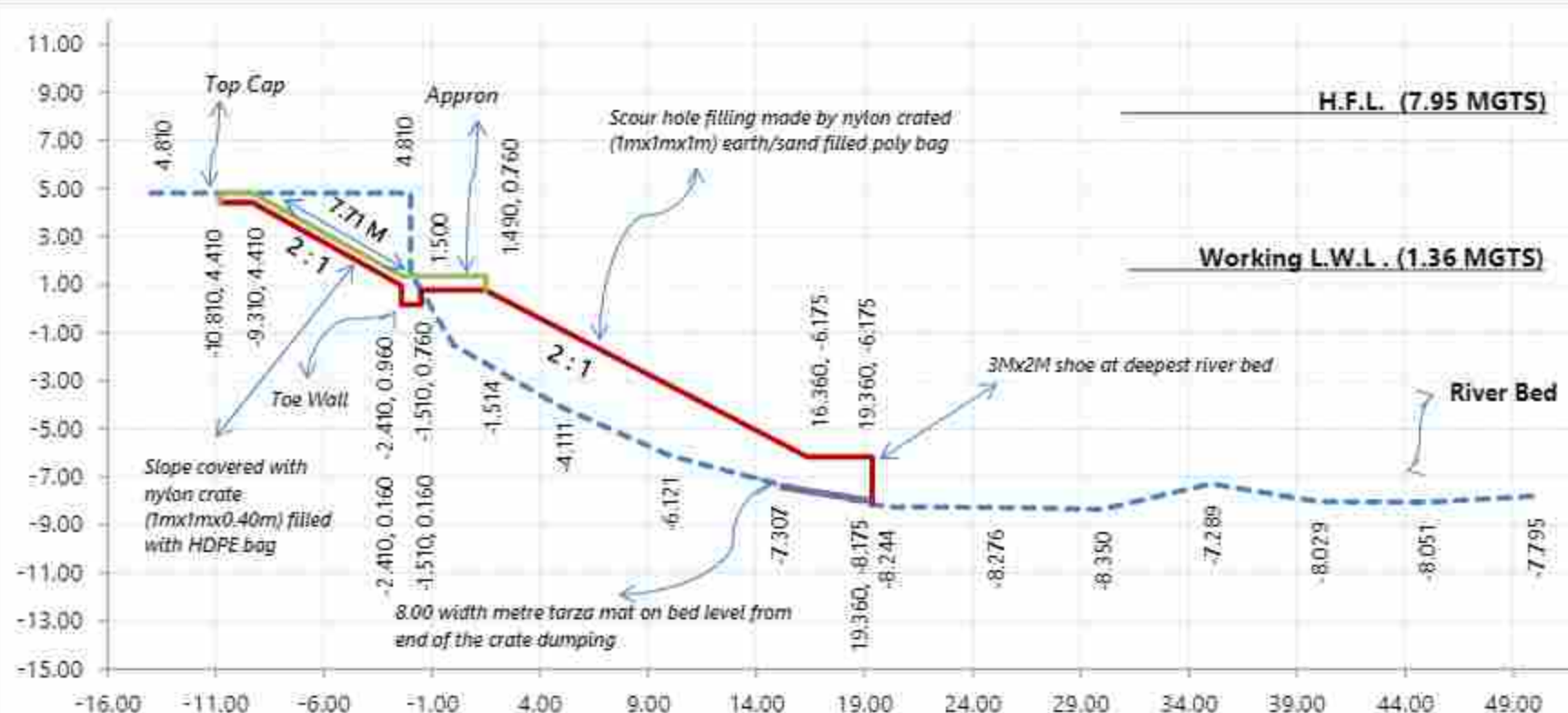
K. Sanyal
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Chakdaha Irrigation Section

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Sub-Divisional Officer
Ranaghat
Irrigation Sub-Division

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19/11/22
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Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 700.00 M/ADCP-900m



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 3 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

--- Pre Work
— Proposed Post Work

Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.810
-2.000	4.810
-2.000	1.500
0.000	-1.514
5.000	-4.111
10.000	-6.121
15.000	-7.307
20.000	-8.244
25.000	-8.276
30.000	-8.350
35.000	-7.289
40.000	-8.029
45.000	-8.051
50.000	-7.795

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.810	4.410
-9.310	4.410
-2.410	0.960
-2.410	0.160
-1.510	0.160
-1.510	0.760
1.490	0.760
16.360	-6.175
19.360	-6.175
19.360	-8.175

Earth Work	Pre-Work	Ch. (Di)	-10.81	-2.00	-2.00	-1.51		Total
		R.L.(RLi)	4.81	4.81	1.50	0.76		Area
		Area (Ai)		42.38	0.00	0.55		42.93
	Post Work	Ch. (Di)	-10.81	-9.31	-2.41	-2.41	-1.51	Total
		R.L.(RLi)	4.41	4.41	0.96	0.16	0.16	0.76
		Area (Ai)		6.62	18.53	0.00	0.14	0.00
Pre Work -Post Work = 17.64 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.51	0.00	5.00	10.00	15.00	19.36	Total
		R.L.(RLi)	0.760	-1.514	-4.111	-6.121	-7.307	-8.175	Area
		Area (Ai)		-0.57	-14.06	-25.58	-33.57	-33.75	-107.53
	Post - Work	Ch. (Di)	-1.51	1.49	16.36	19.36	19.36	Total	
		R.L.(RLi)	0.760	0.760	-6.175	-6.175	-8.175	Area	
		Area (Ai)		2.28	-40.26	-18.53	0.00	-56.51	
	Post Work -Pre Work =								51.02

Note:- * Length of Slope for Pitching = 7.71 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

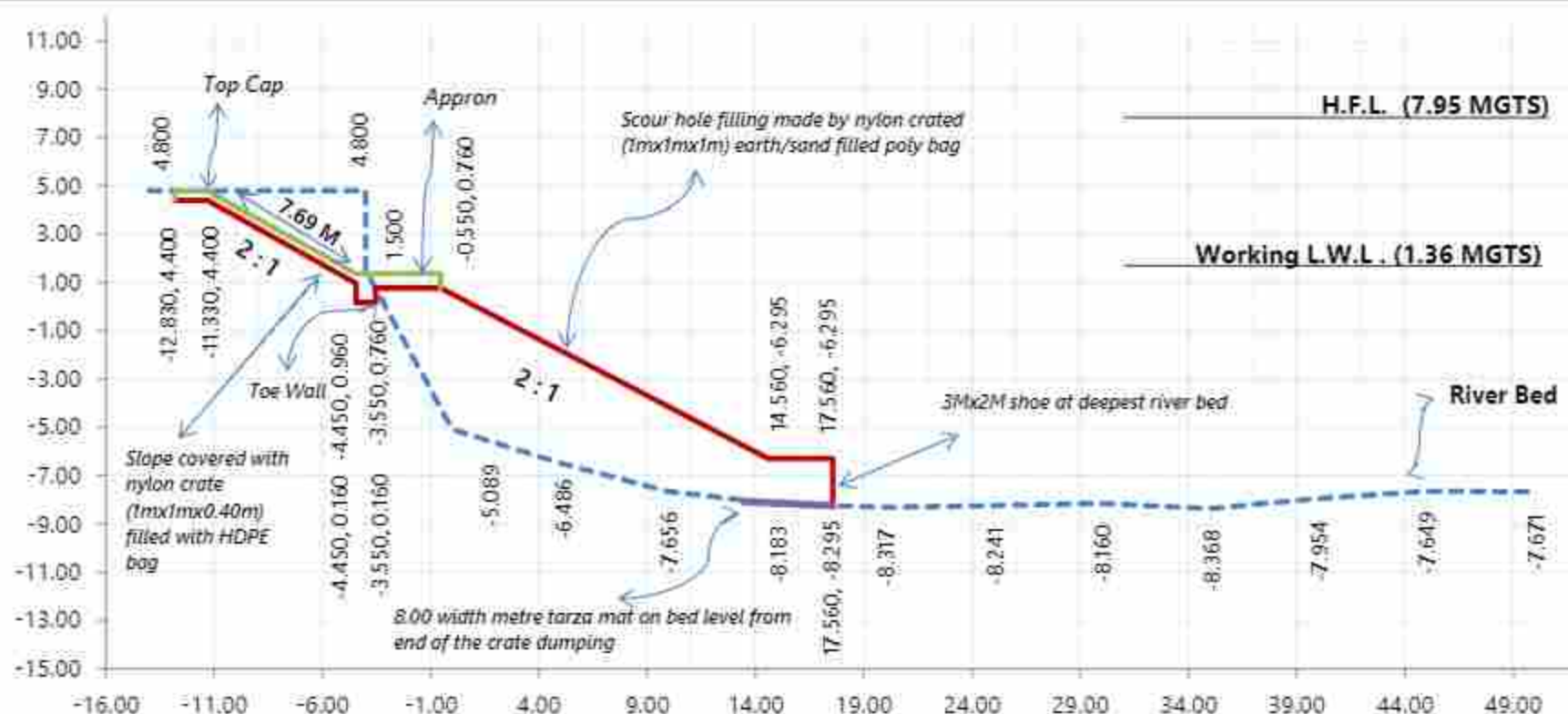
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 800.00 M/ADCP-1000m



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 3 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

--- Pre Work
--- Proposed Post Work

Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.800
-4.000	4.800
-4.000	1.500
0.000	-5.089
5.000	-6.486
10.000	-7.656
15.000	-8.183
20.000	-8.317
25.000	-8.241
30.000	-8.160
35.000	-8.368
40.000	-7.954
45.000	-7.649
50.000	-7.671

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.830	4.400
-11.330	4.400
-4.450	0.960
-4.450	0.160
-3.550	0.160
-3.550	0.760
-0.550	0.760
14.560	-6.295
17.560	-6.295
17.560	-8.295

Earth Work	Pre-Work	Ch. (Di)	-12.83	-4.00	-4.00	-3.55			Total
	R.L.(RLi)	4.80	4.80	1.50	0.76				Area
	Area (Ai)		42.38	0.00	0.51				42.89
Post Work	Ch. (Di)	-12.83	-11.33	-4.45	-4.45	-3.55	-3.55		Total
	R.L.(RLi)	4.40	4.40	0.96	0.16	0.16	0.76		Area
	Area (Ai)		6.60	18.44	0.00	0.14	0.00		25.18
Pre Work - Post Work =									17.71 Sqm

Scour Hole Filling	Pre - Work	Ch. (Di)	-3.55	0.00	5.00	10.00	15.00	17.56	Total
		R.L.(RLi)	0.760	-5.089	-6.486	-7.656	-8.183	-8.295	Area
		Area (Ai)		-7.68	-28.94	-35.36	-39.60	-21.09	-132.67
	Post - Work	Ch. (Di)	-3.55	-0.55	14.56	17.56	17.56	Total	
		R.L.(RLi)	0.760	0.760	-6.295	-6.295	-8.295	Area	
		Area (Ai)		2.28	-41.82	-18.89	0.00	-58.43	
	Post Work -Pre Work =								74.24

Note:- * Length of Slope for Pitching = 7.69 M , **Area in Sqm. Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

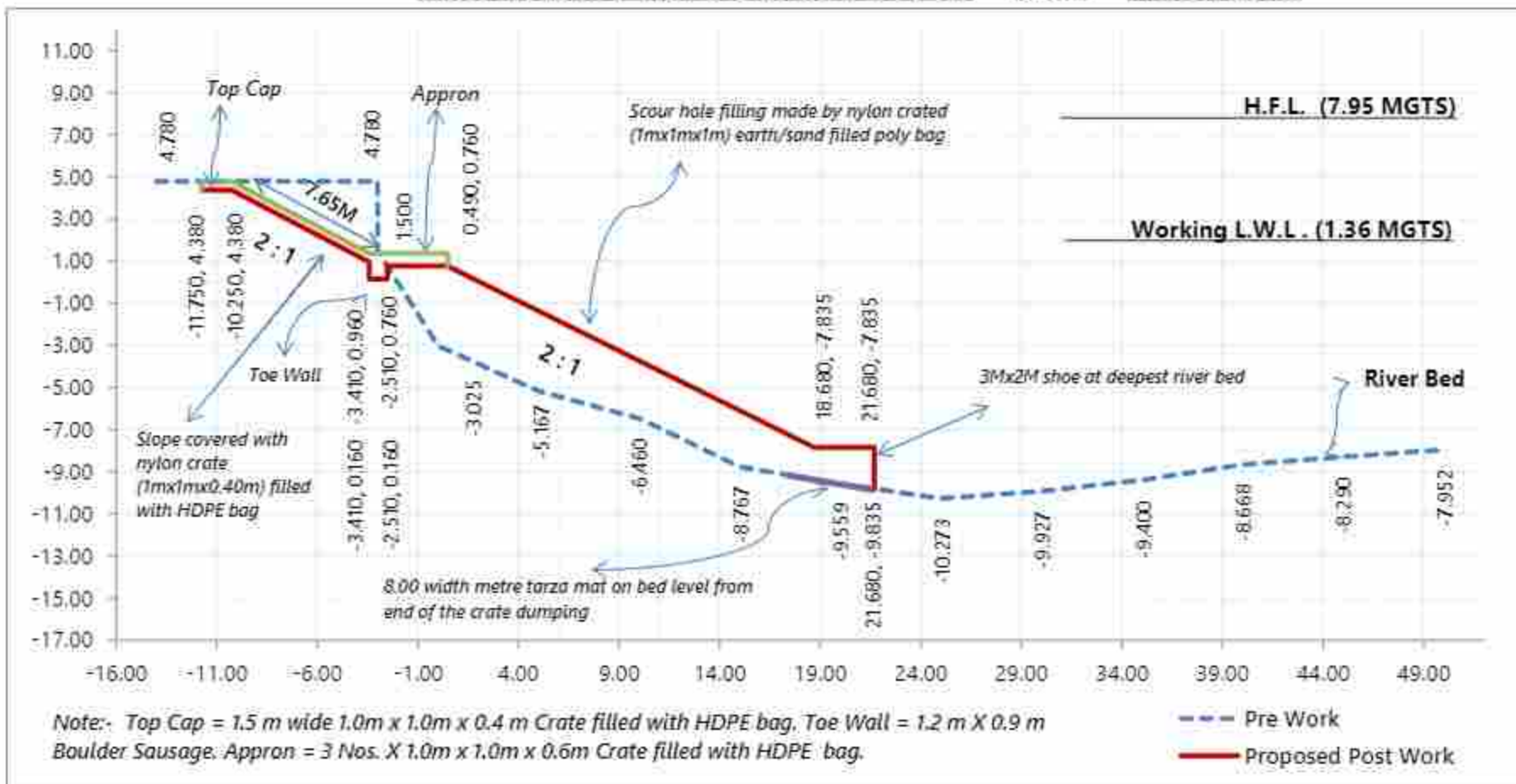
K. Sankar
10/09/22
Sectional Officer
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"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR TO KALIPUR OF CH. 850.00 M/ADCP-1100m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.780
-3.000	4.780
-3.000	1.500
0.000	-3.025
5.000	-5.167
10.000	-6.460
15.000	-8.767
20.000	-9.559
25.000	-10.273
30.000	-9.927
35.000	-9.400
40.000	-8.668
45.000	-8.290
50.000	-7.952

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.750	4.380
-10.250	4.380
-3.410	0.960
-3.410	0.160
-2.510	0.160
-2.510	0.760
0.490	0.760
18.680	-7.835
21.680	-7.835
21.680	-9.835

Earth Work	Pre-Work	Ch. (Di)	-11.75	-3.00	-3.00	-2.51		Total
		R.L.(RLi)	4.78	4.78	1.50	0.76		Area
	Post Work	Ch. (Di)	-11.75	-10.25	-3.41	-3.41	-2.51	Total
		R.L.(RLi)	4.38	4.38	0.96	0.16	0.76	Area
		Area (Ai)		6.57	18.26	0.00	0.14	24.97
		Pre Work-Post Work =						17.41 Sqm

Scour Hole Filling	Pre-Work	Ch. (Di)	-2.51	0.00	5.00	10.00	15.00	20.00	21.68	Total
		R.L.(RLi)	0.760	-3.025	-5.167	-6.460	-8.767	-9.559	-9.835	Area
	Post-Work	Ch. (Di)	-2.51	0.49	18.68	21.68	21.68			Total
		R.L.(RLi)	0.760	0.760	-7.835	-7.835	-9.835			Area
		Area (Ai)		2.28	-64.35	-23.51	0.00			-85.58
		Post Work-Pre Work =								66.99 Sqm

Note:- * Length of Slope for Pitching = 7.65 M . **Area in Sqm. $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

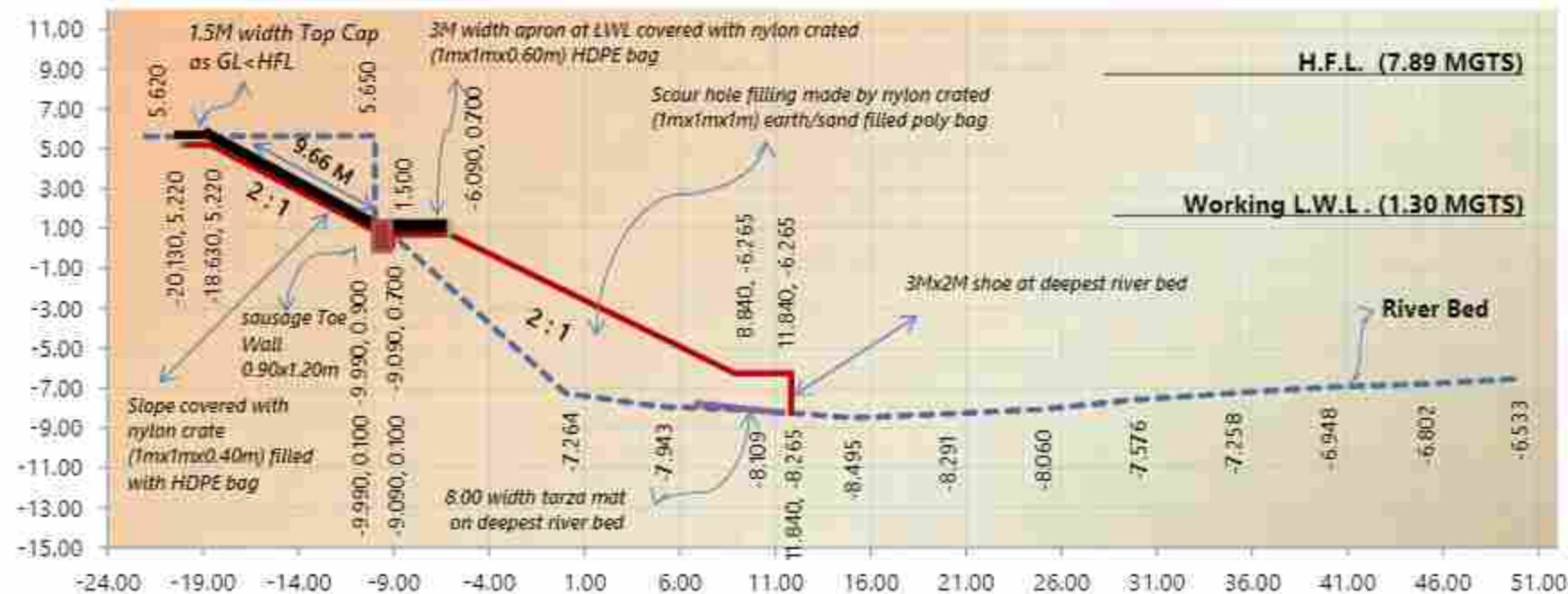
S. K. Saha
 Sectional Officer
 Chakdaha Irrigation Section

S. K. Saha
 Sub-Divisional Officer
 Ranaghat Irrigation Sub-Division

S. K. Saha
 Executive Engineer
 Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

TYPICAL CROSS SECTION ON L/B OF RIVER HOOGHLY/BHAGIRATHI AT VILL-TARINIPUR OF CH. 0.00 M/ADCP-1600 M



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 3 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

Pre Work	
Dist. (M)	R.L.(M)
-22.000	5.620
-10.000	5.650
-10.000	1.500
0.000	-7.264
5.000	-7.943
10.000	-8.109
15.000	-8.495
20.000	-8.291
25.000	-8.060
30.000	-7.576
35.000	-7.258
40.000	-6.948
45.000	-6.802
50.000	-6.533

Proposed Post Work	
Dist. (M)	R.L.(M)
-20.130	5.220
-18.630	5.220
-9.990	0.900
-9.990	0.100
-9.090	0.100
-9.090	0.700
-6.090	0.700
8.840	-6.265
11.840	-6.265
11.840	-8.265

Earth Work	Pre - Work	Ch. (Di)	-20.13	-10.00	-10.00	-9.09		Total	
		R.L.(RLi)	5.62	5.65	1.50	0.70		Area	
		Area (Ai)		57.08	0.00	1.00		58.08	
	Post Work	Ch. (Di)	-20.13	-18.63	-9.99	-9.99	-9.09	-9.09	Total
		R.L.(RLi)	5.22	5.22	0.90	0.10	0.10	0.70	Area
		Area (Ai)		7.83	26.44	0.00	0.09	0.00	34.36
	Pre Work-Post Work =							23.72 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-9.09	0.00	5.00	10.00	11.84		Total
		R.L.(RLi)	0.700	-7.264	-7.943	-8.109	-8.265		Area
		Area (Ai)		-29.83	-38.02	-40.13	-15.06		-123.04
	Post - Work	Ch. (Di)	-9.09	-6.09	8.84	11.84	11.84		Total
		R.L.(RLi)	0.700	0.700	-6.265	-6.265	-8.265		Area
		Area (Ai)		2.10	-41.54	-18.80	0.00		-58.24
	Post Work -Pre Work =							64.80	Sqm

Note:- * Length of Slope for Pitching = 9.66 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

Sectional Officer
Chakdaha Irrigation Section

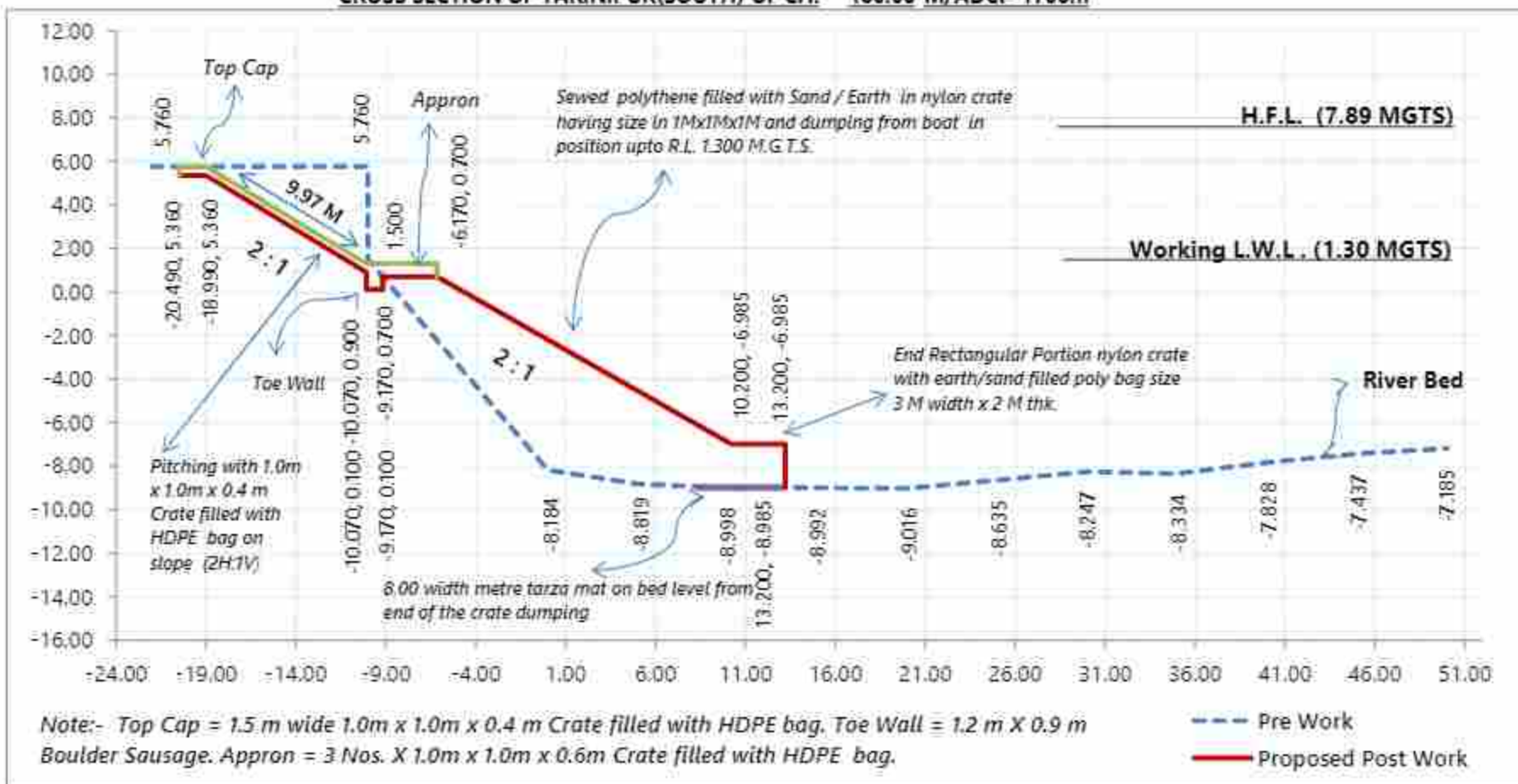
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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 100.00 M/ADCP-1700m



Pre Work	
Dist. (M)	R.L.(M)
-22.000	5.760
-10.000	5.760
-10.000	1.500
0.000	-8.184
5.000	-8.819
10.000	-8.998
15.000	-8.992
20.000	-9.016
25.000	-8.635
30.000	-8.247
35.000	-8.334
40.000	-7.828
45.000	-7.437
50.000	-7.185

Proposed Post Work	
Dist. (M)	R.L.(M)
-20.490	5.360
-18.990	5.360
-10.070	0.900
-10.070	0.100
-9.170	0.100
-9.170	0.700
-6.170	0.700
10.200	-6.985
13.200	-6.985
13.200	-8.985

Earth Work	Pre - Work	Ch. (Di)	-20.49	-10.00	-10.00	-9.17	Total		
		R.L.(RLi)	5.76	5.76	1.50	0.70	Area		
		Area (Ai)		60.42	0.00	0.91	61.33		
	Post Work	Ch. (Di)	-20.49	-18.99	-10.07	-10.07	-9.17	-9.17	Total
		R.L.(RLi)	5.36	5.36	0.90	0.10	0.10	0.70	Area
		Area (Ai)		8.04	27.92	0.00	0.09	0.00	36.05
	Pre Work - Post Work =							25.28 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-9.17	0.00	5.00	10.00	13.20			Total
		R.L.(RLi)	0.700	-8.184	-8.819	-8.998	-8.985			Area
		Area (Ai)		-34.31	-42.51	-44.54	-28.77			-150.13
	Post - Work	Ch. (Di)	-9.17	-6.17	10.20	13.20	13.20			Total
		R.L.(RLi)	0.700	0.700	-6.985	-6.985	-8.985			Area
		Area (Ai)		2.10	-51.44	-20.96	0.00			-70.30
	Post Work - Pre Work = 79.83 Sqm									

Note:- * Length of Slope for Pitching = 9.97 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

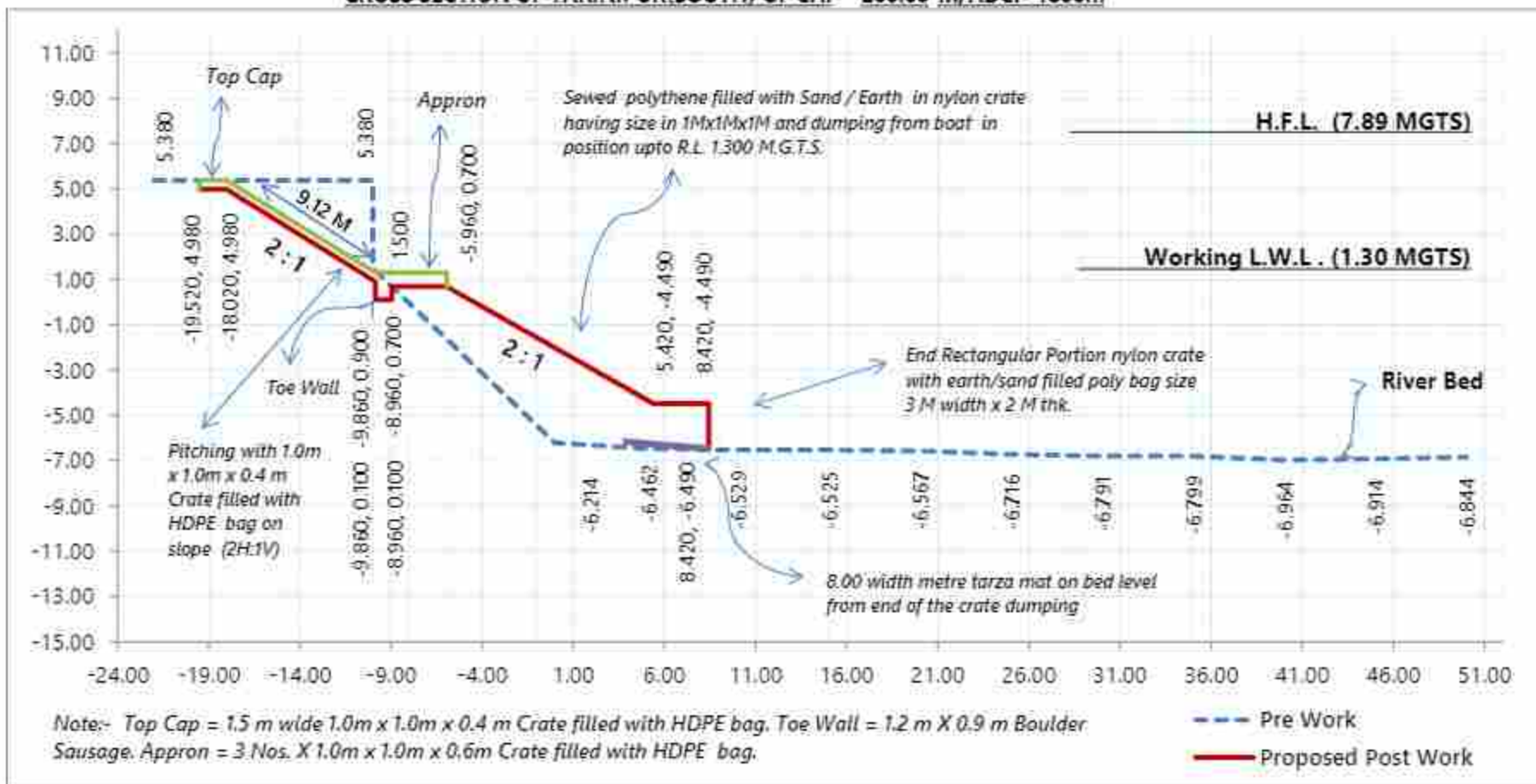
K. Sanyal
10/10/22
Sectional Officer
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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 200.00 M/ADCP-1800m



Pre Work	
Dist. (M)	R.L.(M)
-22.000	5.380
-10.000	5.380
-10.000	1.500
0.000	-6.214
5.000	-6.462
10.000	-6.529
15.000	-6.525
20.000	-6.567
25.000	-6.716
30.000	-6.791
35.000	-6.799
40.000	-6.964
45.000	-6.914
50.000	-6.844

Proposed Post Work	
Dist. (M)	R.L.(M)
-19.520	4.980
-18.020	4.980
-9.860	0.900
-9.860	0.100
-8.960	0.100
-8.960	0.700
-5.960	0.700
5.420	-4.490
8.420	-4.490
8.420	-6.490

Earth Work	Pre - Work	Ch. (D_i)	-19.52	-10.00	-10.00	-8.96			Total
		R.L. (RL_i)	5.38	5.38	1.50	0.70			Area
		Area (A_i)		51.22	0.00	1.14			52.36
	Post Work	Ch. (D_i)	-19.52	-18.02	-9.86	-9.86	-8.96	-8.96	Total
		R.L. (RL_i)	4.98	4.98	0.90	0.10	0.10	0.70	Area
		Area (A_i)		7.47	23.99	0.00	0.09	0.00	31.55
	Pre Work - Post Work =								20.81 Sqm

Scour Hole Filling	Pre-Work	Ch. (Di)	-8.96	0.00	5.00	8.42			Total
		R.L.(RLi)	0.700	-6.214	-6.462	-6.490			Area
		Area (Ai)		-24.70	-31.69	-22.15			-78.54
	Post-Work	Ch. (Di)	-8.96	-5.96	5.42	8.42	8.42		Total
		R.L.(RLi)	0.700	0.700	-4.490	-4.490	-6.490		Area
		Area (Ai)		2.10	-21.57	-13.47	0.00		-32.94
	Post Work -Pre Work =							45.60	Sqm

Note:- * Length of Slope for Pitching = 9.12 M . **Area in Sqm, $Ai = 0.50 \times [D(i+1) - Di] \times [RLi + RL(i+1)]$

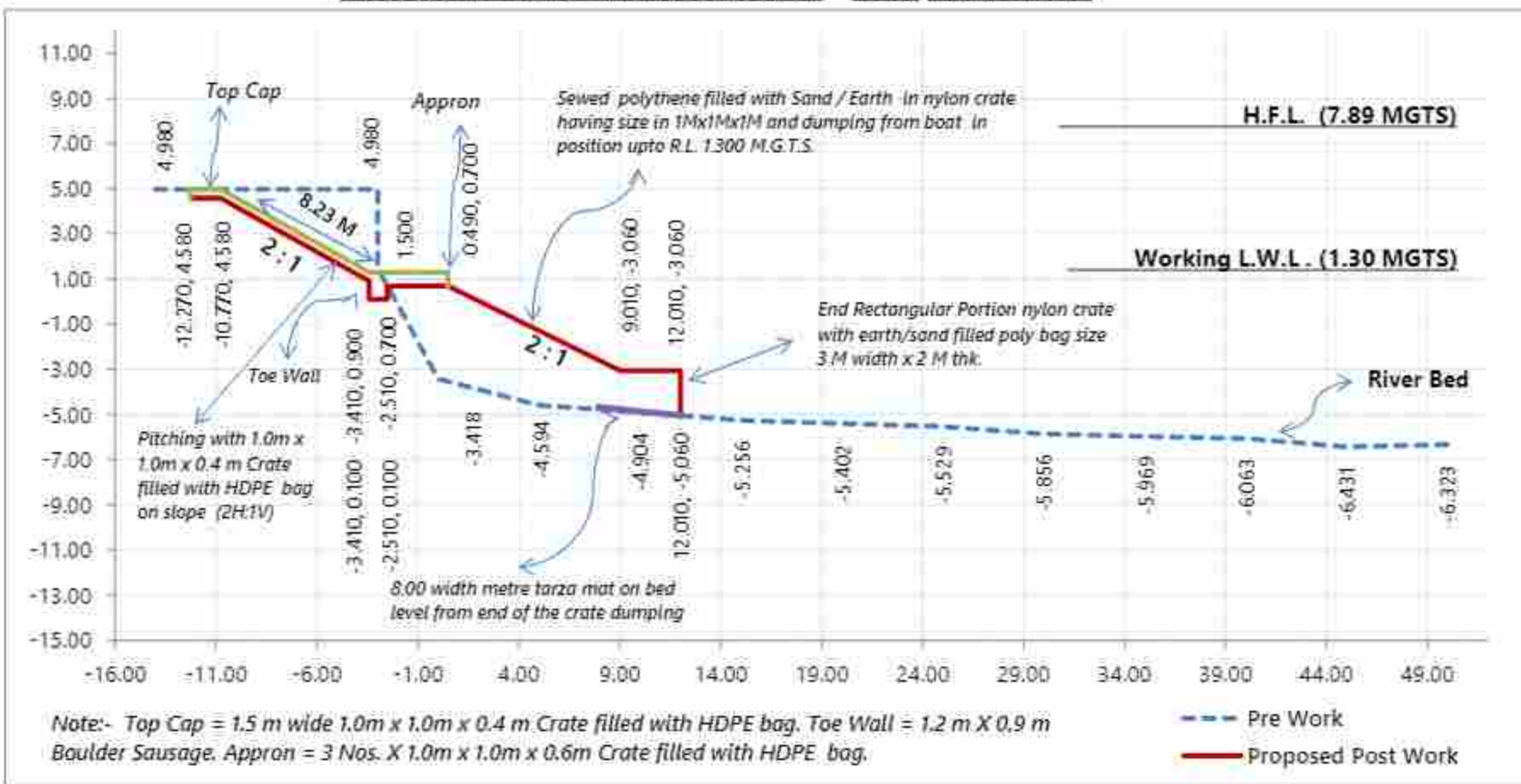
S. K. Saha
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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 300.00 M/ADCP-1900m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.980
-3.000	4.980
-3.000	1.500
0.000	-3.418
5.000	-4.594
10.000	-4.904
15.000	-5.256
20.000	-5.402
25.000	-5.529
30.000	-5.856
35.000	-5.969
40.000	-6.063
45.000	-6.431
50.000	-6.323

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.270	4.580
-10.770	4.580
-3.410	0.900
-3.410	0.100
-2.510	0.100
-2.510	0.700
0.490	0.700
9.010	-3.060
12.010	-3.060
12.010	-5.060

Earth Work	Pre - Work	Ch. (Di)	-12.27	-3.00	-3.00	-2.51		Total	
		R.L.(RLi)	4.98	4.98	1.50	0.70		Area	
		Area (Ai)		46.16	0.00	0.54		46.70	
	Post Work	Ch. (Di)	-12.27	-10.77	-3.41	-3.41	-2.51	-2.51	Total
		R.L.(RLi)	4.58	4.58	0.90	0.10	0.10	0.70	Area
		Area (Ai)		6.87	20.17	0.00	0.09	0.00	27.13
	Pre Work -Post Work =							19.57 Sqm	

Scour Hole Filling	Pre - Work	Ch. (D_i)	-2.51	0.00	5.00	10.00	12.01		Total
		R.L. (RL_i)	0.700	-3.418	-4.594	-4.904	-5.060		Area
		Area (A_i)		-3.41	-20.03	-23.75	-10.01		-57.20
	Post - Work	Ch. (D_i)	-2.51	0.49	9.01	12.01	12.01		Total
		R.L. (RL_i)	0.700	0.700	-3.060	-3.060	-5.060		Area
		Area (A_i)		2.10	-10.05	-9.18	0.00		-17.13
	Post Work - Pre Work =							40.07	Sqm

Note:- * Length of Slope for Pitching = 8.23 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

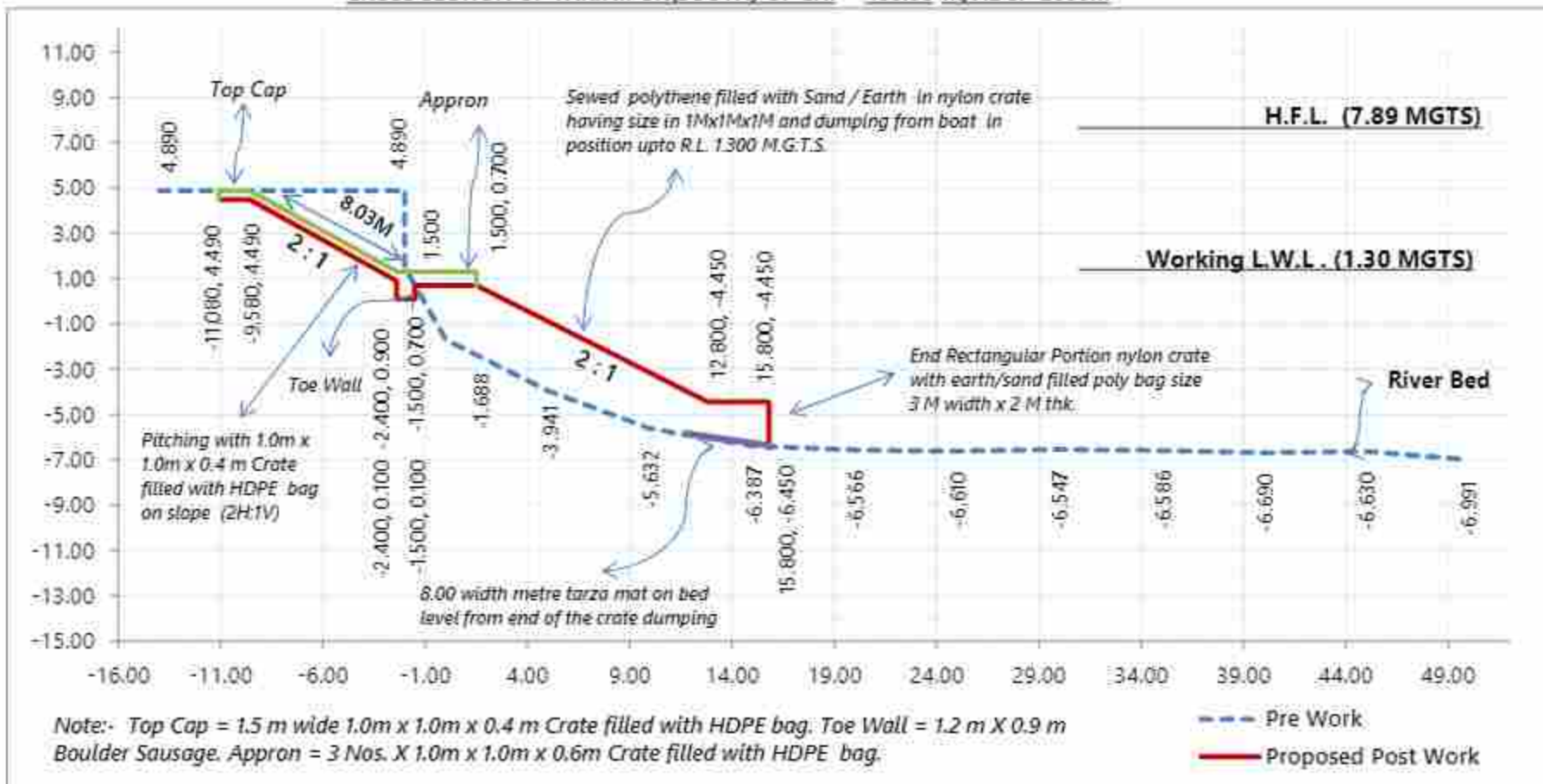
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"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 400.00 M/ADCP-2000m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.890
-2.000	4.890
-2.000	1.500
0.000	-1.688
5.000	-3.941
10.000	-5.632
15.000	-6.387
20.000	-6.566
25.000	-6.610
30.000	-6.547
35.000	-6.586
40.000	-6.690
45.000	-6.630
50.000	-6.991

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.080	4.490
-9.580	4.490
-2.400	0.900
-2.400	0.100
-1.500	0.100
-1.500	0.700
1.500	0.700
12.800	-4.450
15.800	-4.450
15.800	-6.450

Earth Work	Pre - Work	Ch. (Di)	-11.08	-2.00	-2.00	-1.50		Total
		R.L.(RLi)	4.89	4.89	1.50	0.70		Area
		Area (Ai)	44.40	0.00	0.55			44.95
	Post Work	Ch. (Di)	-11.08	-9.58	-2.40	-2.40	-1.50	Total
		R.L.(RLi)	4.49	4.49	0.90	0.10	0.10	Area
		Area (Ai)	6.74	19.35	0.00	0.09	0.00	26.18
		Pre Work-Post Work =						18.77 Sqm

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.50	0.00	5.00	10.00	15.00	15.80		Total
		R.L.(RLi)	0.700	-1.688	-3.941	-5.632	-6.387	-6.450		Area
		Area (Ai)	-0.74	-14.07	-23.93	-30.05	-5.13			-73.92
	Post - Work	Ch. (Di)	-1.50	1.50	12.80	15.80	15.80			Total
		R.L.(RLi)	0.700	0.700	-4.450	-4.450	-6.450			Area
		Area (Ai)	2.10	-21.19	-13.35	0.00				-32.44
		Post Work-Pre Work =								41.48 Sqm

Note:- * Length of Slope for Pitching = 8.03 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

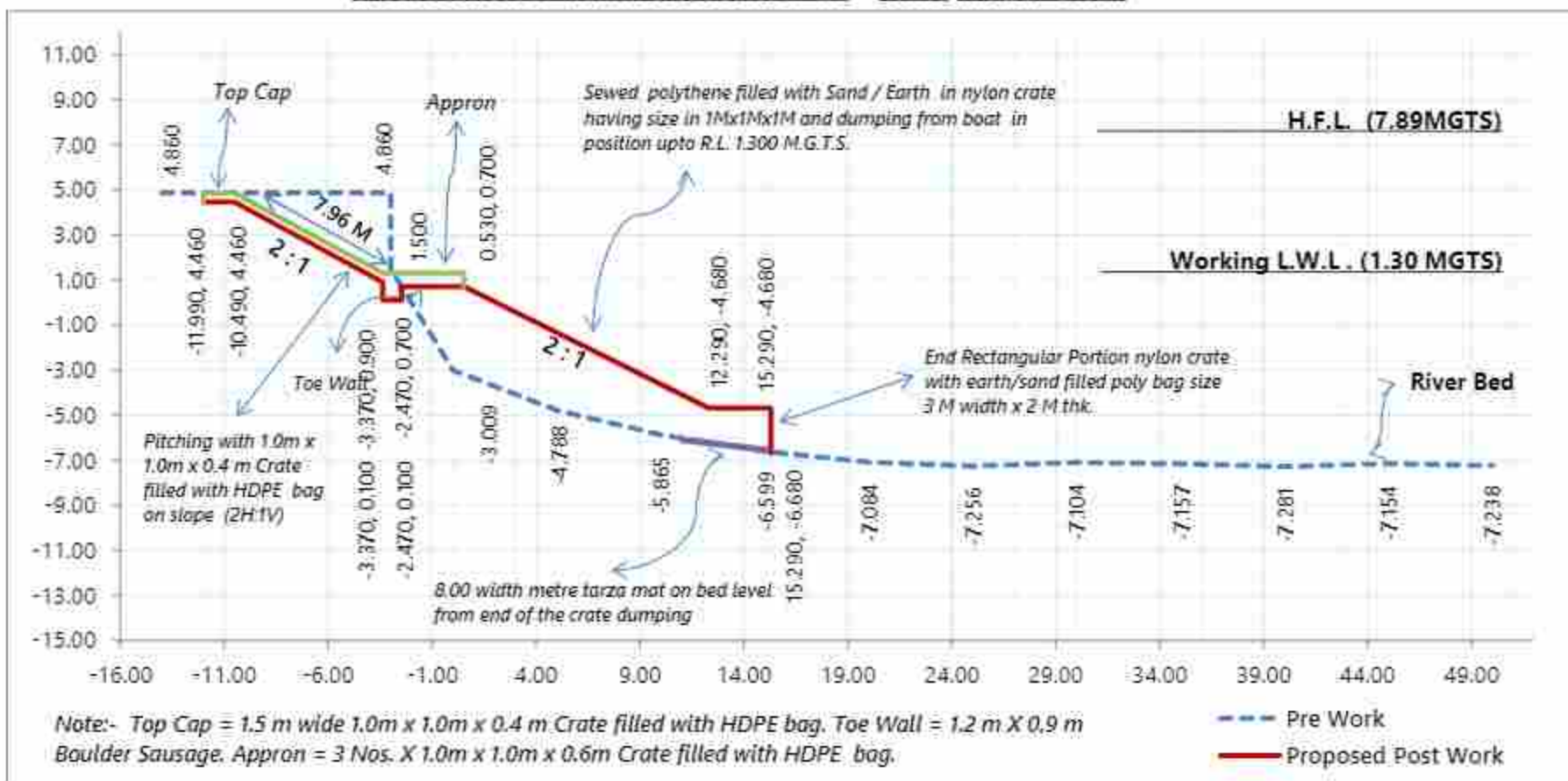
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"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 500.00 M/ADCP-2100m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.860
-3.000	4.860
-3.000	1.500
0.000	-3.009
5.000	-4.788
10.000	-5.865
15.000	-6.599
20.000	-7.084
25.000	-7.256
30.000	-7.104
35.000	-7.157
40.000	-7.281
45.000	-7.154
50.000	-7.238

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.990	4.460
-10.490	4.460
-3.370	0.900
-3.370	0.100
-2.470	0.100
-2.470	0.700
0.530	0.700
12.290	-4.680
15.290	-4.680
15.290	-6.680

Earth Work	Pre - Work	Ch. (Di)	-11.99	-3.00	-3.00	-2.47		Total	
		R.L.(RLi)	4.86	4.86	1.50	0.70		Area	
		Area (Ai)		43.69	0.00	0.58		44.27	
	Post Work	Ch. (Di)	-11.99	-10.49	-3.37	-3.37	-2.47	-2.47	Total
		R.L.(RLi)	4.46	4.46	0.90	0.10	0.10	0.70	Area
		Area (Ai)		6.69	19.08	0.00	0.09	0.00	25.86
	Pre Work -Post Work =							18.41 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-2.47	0.00	5.00	10.00	15.00	15.29	Total
	R.L.(RLi)	0.700	-3.009	-4.788	-5.865	-6.599	-6.680		Area
	Area (Ai)		-2.85	-19.49	-26.63	-31.16	-1.93		-82.06
	Post - Work	Ch. (Di)	-2.47	0.53	12.29	15.29	15.29		Total
	R.L.(RLi)	0.700	0.700	-4.680	-4.680	-6.680			Area
	Area (Ai)		2.10	-23.40	-14.04	0.00			-35.34
	Post Work - Pre Work =							46.72	Sqm

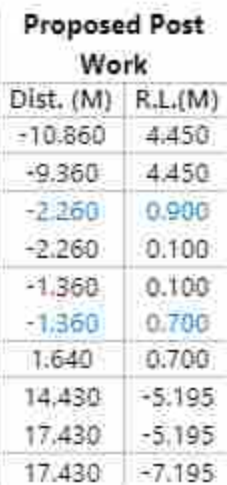
Note:- * Length of Slope for Pitching = 7.96 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 600.00 M/ADCP-2200m

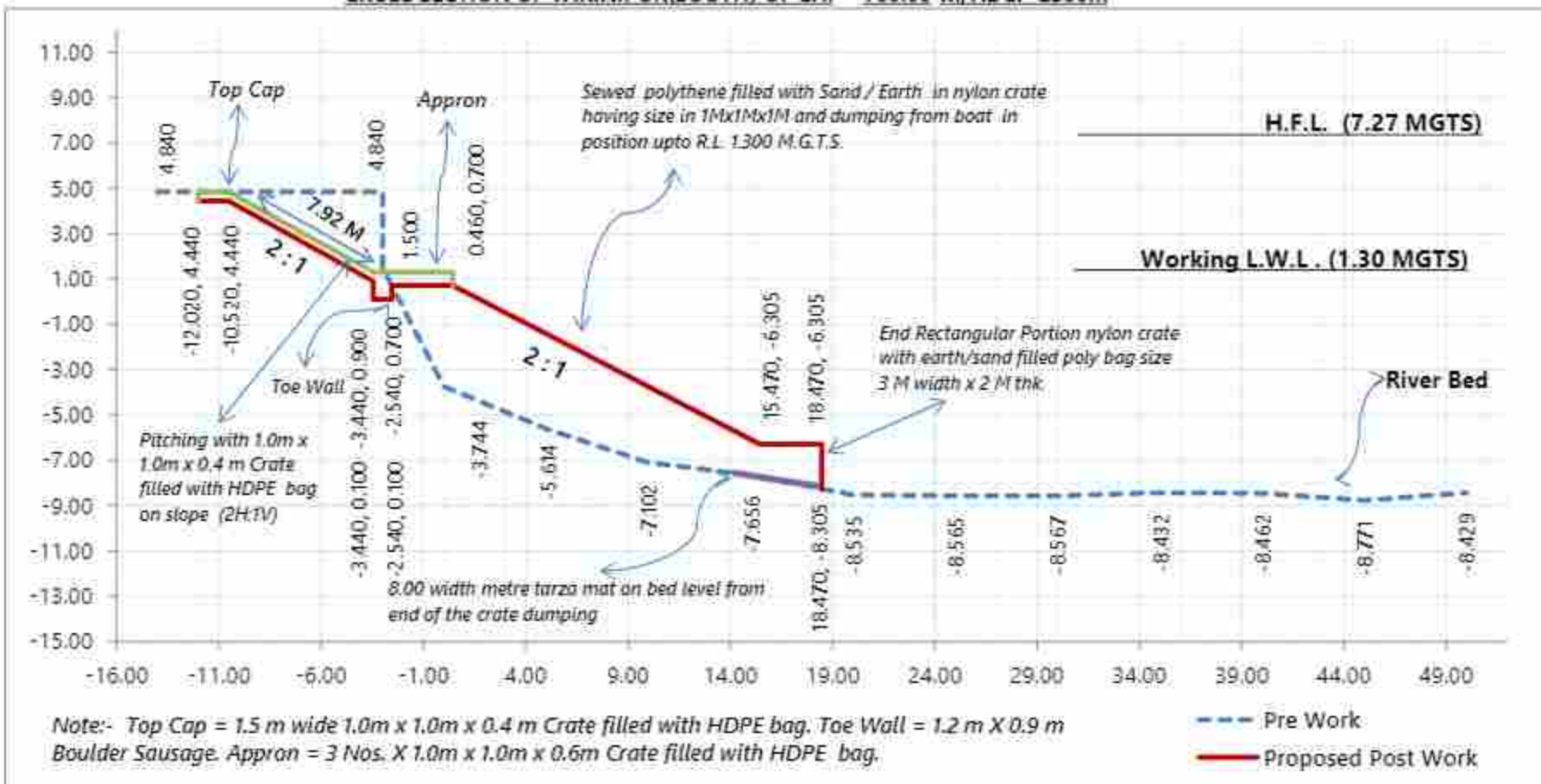


Scour Hole Filling	Pre-Work	Ch. (Di)	-1.36	0.00	5.00	10.00	15.00	17.43	Total
		R.L.(RLi)	0.700	-1.006	-3.961	-5.566	-6.824	-7.195	Area
		Area (Ai)		-0.21	-12.42	-23.82	-30.96	-17.03	-84.46
	Post-Work	Ch. (Di)	-1.36	1.64	14.43	17.43	17.43	Total	
		R.L.(RLi)	0.700	0.700	-5.195	-5.195	-7.195	Area	
		Area (Ai)		2.10	-28.75	-15.59	0.00	-42.24	
	Post Work -Pre Work =								42.22

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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 700.00 M/ADCP-2300m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.840
-3.000	4.840
-3.000	1.500
0.000	-3.744
5.000	-5.614
10.000	-7.102
15.000	-7.656
20.000	-8.535
25.000	-8.565
30.000	-8.567
35.000	-8.432
40.000	-8.462
45.000	-8.771
50.000	-8.429

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.020	4.440
-10.520	4.440
-3.440	0.900
-3.440	0.100
-2.540	0.100
-2.540	0.700
0.460	0.700
15.470	-6.305
18.470	-6.305
18.470	-8.305

Earth Work	Pre - Work	Ch. (Di)	-12.02	-3.00	-3.00	-2.54		Total	
		R.L.(RLi)	4.84	4.84	1.50	0.70		Area	
		Area (Ai)		43.66	0.00	0.51		44.17	
	Post Work	Ch. (Di)	-12.02	-10.52	-3.44	-3.44	-2.54	-2.54	Total
		R.L.(RLi)	4.44	4.44	0.90	0.10	0.10	0.70	Area
		Area (Ai)		6.66	18.90	0.00	0.09	0.00	25.65
	Pre Work-Post Work =							18.52 Sqm	

Scour Hole Filling	Pre-Work	Ch. (Di)	-2.54	0.00	5.00	10.00	15.00	18.47	Total
		R.L.(RLi)	0.700	-3.744	-5.614	-7.102	-7.656	-8.305	Area
		Area (Ai)		-3.87	-23.40	-31.79	-36.90	-27.69	-123.65
	Post-Work	Ch. (Di)	-2.54	0.46	15.47	18.47	18.47	Total	
		R.L.(RLi)	0.700	0.700	-6.305	-6.305	-8.305	Area	
		Area (Ai)		2.10	-42.07	-18.92	0.00	-58.89	
	Post Work -Pre Work =								64.76

Note:- * Length of Slope for Pitching = 7.92 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

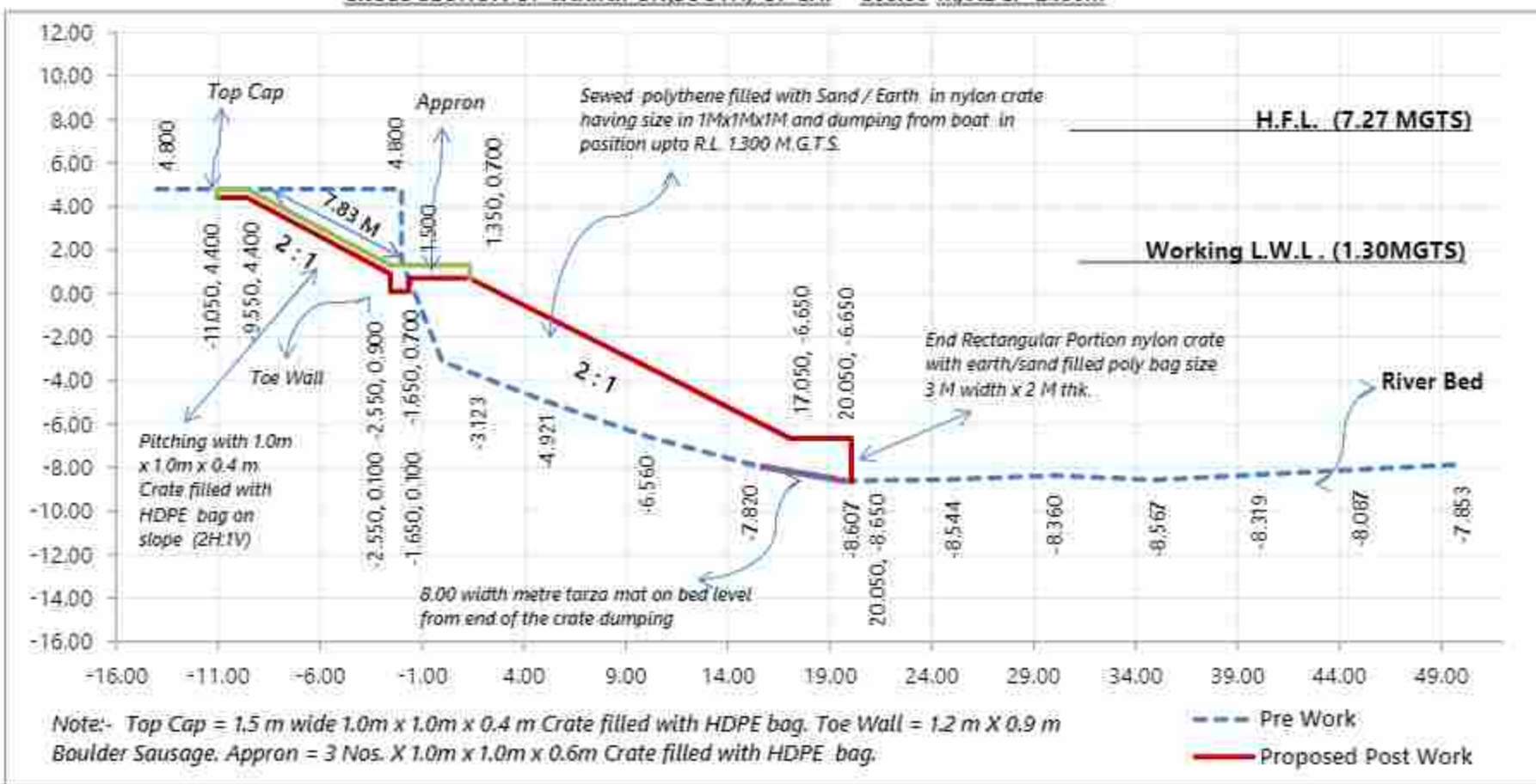
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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 800.00 M/ADCP-2400m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.800
-2.000	4.800
-2.000	1.500
0.000	-3.123
5.000	-4.921
10.000	-6.560
15.000	-7.820
20.000	-8.607
25.000	-8.544
30.000	-8.360
35.000	-8.567
40.000	-8.319
45.000	-8.087
50.000	-7.853

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.050	4.400
-9.550	4.400
-2.550	0.900
-2.550	0.100
-1.650	0.100
-1.650	0.700
1.350	0.700
17.050	-6.650
20.050	-6.650
20.050	-8.650

Earth Work	Pre - Work	Ch. (D_i)	-11.05	-2.00	-2.00	-1.65		Total	
		R.L. (RL_i)	4.80	4.80	1.50	0.70		Area	
		Area (A_i)		43.44	0.00	0.39		43.83	
	Post Work	Ch. (D_i)	-11.05	-9.55	-2.55	-2.55	-1.65	-1.65	Total
		R.L. (RL_i)	4.40	4.40	0.90	0.10	0.10	0.70	Area
		Area (A_i)		6.60	18.55	0.00	0.09	0.00	25.24
	Pre Work - Post Work =							18.59 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.65	0.00	5.00	10.00	15.00	20.00	20.05	Total
		R.L.(RLi)	0.700	-3.123	-4.921	-6.560	-7.820	-8.607	-8.650	Area
		Area (Ai)		-2.00	-20.11	-28.70	-35.95	-41.07	-0.43	-128.26
	Post - Work	Ch. (Dy)	-1.65	1.35	17.05	20.05	20.05			Total
		R.L.(RLi)	0.700	0.700	-6.650	-6.650	-8.650			Area
		Area (Ai)		2.10	-46.71	-19.95	0.00			-64.56
	Post Work - Pre Work = 63.70									Sqm

Note:- * Length of Slope for Pitching = 7.83 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

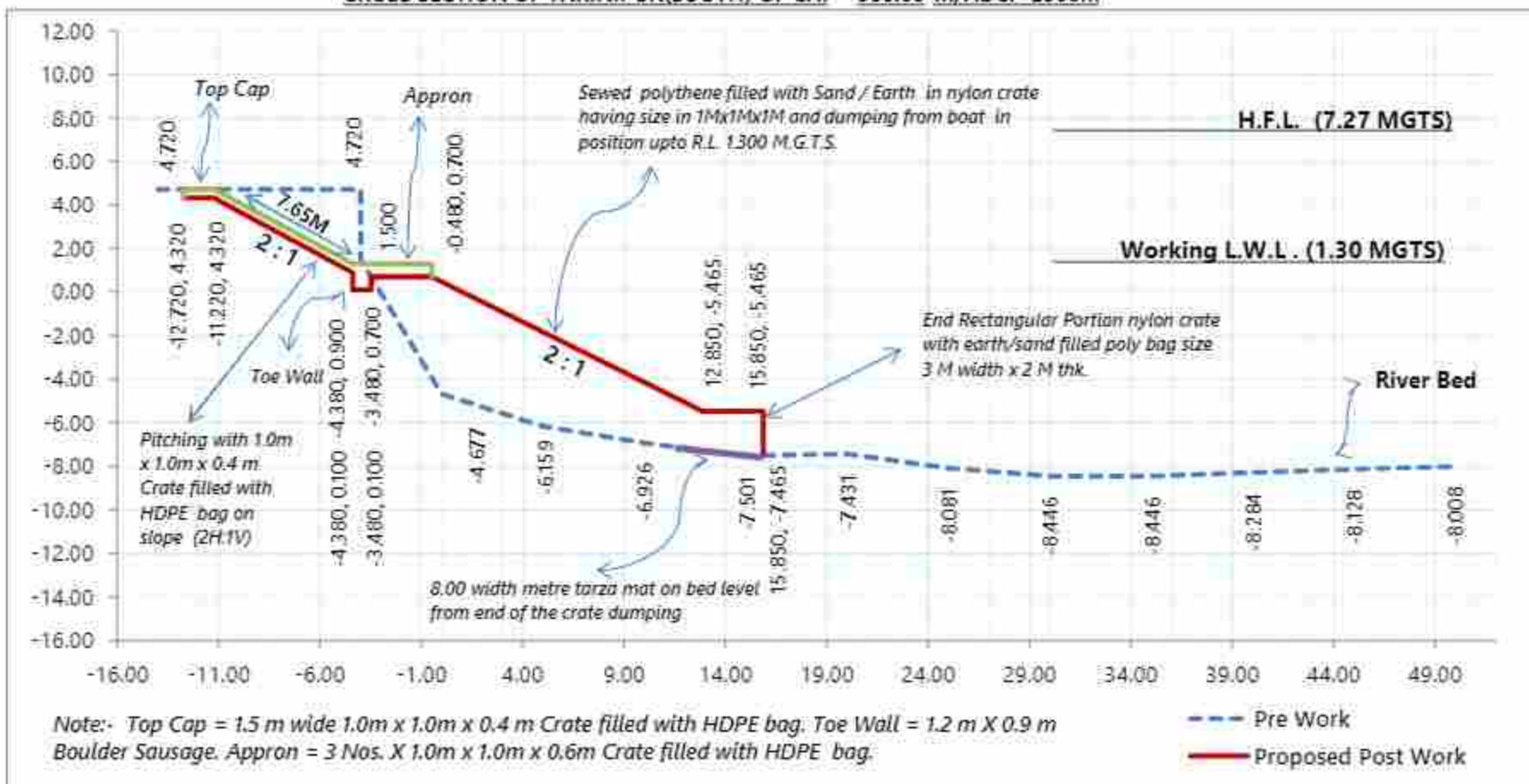
K. Sankar
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Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

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CROSS SECTION OF TARINIPUR(SOUTH) OF CH. 900.00 M/ADCP-2500m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.720
-4.000	4.720
-4.000	1.500
0.000	-4.677
5.000	-6.159
10.000	-6.926
15.000	-7.501
20.000	-7.431
25.000	-8.081
30.000	-8.446
35.000	-8.446
40.000	-8.284
45.000	-8.128
50.000	-8.008

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.720	4.320
-11.220	4.320
-4.380	0.900
-4.380	0.100
-3.480	0.100
-3.480	0.700
-0.480	0.700
12.850	-5.465
15.850	-5.465
15.850	-7.465

Earth Work	Pre - Work	Ch. (Di)	-12.72	-4.00	-4.00	-3.48		Total	
		R.L.(RLi)	4.72	4.72	1.50	0.70		Area	
		Area (Ai)		41.16	0.00	0.57		41.73	
	Post Work	Ch. (Di)	-12.72	-11.22	-4.38	-4.38	-3.48	-3.48	Total
		R.L.(RLi)	4.32	4.32	0.90	0.10	0.10	0.70	Area
		Area (Ai)		6.48	17.85	0.00	0.09	0.00	24.42
	Pre Work-Post Work =							17.31 Sqm	

Scour Hole Filling	Pre-Work	Ch. (Di)	-3.48	0.00	5.00	10.00	15.00	15.85	Total
		R.L.(RLi)	0.700	-4.677	-6.159	-6.926	-7.501	-7.465	Area
		Area (Ai)		-6.92	-27.09	-32.71	-36.07	-6.36	-109.15
	Post-Work	Ch. (Di)	-3.48	-0.48	12.85	15.85	15.85	Total	
		R.L.(RLi)	0.700	0.700	-5.465	-5.465	-7.465	Area	
		Area (Ai)		2.10	-31.76	-16.40	0.00	-46.06	
	Post Work -Pre Work =								63.09

Note:- * Length of Slope for Pitching = 7.65 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

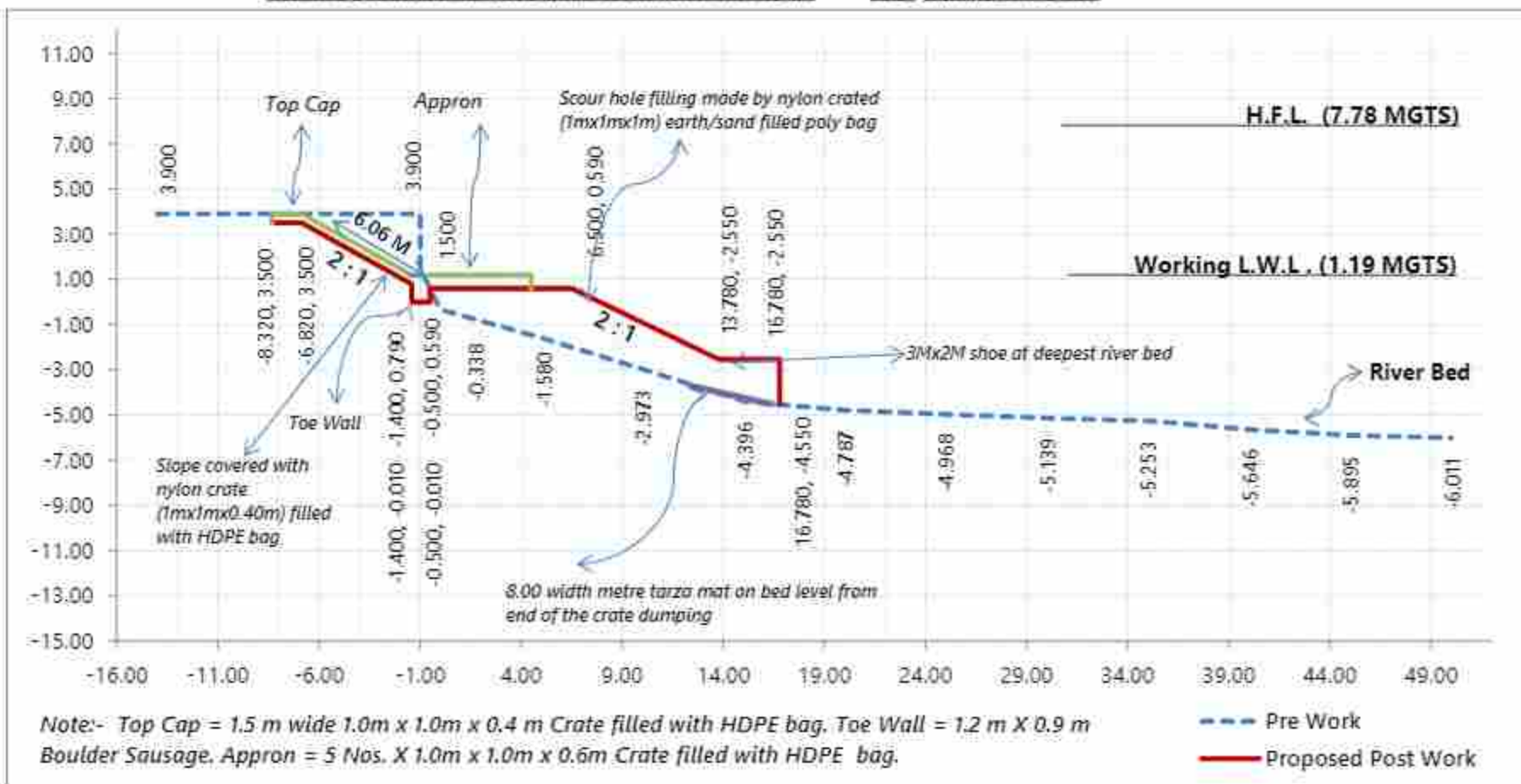
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF GANGA MONOHARPUR OF CH. 0.00 M/ADCP-4500M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	3.900
-1.000	3.900
-1.000	1.500
0.000	-0.338
5.000	-1.580
10.000	-2.973
15.000	-4.396
20.000	-4.787
25.000	-4.968
30.000	-5.139
35.000	-5.253
40.000	-5.646
45.000	-5.895
50.000	-6.011

Proposed Post Work	
Dist. (M)	R.L.(M)
-8.320	3.500
-6.820	3.500
-1.400	0.790
-1.400	-0.010
-0.500	-0.010
-0.500	0.590
6.500	0.590
13.780	-2.550
16.780	-2.550
16.780	-4.550

Earth Work	Pre - Work	Ch. (Di)	-8.32	-1.00	-1.00	-0.50		Total	
		R.L.(RLi)	3.90	3.90	1.50	0.59		Area	
		Area (Ai)		28.55	0.00	0.52		29.07	
	Post Work	Ch. (Di)	-8.32	-6.82	-1.40	-1.40	-0.50	-0.50	Total
		R.L.(RLi)	3.50	3.50	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		5.25	11.63	0.00	-0.01	0.00	16.87
	Pre Work -Post Work =							12.20 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-0.50	0.00	5.00	10.00	15.00	16.78	Total
		R.L.(RLi)	0.590	-0.338	-1.580	-2.973	-4.396	-4.550	Area
		Area (Ai)		0.06	-4.80	-11.38	-18.42	-7.96	-42.50
	Post - Work	Ch. (Di)	-0.50	6.50	13.78	16.78	16.78	Total	
		R.L.(RLi)	0.590	0.590	-2.550	-2.550	-4.550	Area	
		Area (Ai)		4.13	-7.13	-7.65	0.00	-10.65	
	Post Work -Pre Work = 31.85								Sqm

Note:- * Length of Slope for Pitching = 6.06 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

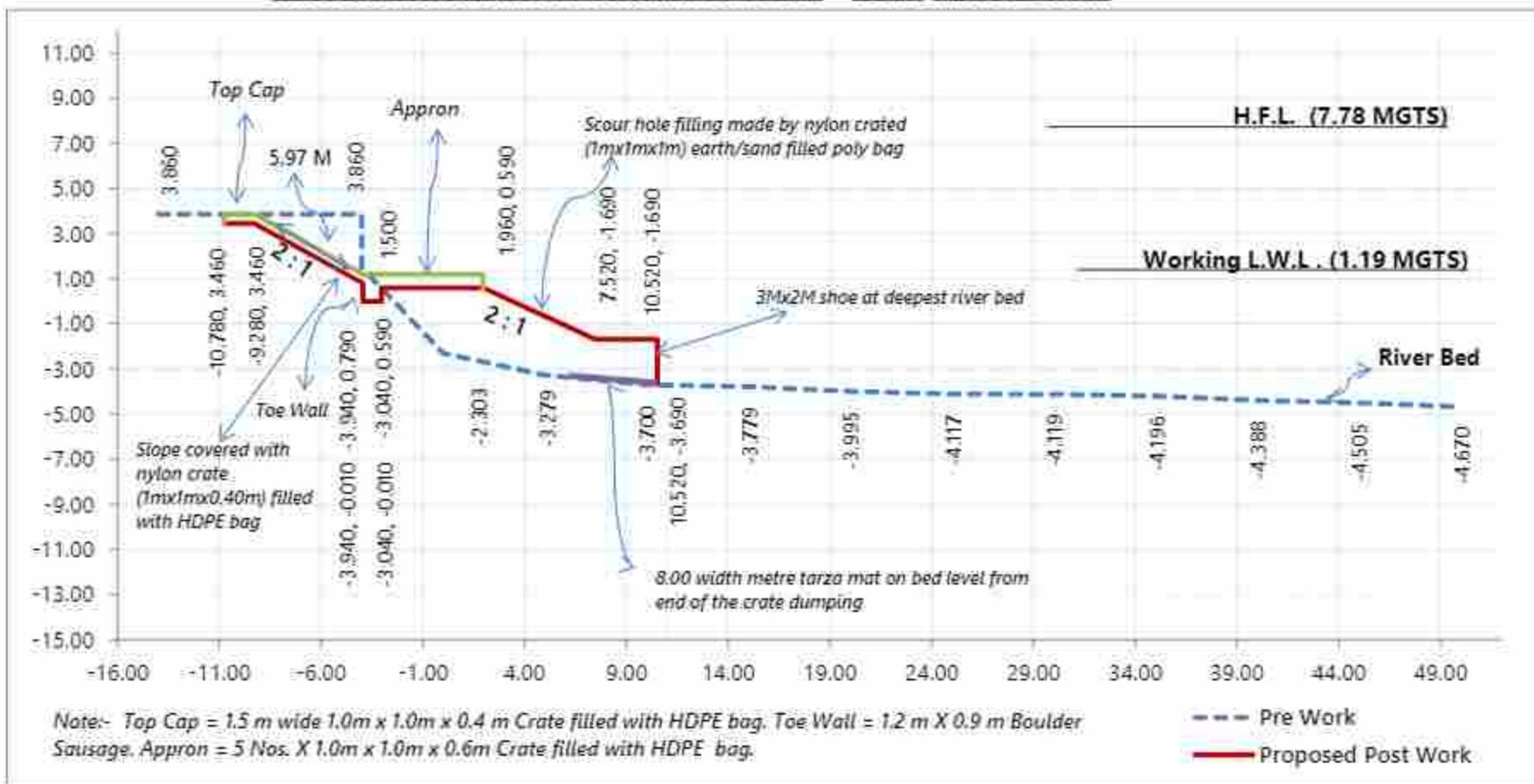
Sectional Officer
Chakdaha Irrigation Section

Sub- Divisional Officer Ranaghat
Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 100.00 M/ADCP-4600M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	3.860
-4.000	3.860
-4.000	1.500
0.000	-2.303
5.000	-3.279
10.000	-3.700
15.000	-3.779
20.000	-3.995
25.000	-4.117
30.000	-4.119
35.000	-4.196
40.000	-4.388
45.000	-4.505
50.000	-4.670

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.780	3.460
-9.280	3.460
-3.940	0.790
-3.940	-0.010
-3.040	-0.010
-3.040	0.590
1.960	0.590
7.520	-1.690
10.520	-1.690
10.520	-3.690

Earth Work	Pre - Work	Ch. (D_i)	-10.78	-4.00	-4.00	-3.04		Total	
		R.L. (RL_i)	3.86	3.86	1.50	0.59		Area	
		Area (A_i)		26.17	0.00	1.00		27.17	
	Post Work	Ch. (D_i)	-10.78	-9.28	-3.94	-3.94	-3.04	-3.04	Total
		R.L. (RL_i)	3.46	3.46	0.79	-0.01	-0.01	0.59	Area
		Area (A_i)		5.19	11.35	0.00	-0.01	0.00	16.53
	Pre Work - Post Work =							10.64 Sqm	

Scour Hole Filling	Pre-Work	Ch. (Di)	-3.04	0.00	5.00	10.00	10.52		Total
		R.L.(RLi)	0.590	-2.303	-3.279	-3.700	-3.690		Area
		Area (Ai)		-2.60	-13.96	-17.45	-1.92		-35.93
	Post-Work	Ch. (Di)	-3.04	1.96	7.52	10.52	10.52		Total
		R.L.(RLi)	0.590	0.590	-1.690	-1.690	-3.690		Area
		Area (Ai)		2.95	-3.06	-5.07	0.00		-5.18
	Post Work - Pre Work =							30.75	Sqm

Note:- * Length of Slope for Pitching = 5.97 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

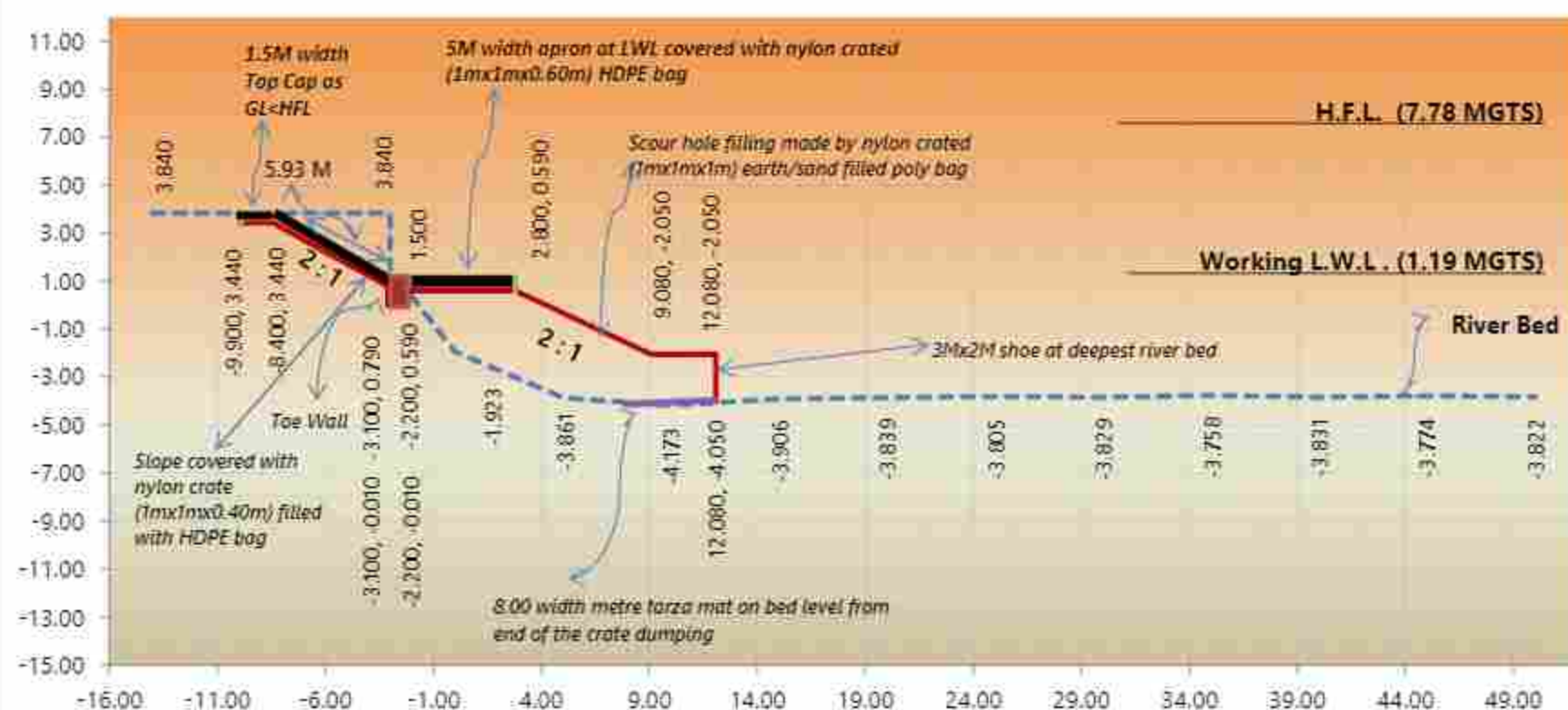
Sectional Officer
Chakdaha Irrigation Section

Sub- Divisional Officer Ranaghat
Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

TYPICAL CROSS SECTION ON L/B OF RIVER HOOGHLY/BHAGIRATHI AT VILL-GANGA MONOHARPUR OF CH. 200.0 M/ADCP-4700M



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 5 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

--- Pre Work
— Proposed Post Work

Earth Work		Pre - Work						Total
		Ch. (Di)	R.L. (RLi)	Area (Ai)	Ch. (Di)	R.L. (RLi)	Area (Ai)	
Pre - Work	Ch. (Di)	-9.90	-3.00	-3.00	-2.20			Total
	R.L. (RLi)	3.84	3.84	1.50	0.59			Area
	Area (Ai)	26.50	0.00	0.84				27.34
Post Work	Ch. (Di)	-9.90	-8.40	-3.10	-3.10	-2.20	-2.20	Total
	R.L. (RLi)	3.44	3.44	0.79	-0.01	-0.01	0.59	Area
	Area (Ai)	5.16	11.21	0.00	-0.01	0.00		16.36
Pre Work - Post Work = 10.98 Sqm								

Scour Hole Filling		Pre - Work						Total
		Ch. (Di)	R.L. (RLi)	Area (Ai)	Ch. (Di)	R.L. (RLi)	Area (Ai)	
Pre - Work	Ch. (Di)	-2.20	0.00	5.00	10.00	12.08		Total
	R.L. (RLi)	0.590	-1.923	-3.861	-4.173	-4.050		Area
	Area (Ai)		-1.47	-14.46	-20.09	-8.55		-44.57
Post - Work	Ch. (Di)	-2.20	2.80	9.08	12.08	12.08		Total
	R.L. (RLi)	0.590	0.590	-2.050	-2.050	-4.050		Area
	Area (Ai)		2.95	-4.58	-6.15	0.00		-7.78
Post Work - Pre Work = 36.79 Sqm								

Note:- * Length of Slope for Pitching = 5.93 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

Sectional Officer
Chakdaha Irrigation Section

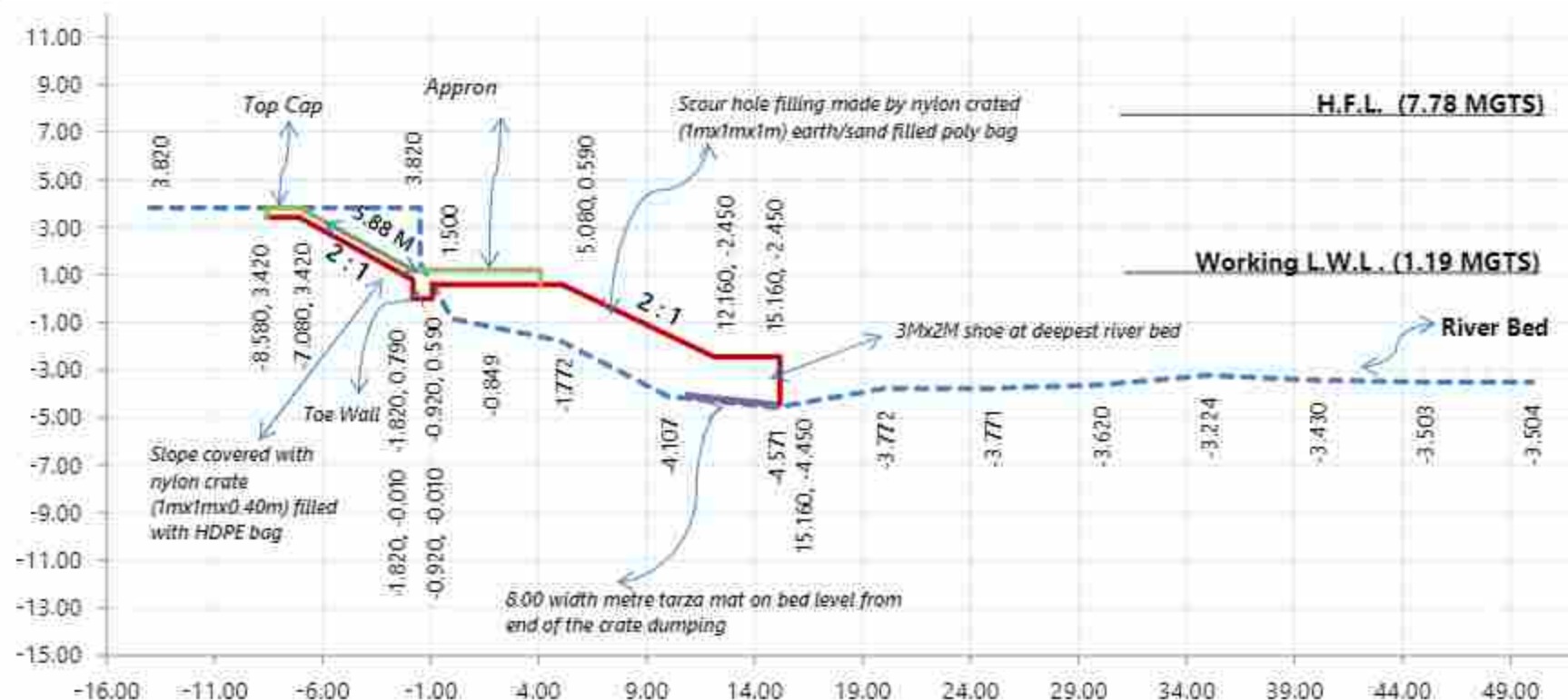
Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

Superintending Engineer
North Irrigation Circle- II
Berhampore- Murshidabad

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF GANGA MONOHARPUR OF CH. 300.00 M/ADCP-4800M



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 5 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

--- Pre Work
— Proposed Post Work

Pre Work	
Dist. (M)	R.L.(M)
-14.000	3.820
-1.500	3.820
-1.500	1.500
0.000	-0.849
5.000	-1.772
10.000	-4.107
15.000	-4.571
20.000	-3.772
25.000	-3.771
30.000	-3.620
35.000	-3.224
40.000	-3.430
45.000	-3.503
50.000	-3.504

Proposed Post Work	
Dist. (M)	R.L.(M)
-8.580	3.420
-7.080	3.420
-1.820	0.790
-1.820	-0.010
-0.920	-0.010
-0.920	0.590
5.080	0.590
12.160	-2.450
15.160	-2.450
15.160	-4.450

Earth Work	Pre - Work	Ch. (Di)	-8.58	-1.50	-1.50	-0.92		Total	
		R.L.(RLi)	3.82	3.82	1.50	0.59		Area	
		Area (Ai)		27.05	0.00	0.61		27.66	
	Post Work	Ch. (Di)	-8.58	-7.08	-1.82	-1.82	-0.92	-0.92	Total
		R.L.(RLi)	3.42	3.42	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		5.13	11.07	0.00	-0.01	0.00	16.19
	Pre Work -Post Work =							11.47 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-0.92	0.00	5.00	10.00	15.00	15.16	Total
	R.L.(RLi)	0.590	-0.849	-1.772	-4.107	-4.571	-4.571		Area
	Area (Ai)		-0.12	-6.55	-14.70	-21.70	-0.73		-43.80
	Post - Work	Ch. (Di)	-0.92	5.08	12.16	15.16	15.16		Total
	R.L.(RLi)	0.590	0.590	-2.450	-2.450	-4.450			Area
	Area (Ai)		3.54	-6.58	-7.35	0.00			-10.39
	Post Work - Pre Work =							33.41	Sqm

Length of Slope for Pitching = 5.88 M, **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

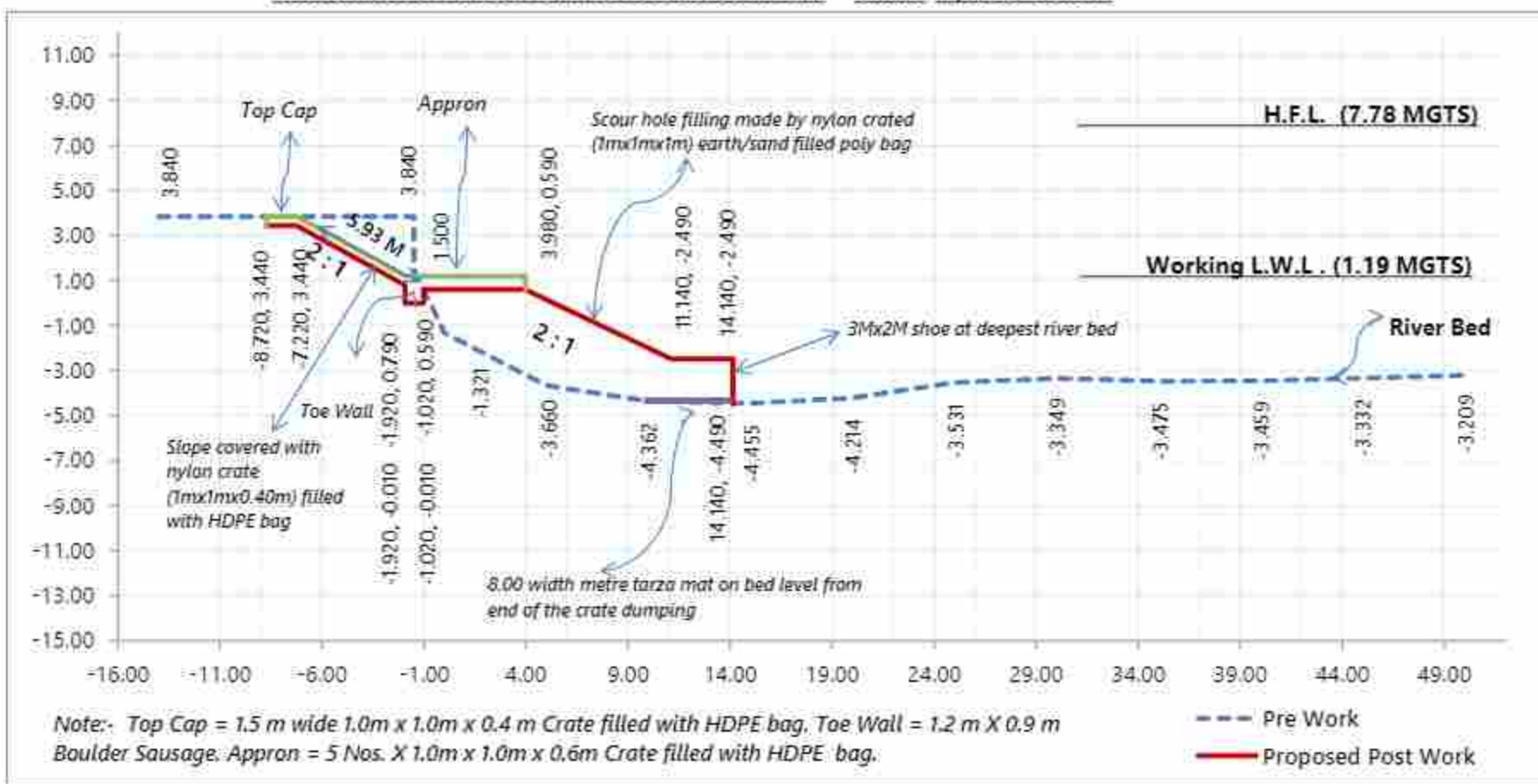
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 400.00 M/ADCP-4900M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	3.840
-1.500	3.840
-1.500	1.500
0.000	-1.321
5.000	-3.660
10.000	-4.362
15.000	-4.455
20.000	-4.214
25.000	-3.531
30.000	-3.349
35.000	-3.475
40.000	-3.459
45.000	-3.332
50.000	-3.209

Proposed Post Work	
Dist. (M)	R.L.(M)
-8.720	3.440
-7.220	3.440
-1.920	0.790
-1.920	-0.010
-1.020	-0.010
-1.020	0.590
3.980	0.590
11.140	-2.490
14.140	-2.490
14.140	-4.490

Earth Work	Pre - Work	Ch. (Di)	-8.72	-1.50	-1.50	-1.02		Total	
		R.L.(RLi)	3.84	3.84	1.50	0.59		Area	
		Area (Ai)		27.72	0.00	0.50		28.22	
	Post Work	Ch. (Di)	-8.72	-7.22	-1.92	-1.92	-1.02	-1.02	Total
		R.L.(RLi)	3.44	3.44	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		5.16	11.21	0.00	-0.01	0.00	16.36
	Pre Work - Post Work =							11.86 Sqm	

Scour Hole Filling	Pre-Work	Ch. (Di)	-1.02	0.00	5.00	10.00	14.14		Total
		R.L.(RLi)	0.590	-1.321	-3.660	-4.362	-4.490		Area
		Area (Ai)		-0.37	-12.45	-20.06	-18.32		-51.20
	Post-Work	Ch. (Di)	-1.02	3.98	11.14	14.14	14.14		Total
		R.L.(RLi)	0.590	0.590	-2.490	-2.490	-4.490		Area
		Area (Ai)		2.95	-6.80	-7.47	0.00		-11.32
	Post Work - Pre Work =							39.88	Sqm

Note:- * Length of Slope for Pitching = 5.93 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

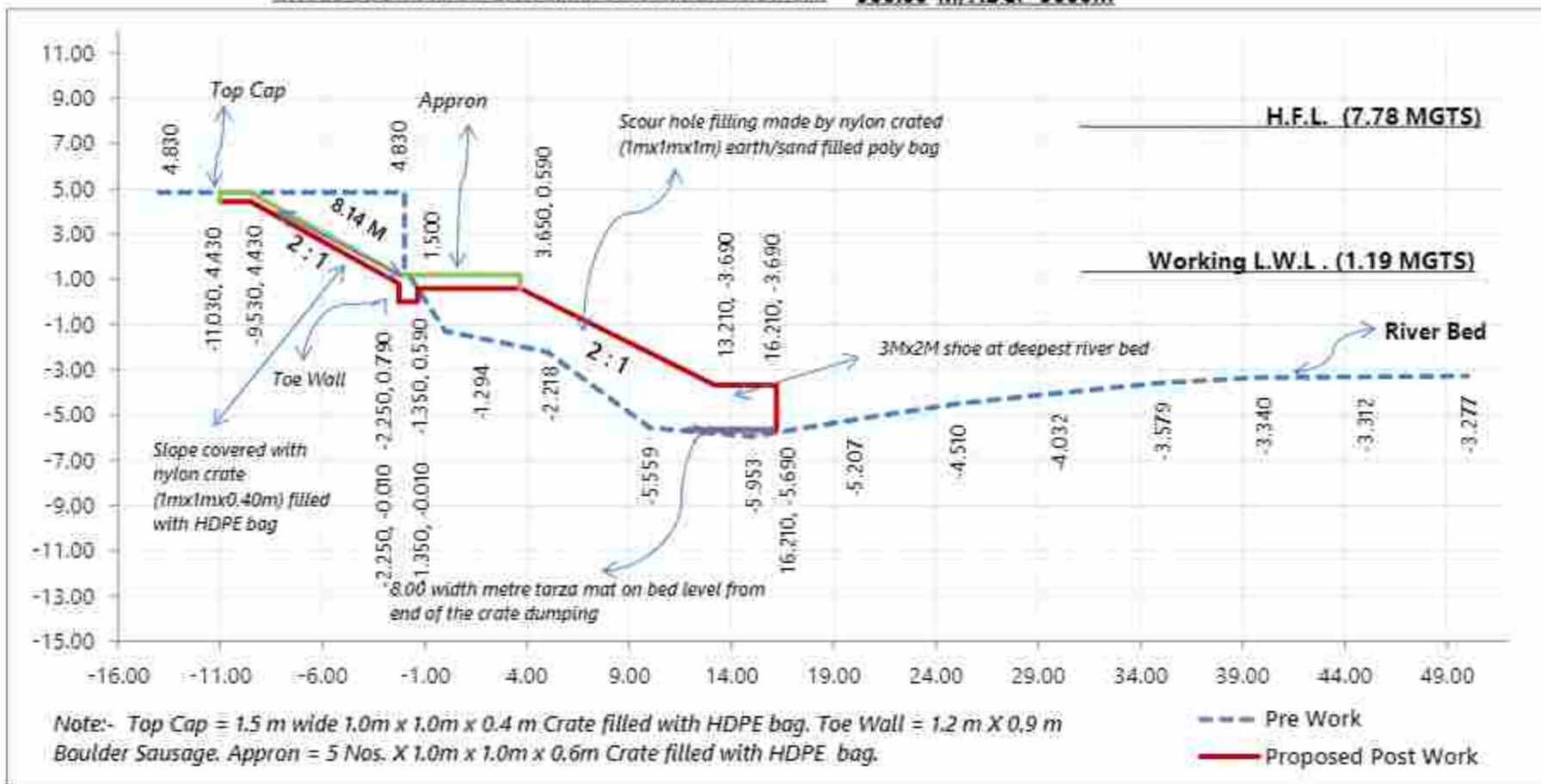
Sectional Officer
 Chakdaha Irrigation Section

Sub-Divisional Officer
 Ranaghat Irrigation Sub- Division

Executive Engineer
 Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 500.00 M/ADCP-5000M



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.830
-2.000	4.830
-2.000	1.500
0.000	-1.294
5.000	-2.218
10.000	-5.559
15.000	-5.953
20.000	-5.207
25.000	-4.510
30.000	-4.032
35.000	-3.579
40.000	-3.340
45.000	-3.312
50.000	-3.277

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.030	4.430
-9.530	4.430
-2.250	0.790
-2.250	-0.010
-1.350	-0.010
-1.350	0.590
3.650	0.590
13.210	-3.690
16.210	-3.690
16.210	-5.690

Earth Work	Pre - Work	Ch. (D _i)	-11.03	-2.00	-2.00	-1.35		Total	
		R.L.(R _{L<i>i</i>})	4.83	4.83	1.50	0.59		Area	
		Area (A _i)		43.61	0.00	0.68		44.29	
	Post Work	Ch. (D _i)	-11.03	-9.53	-2.25	-2.25	-1.35	-1.35	Total
		R.L.(R _{L<i>i</i>})	4.43	4.43	0.79	-0.01	-0.01	0.59	Area
		Area (A _i)		6.65	19.00	0.00	-0.01	0.00	25.64
Pre Work -Post Work =							18.65 Sqm		

Scour Hole Filling	Pre-Work	Ch. (Di)	-1.35	0.00	5.00	10.00	15.00	16.21	Total
		R.L.(RLi)	0.590	-1.294	-2.218	-5.559	-5.953	-5.690	Area
		Area (Ai)		-0.48	-8.78	-19.44	-28.78	-7.04	-64.52
	Post-Work	Ch. (Di)	-1.35	3.65	13.21	16.21	16.21	Total	
		R.L.(RLi)	0.590	0.590	-3.690	-3.690	-5.690	Area	
		Area (Ai)		2.95	-14.82	-11.07	0.00	-22.94	
	Post Work -Pre Work =							41.58	Sqm

Note:- * Length of Slope for Pitching = 8.14 M . **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

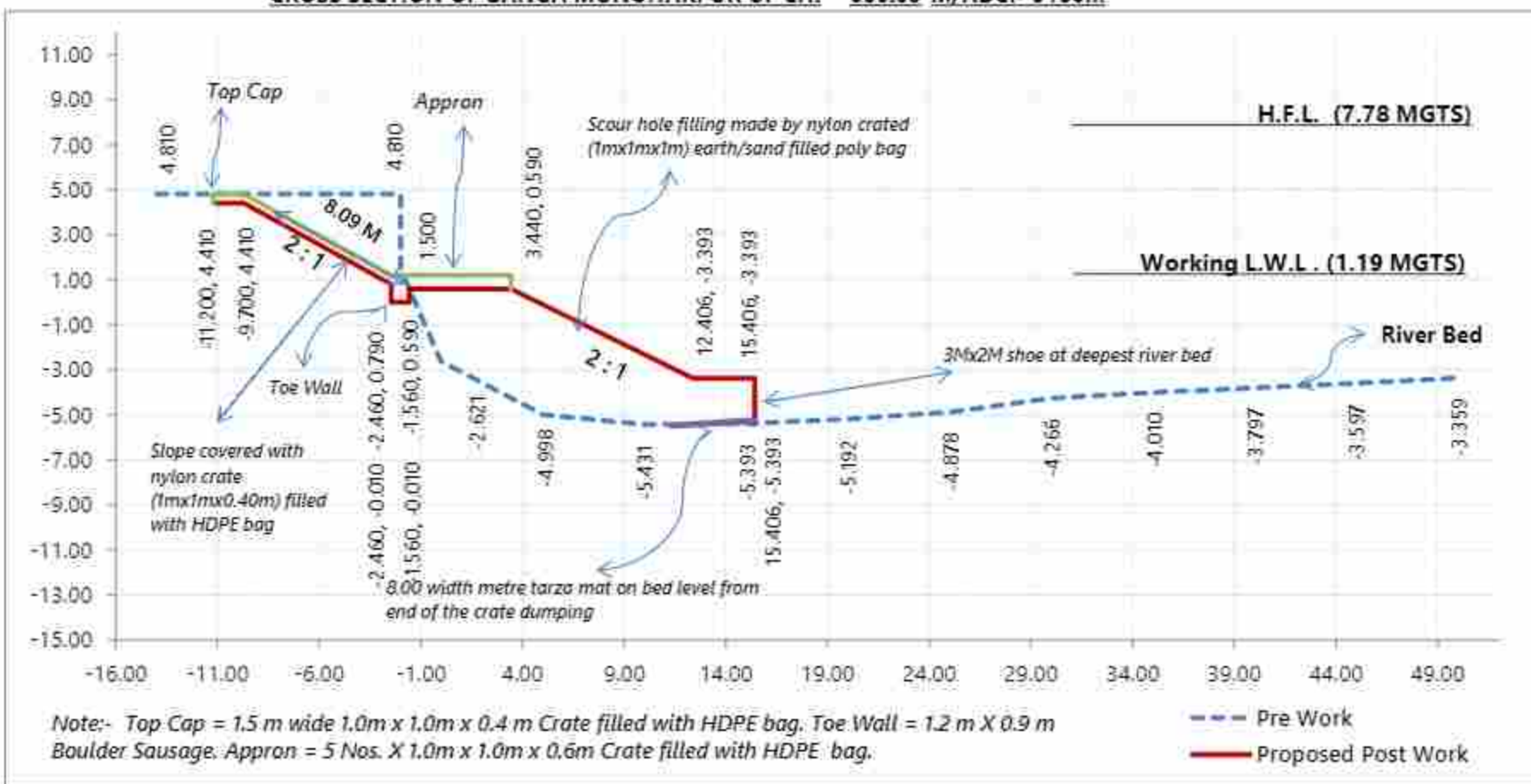
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 600.00 M/ADCP-5100m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.810
-2.000	4.810
-2.000	1.500
0.000	-2.621
5.000	-4.998
10.000	-5.431
15.000	-5.393
20.000	-5.192
25.000	-4.878
30.000	-4.266
35.000	-4.010
40.000	-3.797
45.000	-3.597
50.000	-3.359

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.200	4.410
-9.700	4.410
-2.460	0.790
-2.460	-0.010
-1.560	-0.010
-1.560	0.590
3.440	0.590
12.406	-3.393
15.406	-3.393
15.406	-5.393

Earth Work	Pre - Work	Ch. (Di)	-11.20	-2.00	-2.00	-1.56		Total	
		R.L.(RLi)	4.81	4.81	1.50	0.59		Area	
		Area (Ai)		44.25	0.00	0.46		44.71	
	Post Work	Ch. (Di)	-11.20	-9.70	-2.46	-2.46	-1.56	-1.56	Total
		R.L.(RLi)	4.41	4.41	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		6.62	18.82	0.00	-0.01	0.00	25.43
	Pre Work -Post Work =							19.28 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.56	0.00	5.00	10.00	15.00	15.41	Total
		R.L.(RLi)	0.590	-2.621	-4.998	-5.431	-5.393	-5.393	Area
		Area (Ai)		-1.58	-19.05	-26.07	-27.06	-2.19	-75.95
	Post - Work	Ch. (Di)	-1.56	3.44	12.41	15.41	15.41	Total	
		R.L.(RLi)	0.590	0.590	-3.393	-3.393	-5.393	Area	
		Area (Ai)		2.95	-12.57	-10.18	0.00	-19.80	
	Post Work - Pre Work = 56.15								Sqm

Note:- * Length of Slope for Pitching = 8.09 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

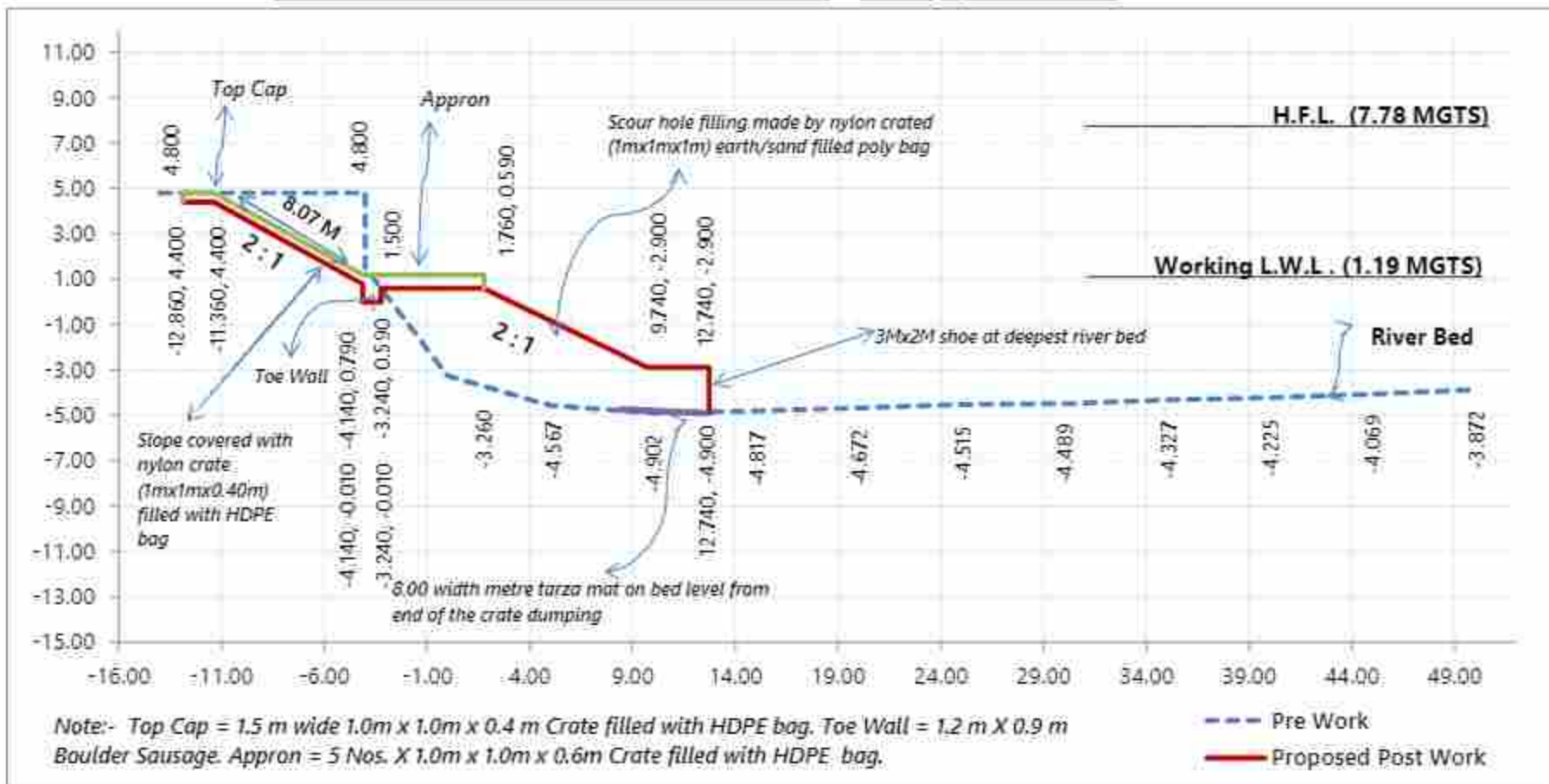
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF GANGA MONOHARPUR OF CH. 700.00 M/ADCP-5200m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.800
-4.000	4.800
-4.000	1.500
0.000	-3.260
5.000	-4.567
10.000	-4.902
15.000	-4.817
20.000	-4.672
25.000	-4.515
30.000	-4.489
35.000	-4.327
40.000	-4.225
45.000	-4.069
50.000	-3.872

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.860	4.400
-11.360	4.400
-4.140	0.790
-4.140	-0.010
-3.240	-0.010
-3.240	0.590
1.760	0.590
9.740	-2.900
12.740	-2.900
12.740	-4.900

Earth Work	Pre - Work	Ch. (D_i)	-12.86	-4.00	-4.00	-3.24		Total	
		R.L. (RL_i)	4.80	4.80	1.50	0.59		Area	
		Area (A_i)		42.53	0.00	0.79		43.32	
	Post Work	Ch. (D_i)	-12.86	-11.36	-4.14	-4.14	-3.24	-3.24	Total
		R.L. (RL_i)	4.40	4.40	0.79	-0.01	-0.01	0.59	Area
		Area (A_i)		6.60	18.74	0.00	-0.01	0.00	25.33
Pre Work - Post Work =							17.99 Sqm		

Scour Hole Filling	Pre - Work	Ch. (Di)	-3.24	0.00	5.00	10.00	12.74		Total
		R.L.(RLi)	0.590	-3.260	-4.567	-4.902	-4.900		Area
		Area (Ai)		-4.33	-19.57	-23.67	-13.43		-61.00
	Post - Work	Ch. (Di)	-3.24	1.76	9.74	12.74	12.74		Total
		R.L.(RLi)	0.590	0.590	-2.900	-2.900	-4.900		Area
		Area (Ai)		2.95	-9.22	-8.70	0.00		-14.97
	Post Work - Pre Work =							46.03	Sqm

Note:- * Length of Slope for Pitching = 8.07 M , **Area in Sam, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

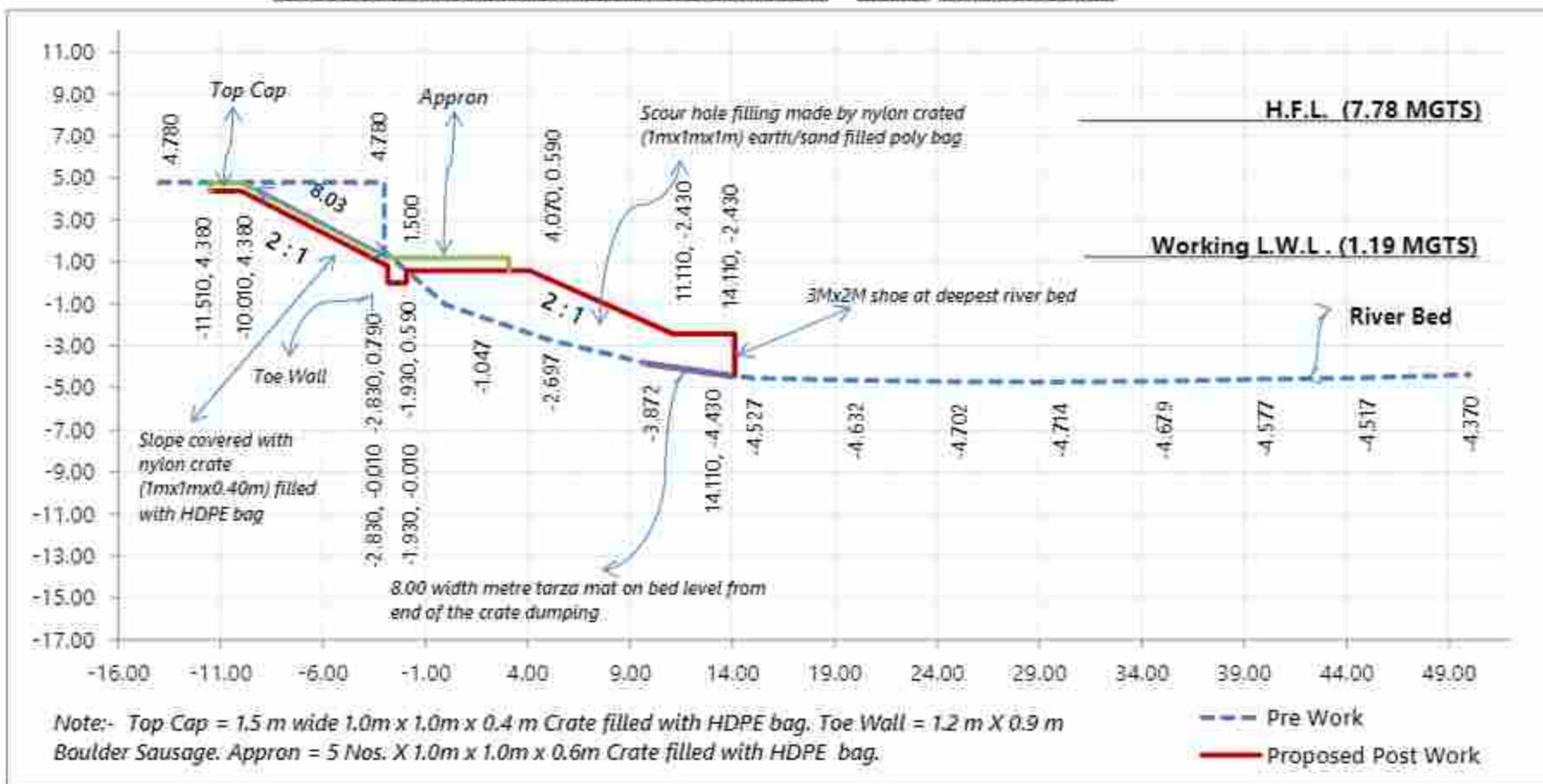
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF GANGA MONOHARPUR OF CH. 800.00 M/ADCP-5300m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.780
-3.000	4.780
-3.000	1.500
0.000	-1.047
5.000	-2.697
10.000	-3.872
15.000	-4.527
20.000	-4.632
25.000	-4.702
30.000	-4.714
35.000	-4.679
40.000	-4.577
45.000	-4.517
50.000	-4.370

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.510	4.380
-10.010	4.380
-2.830	0.790
-2.830	-0.010
-1.930	-0.010
-1.930	0.590
4.070	0.590
11.110	-2.430
14.110	-2.430
14.110	-4.430

Earth Work	Pre - Work	Ch. (Di)	-11.51	-3.00	-3.00	-1.93		Total Area
		R.L.(RLi)	4.78	4.78	1.50	0.59		
		Area (Ai)		40.68	0.00	1.12		41.80
Post Work		Ch. (Di)	-11.51	-10.01	-2.83	-2.83	-1.93	Total Area
		R.L.(RLi)	4.38	4.38	0.79	-0.01	-0.01	0.59
		Area (Ai)		6.57	18.56	0.00	-0.01	25.12
Pre Work-Post Work = 16.68 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.93	0.00	5.00	10.00	14.11		Total
		R.L.(RLi)	0.590	-1.047	-2.697	-3.872	-4.430		Area
		Area (Ai)		-0.44	-9.36	-16.42	-17.06		-43.28
	Post - Work	Ch. (Di)	-1.93	4.07	11.11	14.11	14.11		Total
		R.L.(RLi)	0.590	0.590	-2.430	-2.430	-4.430		Area
		Area (Ai)		3.54	-6.48	-7.29	0.00		-10.23
	Post Work -Pre Work =							33.05	Sqm

Note:- * Length of Slope for Pitching = 8.03 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

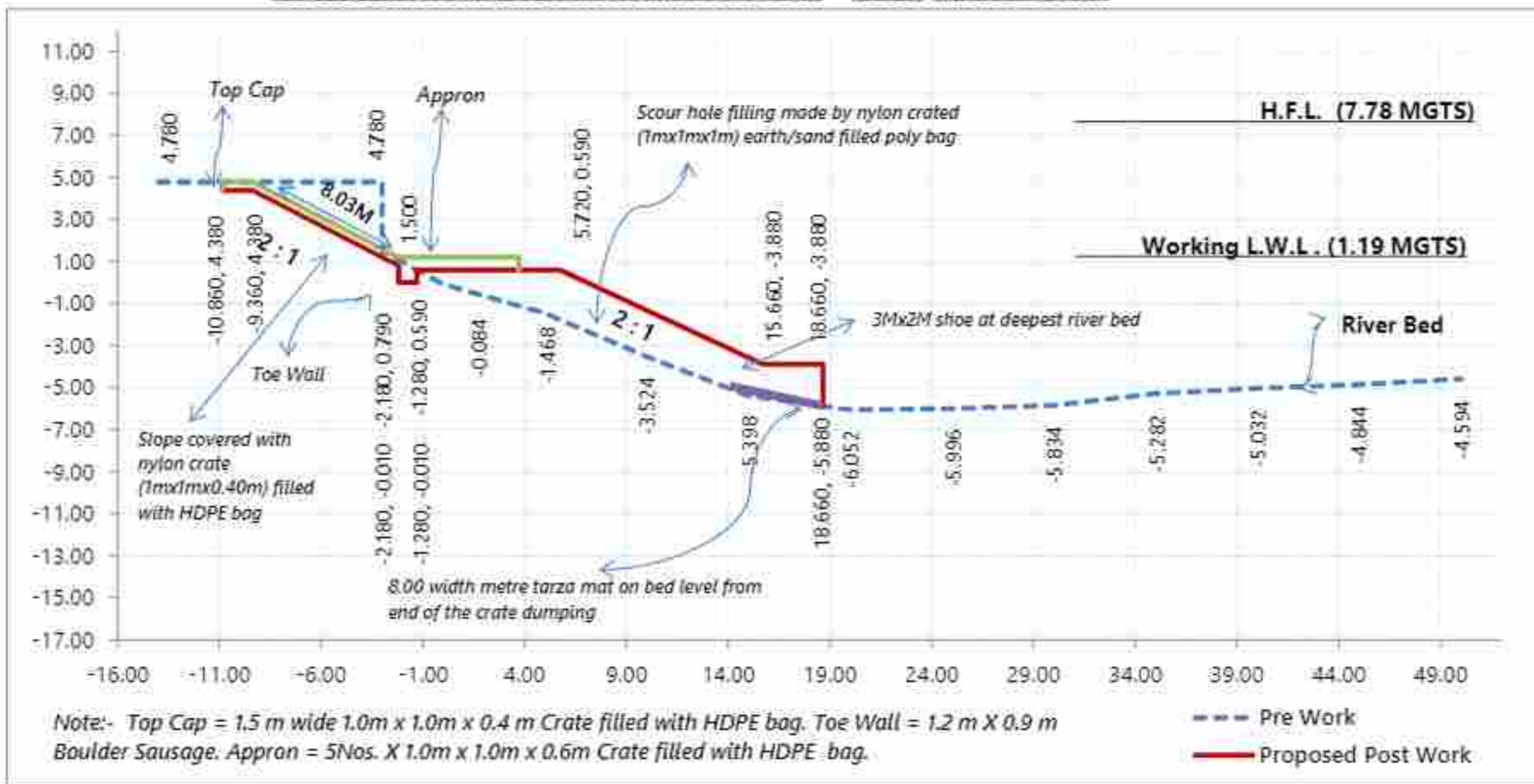
S. Sanyal
10/09/22
Sectional Officer
Chakdaha Irrigation Section

[Signature]
19/9/22
Sub-Divisional Officer
Ranaghat Irrigation Sub- Division

[Signature]
19/9/22
Executive Engineer
Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 900.00 M/ADCP-5400m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.780
-3.000	4.780
-3.000	1.500
0.000	-0.084
5.000	-1.468
10.000	-3.524
15.000	-5.398
20.000	-6.052
25.000	-5.996
30.000	-5.834
35.000	-5.282
40.000	-5.032
45.000	-4.844
50.000	-4.594

Proposed Post Work	
Dist. (M)	R.L.(M)
-10.860	4.380
-9.360	4.380
-2.180	0.790
-2.180	-0.010
-1.280	-0.010
-1.280	0.590
5.720	0.590
15.660	-3.880
18.660	-3.880
18.660	-5.880

Earth Work	Pre - Work	Ch. (Di)	-10.86	-3.00	-3.00	-1.28		Total	
		R.L.(RLi)	4.78	4.78	1.50	0.59		Area	
		Area (Ai)		37.57	0.00	1.80		39.37	
	Post Work	Ch. (Di)	-10.86	-9.36	-2.18	-2.18	-1.28	-1.28	Total
		R.L.(RLi)	-4.38	4.38	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		6.57	18.56	0.00	-0.01	0.00	25.12
	Pre Work - Post Work =							14.25 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.28	0.00	5.00	10.00	15.00	18.66	Total
		R.L.(RLi)	0.590	-0.084	-1.468	-3.524	-5.398	-5.880	Area
		Area (Ai)		0.32	-3.88	-12.48	-22.31	-20.64	-58.99
	Post - Work	Ch. (Di)	-1.28	5.72	15.66	18.66	18.66	Total	
		R.L.(RLi)	0.590	0.590	-3.880	-3.880	-5.880	Area	
		Area (Ai)		4.13	-16.35	-11.64	0.00	-23.86	
	Post Work - Pre Work =							35.13	Sqm

Note:- * Length of Slope for Pitching = 8.03 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

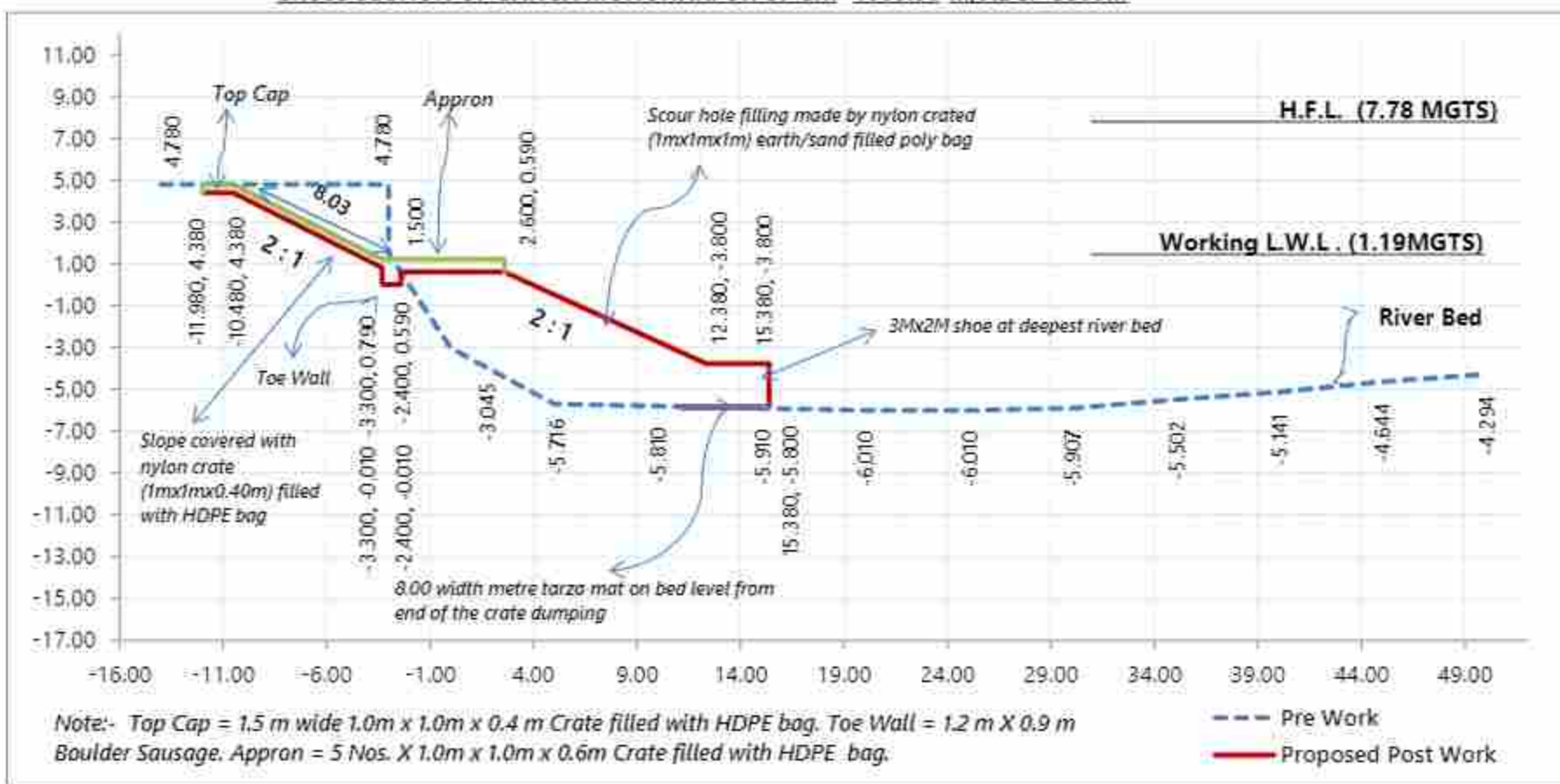
Sectional Officer
Chakdaha Irrigation Section

Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION OF GANGA MONOHARPUR OF CH. 1000.00 M/ADCP-5500m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.780
-3.000	4.780
-3.000	1.500
0.000	-3.045
5.000	-5.716
10.000	-5.810
15.000	-5.910
20.000	-6.010
25.000	-6.010
30.000	-5.907
35.000	-5.502
40.000	-5.141
45.000	-4.644
50.000	-4.294

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.980	4.380
-10.480	4.380
-3.300	0.790
-3.300	-0.010
-2.400	-0.010
-2.400	0.590
2.600	0.590
12.380	-3.800
15.380	-3.800
15.380	-5.800

Earth Work	Pre - Work	Ch. (Di)	-11.98	-3.00	-3.00	-2.40		Total	
		R.L.(RLi)	4.78	4.78	1.50	0.59		Area	
		Area (Ai)		42.92	0.00	0.63		43.55	
	Post Work	Ch. (Di)	-11.98	-10.48	-3.30	-3.30	-2.40	-2.40	Total
		R.L.(RLi)	4.38	4.38	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		6.57	18.56	0.00	-0.01	0.00	25.12
	Pre Work -Post Work =							18.43 Sqm	

Scour Hole Filling	Pre-Work	Ch. (D_i)	-2.40	0.00	5.00	10.00	15.00	15.38	Total	
		R.L. (RL_i)	0.590	-3.045	-5.716	-5.810	-5.910	-5.800	Area	
		Area (A_i)		-2.95	-21.90	-28.82	-29.30	-2.22	-85.19	
	Post-Work	Ch. (D_i)	-2.40	2.60	12.38	15.38	15.38		Total	
		R.L. (RL_i)	0.590	0.590	-3.800	-3.800	-5.800		Area	
		Area (A_i)		2.95	-15.70	-11.40	0.00		-24.15	
	Post Work - Pre Work =								61.04	Sqm

Note:- * Length of Slope for Pitching = 8.03 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

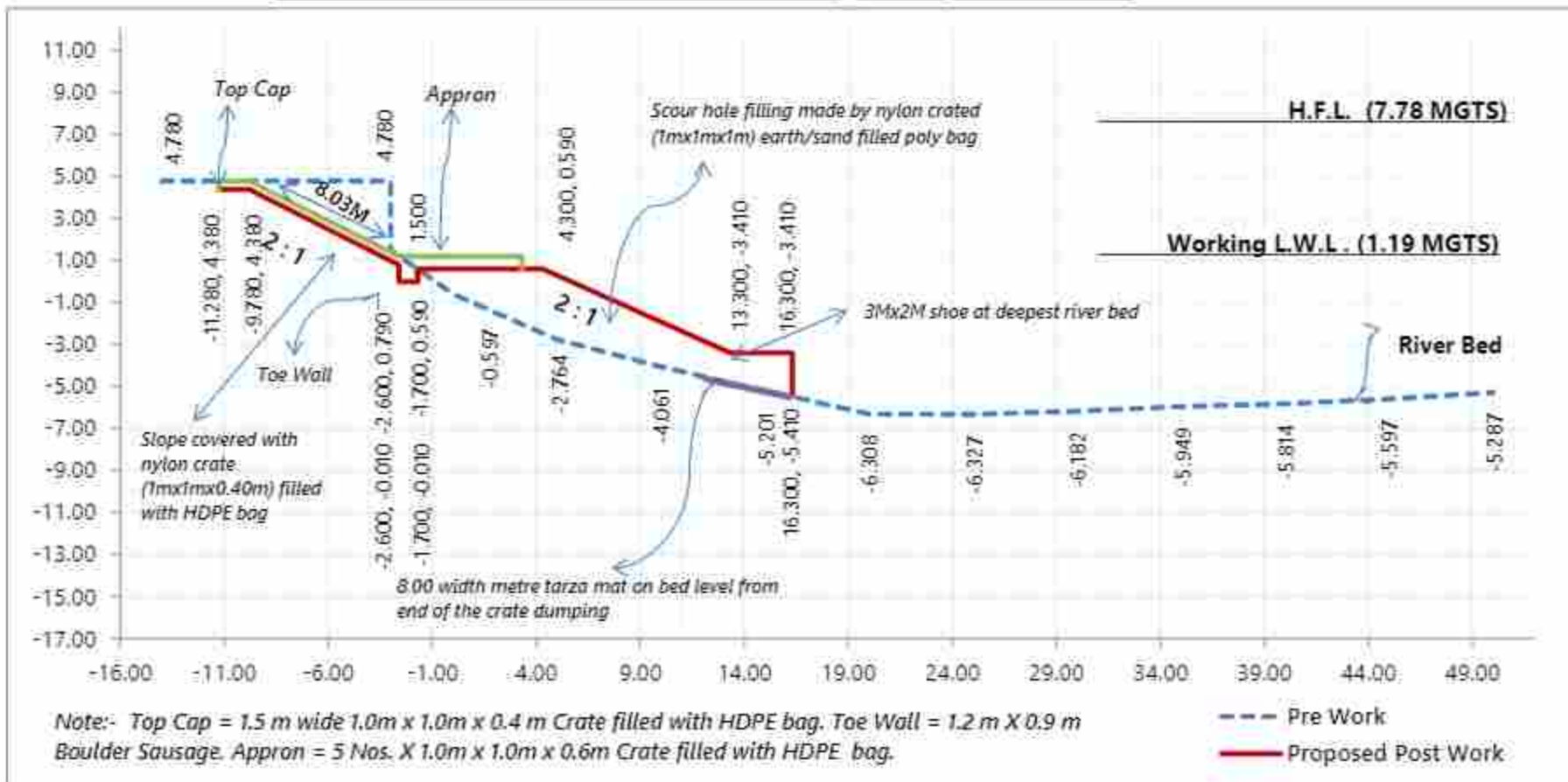
K. Sanyal
10/06/22
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

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CROSS SECTION OF GANGA MONOHARPUR OF CH. 1100.00 M/ADCP-5600m



Pre Work	
Dist. (M)	R.L.(M)
-14.000	4.780
-3.000	4.780
-3.000	1.500
0.000	-0.597
5.000	-2.764
10.000	-4.061
15.000	-5.201
20.000	-6.308
25.000	-6.327
30.000	-6.182
35.000	-5.949
40.000	-5.814
45.000	-5.597
50.000	-5.287

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.280	4.380
-9.780	4.380
-2.600	0.790
-2.600	-0.010
-1.700	-0.010
-1.700	0.590
4.300	0.590
13.300	-3.410
16.300	-3.410
16.300	-5.410

Earth Work	Pre - Work	Ch. (Di)	-11.28	-3.00	-3.00	-1.70		Total	
		R.L.(RLi)	4.78	4.78	1.50	0.59		Area	
		Area (Ai)		39.58	0.00	1.36		40.94	
	Post Work	Ch. (Di)	-11.28	-9.78	-2.60	-2.60	-1.70	-1.70	Total
		R.L.(RLi)	4.38	4.38	0.79	-0.01	-0.01	0.59	Area
		Area (Ai)		6.57	18.56	0.00	-0.01	0.00	25.12
	Pre Work -Post Work =							15.82 Sqm	

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.70	0.00	5.00	10.00	16.30		Total
		R.L.(RLi)	0.590	-0.597	-2.764	-4.061	-5.410		Area
		Area (Ai)		-0.01	-8.40	-17.06	-29.83		-55.30
	Post - Work	Ch. (Di)	-1.70	4.30	13.30	16.30	16.30		Total
		R.L.(RLi)	0.590	0.590	-3.410	-3.410	-5.410		Area
		Area (Ai)		3.54	-12.69	-10.23	0.00		-19.38
	Post Work - Pre Work =							35.92	Sqm

Note:- * Length of Slope for Pitching = 8.03 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

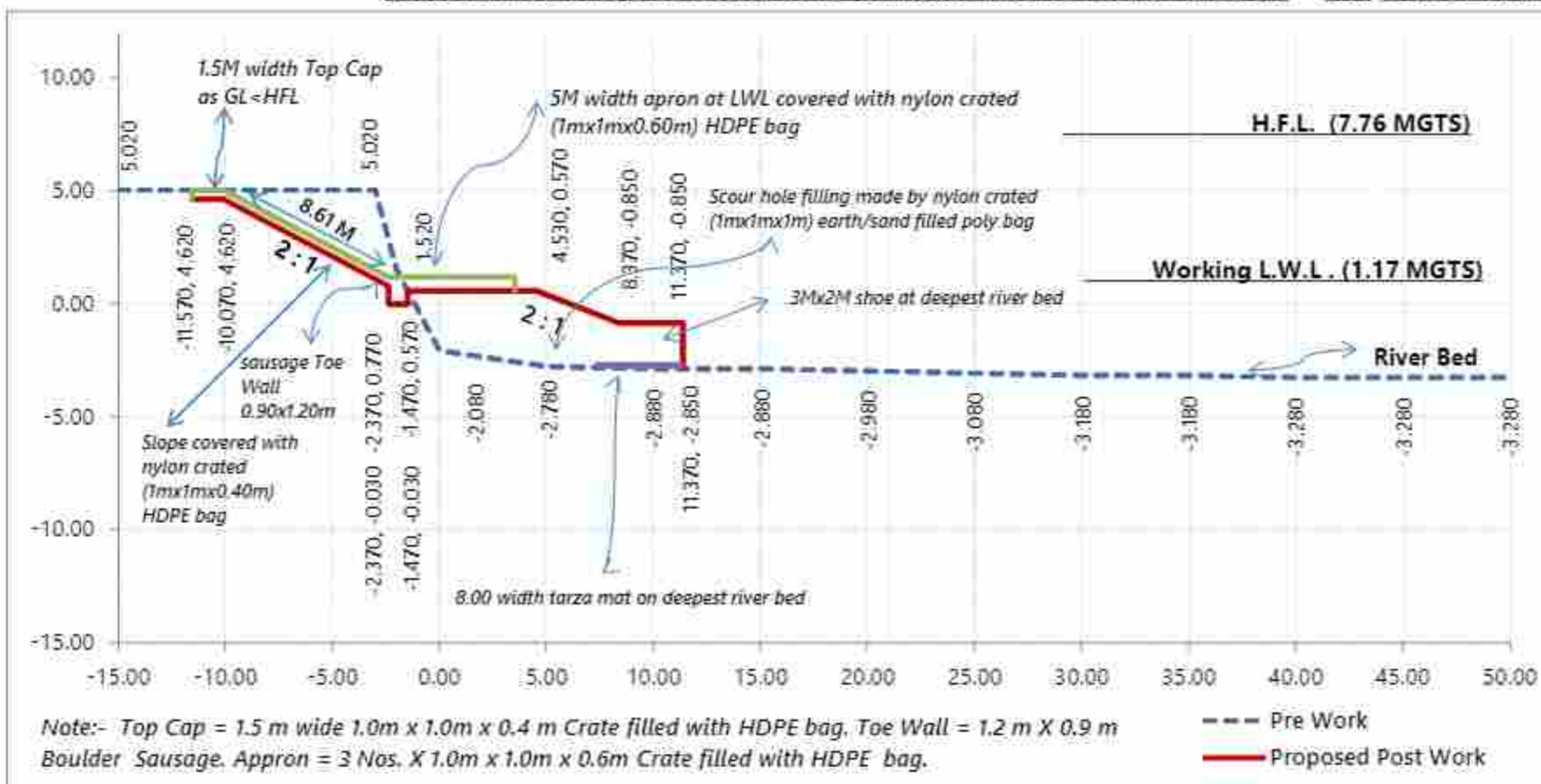
K. Sanyal
10/05/22
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R. Hama
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Ranaghat Irrigation Sub- Division

G. Hama
Executive Engineer
Nadia Irrigation Division

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CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT JATRA SIDDHI AT CH. 0.00 M/ADCP-600M



Pre Work	
Dist. (M)	R.L.(M)
-15.000	5.020
-3.000	5.020
-2.000	1.520
0.000	-2.080
5.000	-2.780
10.000	-2.880
15.000	-2.880
20.000	-2.980
25.000	-3.080
30.000	-3.180
35.000	-3.180
40.000	-3.280
45.000	-3.280
50.000	-3.280

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.570	4.620
-10.070	4.620
-2.370	0.770
-2.370	-0.030
-1.470	-0.030
-1.470	0.570
4.530	0.570
8.370	-0.850
11.370	-0.850
11.370	-2.850

Earth Work	Pre-Work	Ch. (Di)	-11.57	-3.00	-2.00	-1.47		Total	
		R.L.(RLi)	5.02	5.02	1.52	0.57		Area	
		Area (Ai)		43.02	3.27	0.55		46.84	
	Post Work	Ch. (Di)	-11.57	-10.07	-2.37	-2.37	-1.47	-1.47	Total
		R.L.(RLi)	4.62	4.62	0.77	-0.03	-0.03	0.57	Area
		Area (Ai)		6.93	20.75	0.00	-0.03	0.00	27.65
	Pre Work-Post Work = 19.19 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-1.47	0.00	5.00	10.00	11.37		Total
		R.L.(RLi)	0.570	-2.080	-2.780	-2.880	-2.850		Area
		Area (Ai)		-1.11	-12.15	-14.15	-3.93		-31.34
	Post - Work	Ch. (Di)	-1.47	4.53	8.37	11.37	11.37		Total
		R.L.(RLi)	0.570	0.570	-0.850	-0.850	-2.850		Area
		Area (Ai)		3.42	-0.54	-2.55	0.00		0.33
	Post Work -Pre Work =							31.67	Sqm

Note:- * Length of Slope for Pitching = 8.61 M, **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

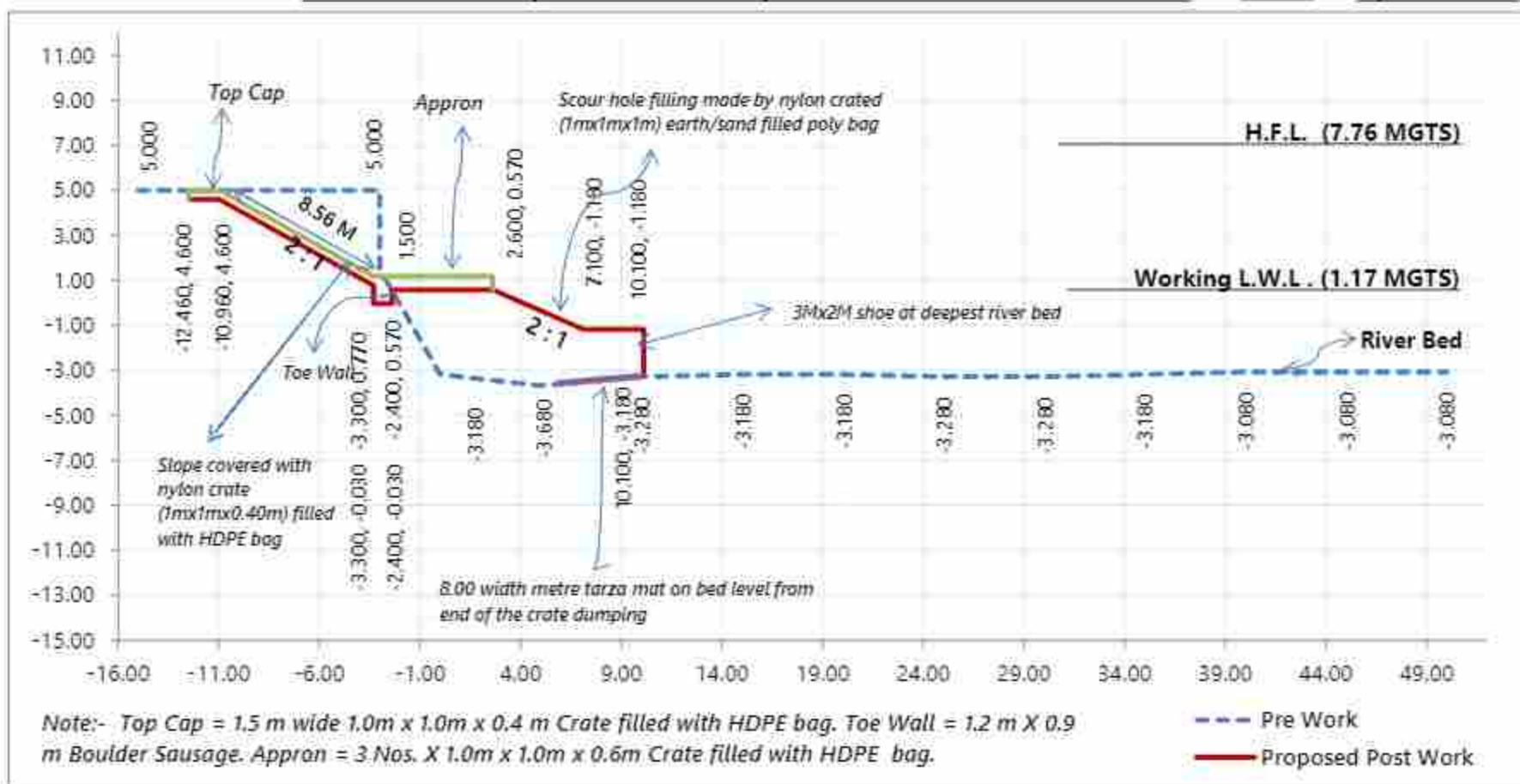
Sectional Officer
Chakdaha Irrigation Section

Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

Executive Engineer
Nadia Irrigation Division

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CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT JATRA SIDDHI AT CH. 100.00 M/ADCP-500M



Pre Work	
Dist. (M)	R.L.(M)
-15.000	5.000
-3.000	5.000
-3.000	1.500
0.000	-3.180
5.000	-3.680
10.000	-3.280
15.000	-3.180
20.000	-3.180
25.000	-3.280
30.000	-3.280
35.000	-3.180
40.000	-3.080
45.000	-3.080
50.000	-3.080

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.460	4.600
-10.960	4.600
-3.300	0.770
-3.300	-0.030
-2.400	-0.030
-2.400	0.570
2.600	0.570
7.100	-1.180
10.100	-1.180
10.100	-3.180

Earth Work	Pre-Work	Ch. (Di)	-12.46	-3.00	-3.00	-2.40		Total
		R.L.(RLi)	5.00	5.00	1.50	0.57		Area
		Area (Ai)		47.30	0.00	0.62		47.92
	Post-Work	Ch. (Di)	-12.46	-10.96	-3.30	-3.30	-2.40	Total
		R.L.(RLi)	4.60	4.60	0.77	-0.03	0.57	Area
		Area (Ai)		6.90	20.57	0.00	-0.03	27.44
Pre Work - Post Work = 20.48 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-2.40	0.00	5.00	10.00	10.10		Total
		R.L.(RLi)	0.570	-3.180	-3.680	-3.280	-3.180		Area
		Area (Ai)		-3.13	-17.15	-17.40	-0.32		-38.00
	Post - Work	Ch. (Di)	-2.40	2.60	7.10	10.10	10.10		Total
		R.L.(RLi)	0.570	0.570	-1.180	-1.180	-3.180		Area
		Area (Ai)		2.85	-1.37	-3.54	0.00		-2.06
	Post Work - Pre Work =							35.94	Sqm

Note:- * Length of Slope for Pitching = 8.56 M . **Area in Sam. Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

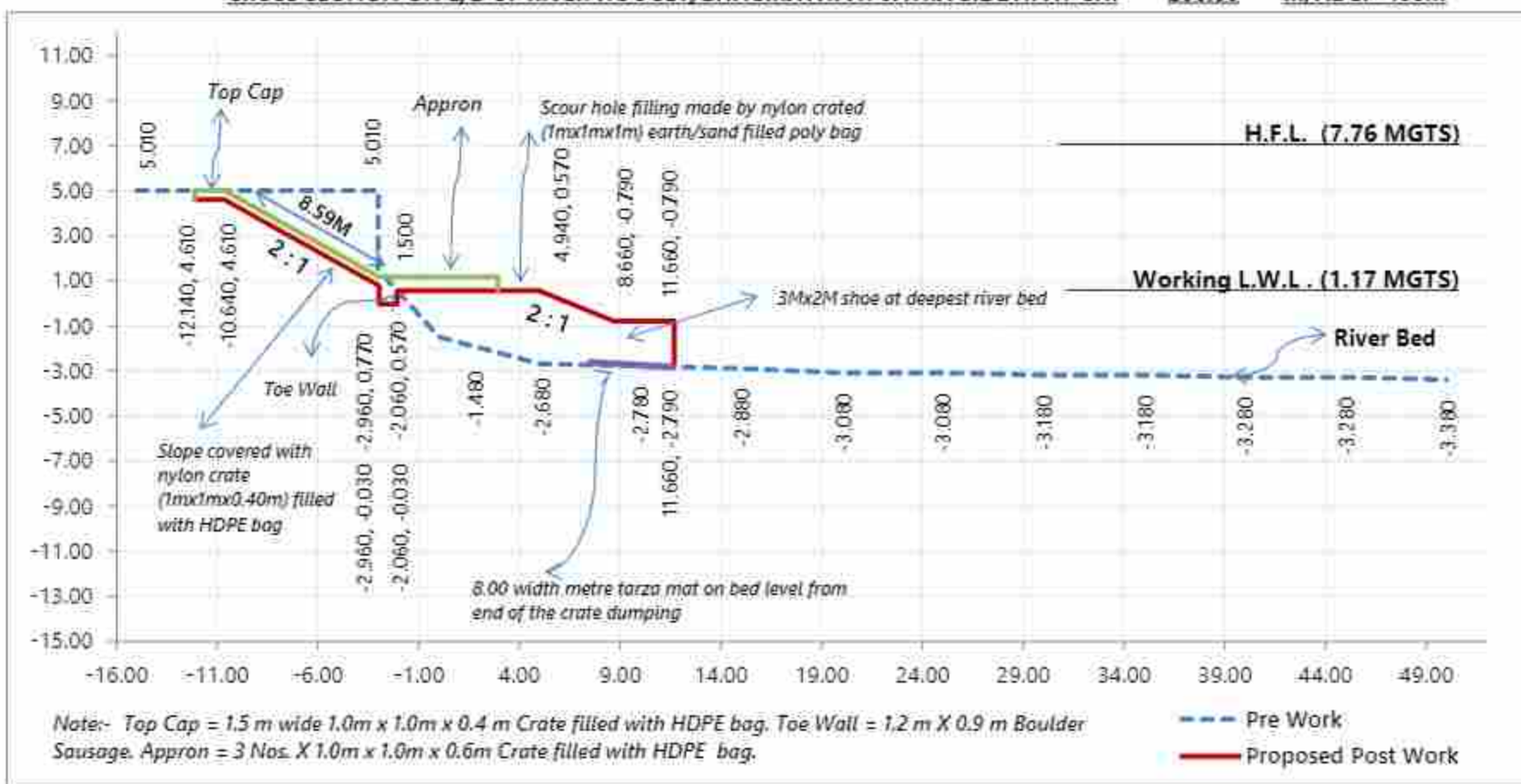
K. Sanyal
10/10/22
Sectional Officer
Chakdaha Irrigation Section

19/11/22
Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

19/11/22
Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT JATRA SIDDHI AT CH. 200.00 M/ADCP-400M



Pre Work	
Dist. (M)	R.L.(M)
-15.000	5.010
-3.000	5.010
-3.000	1.500
0.000	-1.480
5.000	-2.680
10.000	-2.780
15.000	-2.880
20.000	-3.080
25.000	-3.080
30.000	-3.180
35.000	-3.180
40.000	-3.280
45.000	-3.280
50.000	-3.380

Proposed Post Work	
Dist. (M)	R.L.(M)
-12.140	4.610
-10.640	4.610
-2.960	0.770
-2.960	-0.030
-2.060	-0.030
-2.060	0.570
4.940	0.570
8.660	-0.790
11.660	-0.790
11.660	-2.790

Earth Work	Pre-Work	Ch. (Di)	-12.14	-3.00	-3.00	-2.06		Total	
		R.L.(RLi)	5.01	5.01	1.50	0.57		Area	
		Area (Ai)		45.79	0.00	0.97		46.76	
	Post-Work	Ch. (Di)	-12.14	-10.64	-2.96	-2.96	-2.06	-2.06	Total
		R.L.(RLi)	4.61	4.61	0.77	-0.03	-0.03	0.57	Area
		Area (Ai)		6.92	20.66	0.00	-0.03	0.00	27.55
	Pre Work -Post Work = 19.21 Sqm								

Scour Hole Filling	Pre-Work	Ch. (Di)	-2.06	0.00	5.00	10.00	11.66		Total
		R.L.(RLi)	0.570	-1.480	-2.680	-2.780	-2.790		Area
		Area (Ai)		-0.94	-10.40	-13.65	-4.62		-29.61
	Post-Work	Ch. (Di)	-2.06	4.94	8.66	11.66	11.66		Total
		R.L.(RLi)	0.570	0.570	-0.790	-0.790	-2.790		Area
		Area (Ai)		3.99	-0.41	-2.37	0.00		1.21
	Post Work -Pre Work =							30.82	Sqm

Note:- * Length of Slope for Pitching = 8.59 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

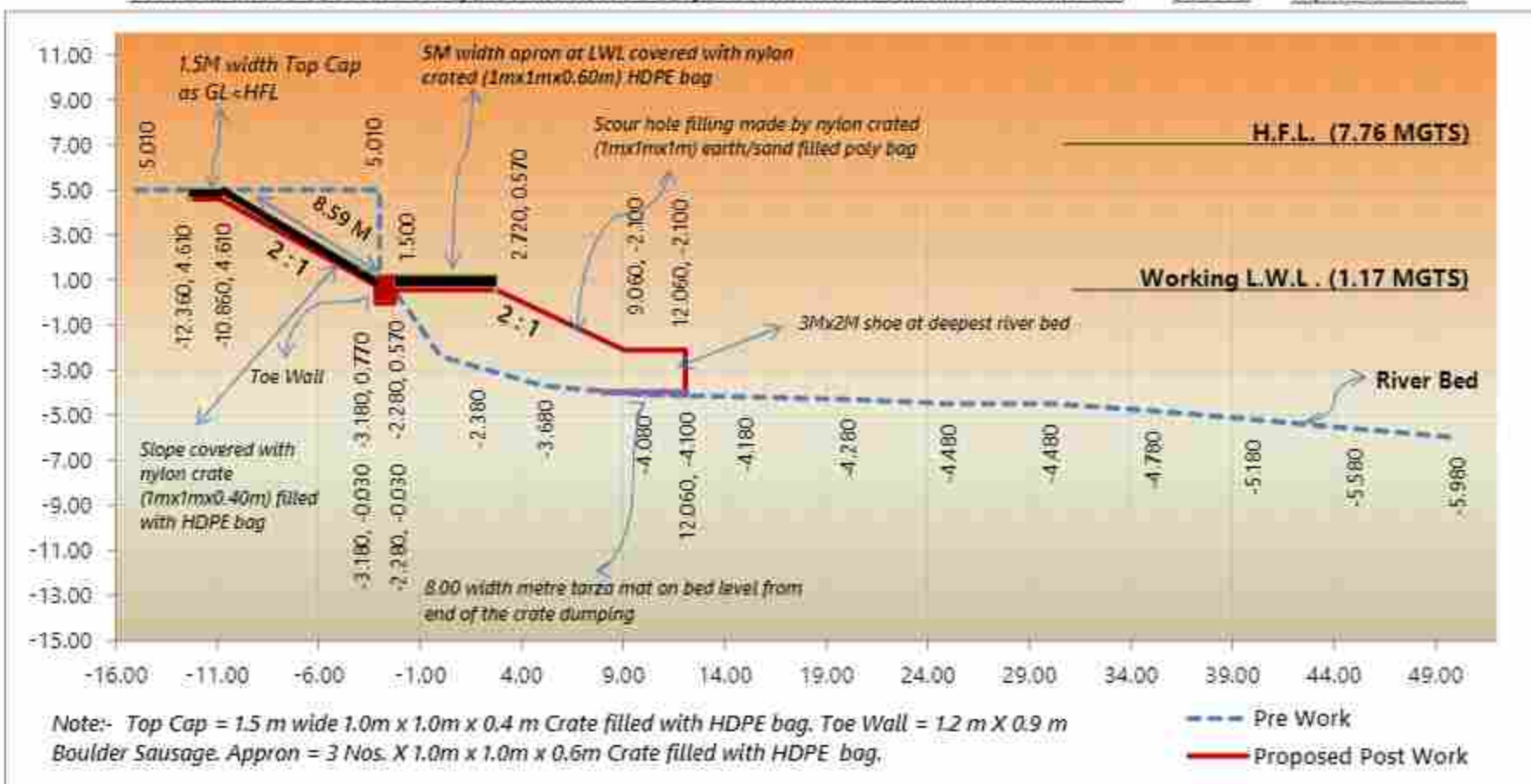
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

TYPICAL CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT JATRA SIDDHI AT CH. 300.00 M/ADCP-300M



Earth Work	Pre - Work	Ch. (Di)	-12.36	-3.00	-3.00	-2.28		Total	
		R.L.(RLi)	5.01	5.01	1.50	0.57		Area	
		Area (Ai)		46.89	0.00	0.75		47.64	
	Post Work	Ch. (Di)	-12.36	-10.86	-3.18	-3.18	-2.28	-2.28	Total
		R.L.(RLi)	4.61	4.61	0.77	-0.03	-0.03	0.57	Area
		Area (Ai)		6.92	20.66	0.00	-0.03	0.00	27.55
	Pre Work -Post Work = 20.09 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-2.28	0.00	5.00	10.00	12.06		Total
		R.L.(RLi)	0.570	-2.380	-3.680	-4.080	-4.100		Area
		Area (Ai)		-2.06	-15.15	-19.40	-8.43		-45.04
	Post - Work	Ch. (Di)	-2.28	2.72	9.06	12.06	12.06		Total
		R.L.(RLi)	0.570	0.570	-2.100	-2.100	-4.100		Area
		Area (Ai)		2.85	-4.85	-6.30	0.00		-8.30
	Post Work -Pre Work =							36.74	Sqm

Note:- * Length of Slope for Pitching = 8.59 M , **Area in Sqm, $A_i = 0.50 \times [D(i+1) - D_i] \times [RL_i + RL(i+1)]$

K. Sanyal
Sectional Officer
Chakdaha Irrigation Section

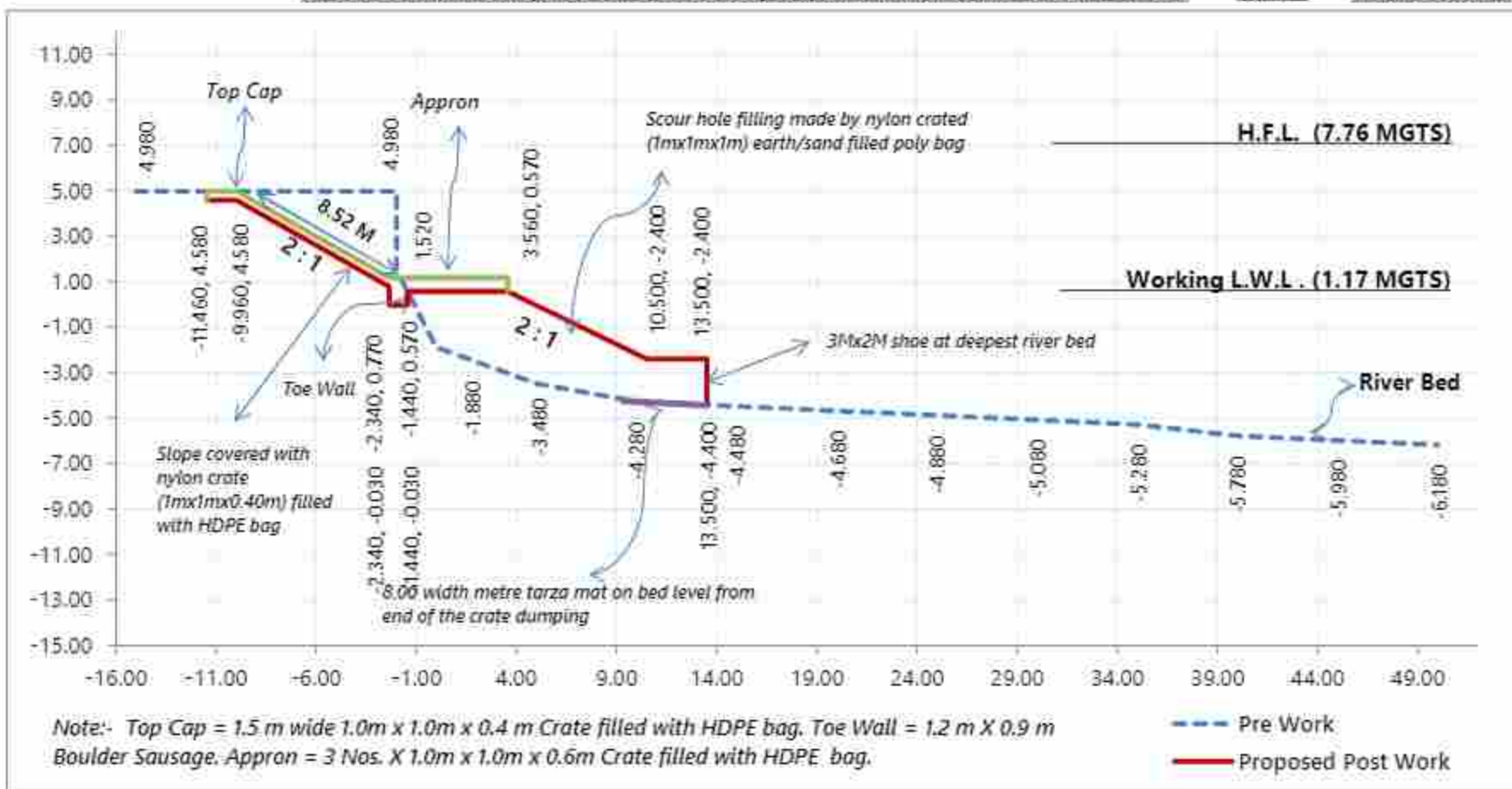
S. D. Ghosh
Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

S. K. Mishra
Executive Engineer
Nadia Irrigation Division

S. K. Mishra
Superintending Engineer
North Irrigation Circle- II
Berhampore-Murshidabad

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT JATRA SIDDHI AT CH. 387.00 M/ADCP-200M



Pre Work	
Dist. (M)	R.L.(M)
-15.000	4.980
-2.000	4.980
-2.000	1.520
0.000	-1.880
5.000	-3.480
10.000	-4.280
15.000	-4.480
20.000	-4.680
25.000	-4.880
30.000	-5.080
35.000	-5.280
40.000	-5.780
45.000	-5.980
50.000	-6.180

Proposed Post Work	
Dist. (M)	R.L.(M)
-11.460	4.580
-9.960	4.580
-2.340	0.770
-2.340	-0.030
-1.440	-0.030
-1.440	0.570
3.560	0.570
10.500	-2.400
13.500	-2.400
13.500	-4.400

Earth Work	Pre-Work	Ch. (Di)	-11.46	-2.00	-2.00	-1.44		Total	
		R.L.(RLi)	4.98	4.98	1.52	0.57		Area	
		Area (Ai)		47.11	0.00	0.59		47.70	
	Post Work	Ch. (Di)	-11.46	-9.96	-2.34	-2.34	-1.44	-1.44	Total
		R.L.(RLi)	4.58	4.58	0.77	-0.03	-0.03	0.57	Area
		Area (Ai)		6.87	20.38	0.00	-0.03	0.00	27.22
	Pre Work-Post Work = 20.48 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Dr)	-1.44	0.00	5.00	10.00	13.50		Total
		R.L.(RLi)	0.570	-1.880	-3.480	-4.280	-4.400		Area
		Area (Ai)		-0.94	-13.40	-19.40	-15.19		-48.93
	Post - Work	Ch. (Dr)	-1.44	3.56	10.50	13.50	13.50		Total
		R.L.(RLi)	0.570	0.570	-2.400	-2.400	-4.400		Area
		Area (Ai)		2.85	-6.35	-7.20	0.00		-10.70
	Post Work -Pre Work =							38.23	Sqm

Note:- * Length of Slope for Pitching = 8.52 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

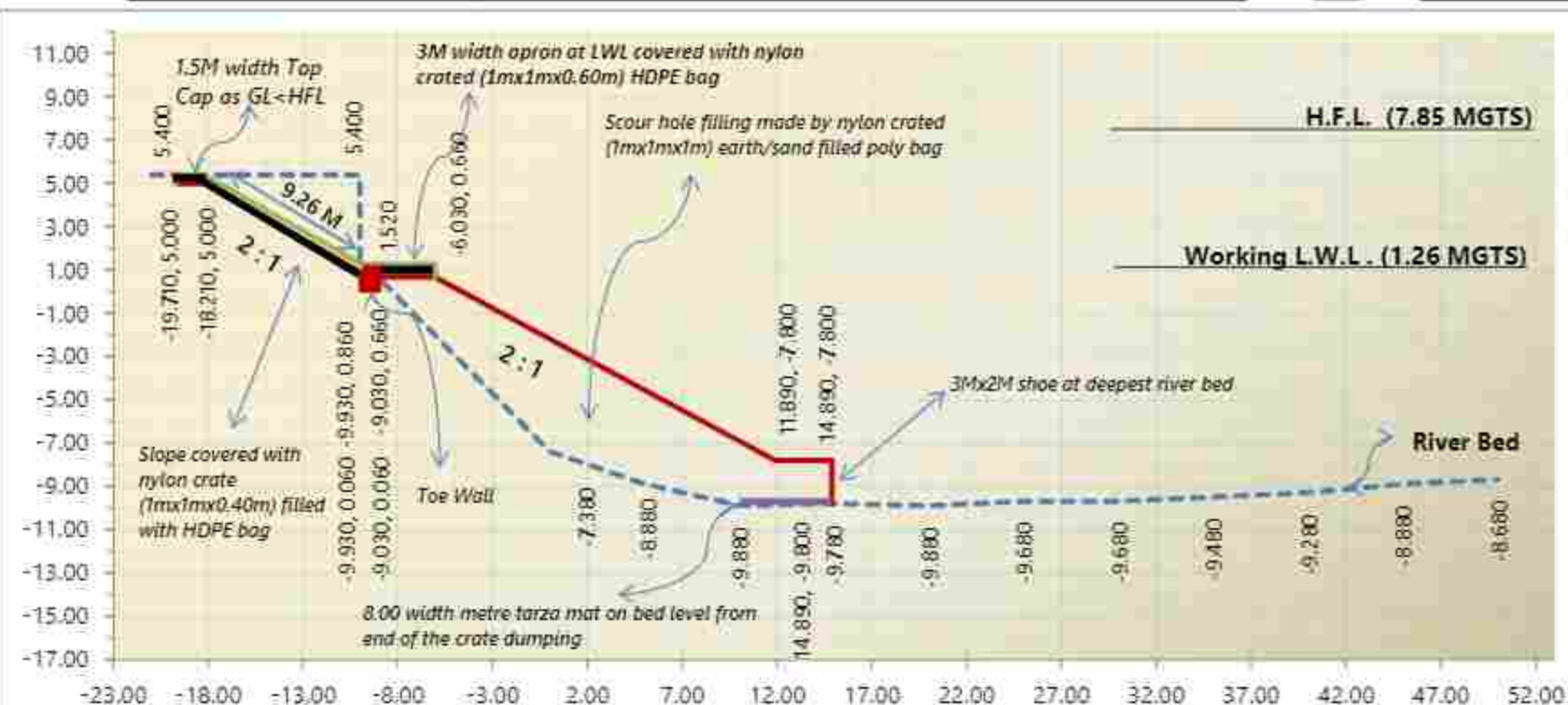
Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

TYPICAL CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT RAIDANGA & SARATI AT CH. 0.00 M/ADCP-3300M



Note:- Top Cap = 1.5 m wide 1.0m x 1.0m x 0.4 m Crate filled with HDPE bag. Toe Wall = 1.2 m X 0.9 m Boulder Sausage. Apron = 3 Nos. X 1.0m x 1.0m x 0.6m Crate filled with HDPE bag.

--- Pre Work
— Proposed Post Work

Earth Work	Pre - Work	Ch. (Di)	-19.71	-10.00	-10.00	-9.03		Total
		R.L.(RLi)	5.40	5.40	1.52	0.66		Area
		Area (Ai)		52.43	0.00	1.06		53.49
	Post Work	Ch. (Di)	-19.71	-18.21	-9.93	-9.93	-9.03	-9.03
		R.L.(RLi)	5.00	5.00	0.86	0.06	0.06	0.66
		Area (Ai)		7.50	24.26	0.00	0.05	0.00
								31.81
		Pre Work - Post Work = 21.68 Sqm						

Scour Hole Filling	Pre - Work	Ch. (Di)	-9.03	0.00	5.00	10.00	14.89		Total
		R.L.(RLi)	0.660	-7.380	-8.880	-9.880	-9.800		Area
		Area (Ai)		-30.34	-40.65	-46.90	-45.12		-166.01
	Post - Work	Ch. (Di)	-9.03	-6.03	11.89	14.89	14.89		Total
		R.L.(RLi)	0.660	0.660	-7.800	-7.800	-9.800		Area
		Area (Ai)		1.98	-63.97	-23.40	0.00		-85.39
	Post Work -Pre Work =							80.62	Sqm

Note:- * Length of Slope for Pitching = 9.26 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

Sectional Officer
Chakdaha Irrigation Section

Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

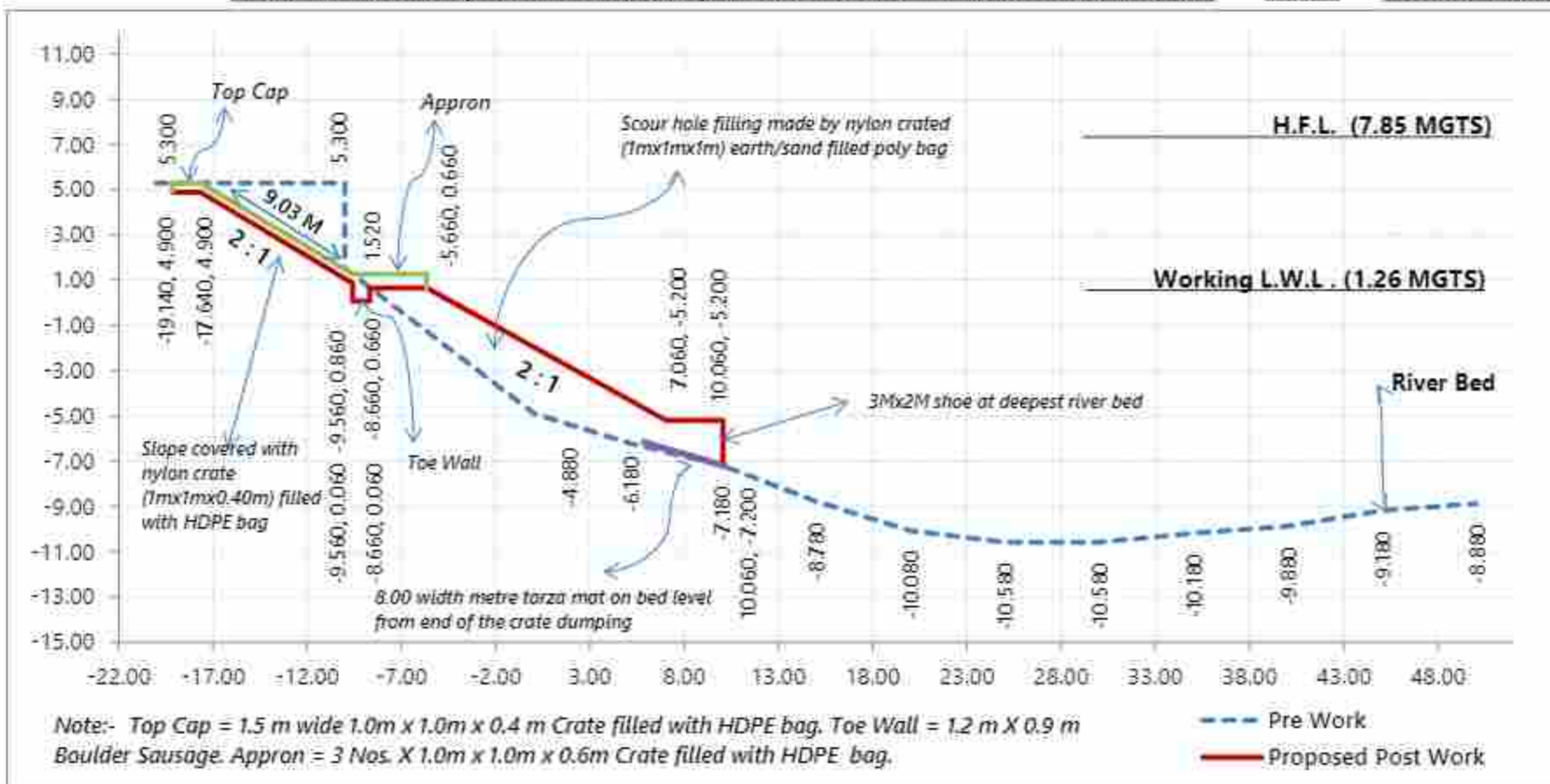
Superintending Engineer
North Irrigation Circle- II
Berhampore-Murshidabad

Pre Work	
Dist. (M)	R.L.(M)
-21.000	5.400
-10.000	5.400
-10.000	1.520
0.000	-7.380
5.000	-8.880
10.000	-9.880
15.000	-9.780
20.000	-9.880
25.000	-9.680
30.000	-9.680
35.000	-9.480
40.000	-9.280
45.000	-8.880
50.000	-8.680

Proposed Post Work	
Dist. (M)	R.L.(M)
-19.710	5.000
-18.210	5.000
-9.930	0.860
-9.930	0.060
-9.030	0.060
-9.030	0.660
-6.030	0.660
11.890	-7.800
14.890	-7.800
14.890	-9.800

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT RAIDANGA & SARATI AT CH. 100.00 M/ADCP-3400M



Pre Work	
Dist. (M)	R.L.(M)
-20.000	5.300
-10.000	5.300
-10.000	1.520
0.000	-4.880
5.000	-6.180
10.000	-7.180
15.000	-8.780
20.000	-10.080
25.000	-10.580
30.000	-10.580
35.000	-10.180
40.000	-9.880
45.000	-9.180
50.000	-8.880

Proposed Post Work	
Dist. (M)	R.L.(M)
-19.140	4.900
-17.640	4.900
-9.560	0.860
-9.560	0.060
-8.660	0.060
-8.660	0.660
-5.660	0.660
7.060	-5.200
10.060	-5.200
10.060	-7.200

Earth Work	Pre - Work	Ch. (Di)	-19.14	-10.00	-10.00	-8.66			Total
		R.L.(RLi)	5.30	5.30	1.52	0.66			Area
		Area (Ai)		48.44	0.00	1.46			49.90
	Post Work	Ch. (Di)	-19.14	-17.64	-9.56	-9.56	-8.66	-8.66	Total
		R.L.(RLi)	4.90	4.90	0.86	0.06	0.06	0.66	Area
		Area (Ai)		7.35	23.27	0.00	0.05	0.00	30.67
	Pre Work -Post Work = 19.23 Sqm								

Scour Hole Filling	Pre - Work	Ch. (Di)	-8.66	0.00	5.00	10.00	10.06	Total
	R.L.(RLi)	0.660	-4.880	-6.180	-7.180	-7.200		Area
	Area (Ai)		-18.27	-27.65	-33.40	-0.43		-79.75
Post Work	Ch. (Di)	-8.66	-5.66	7.06	10.06	10.06		Total
	R.L.(RLi)	0.660	0.660	-5.200	-5.200	-7.200		Area
	Area (Ai)		1.98	-28.87	-15.60	0.00		-42.49
Post Work - Pre Work = 37.26 Sqm								

Note:- * Length of Slope for Pitching = 9.03 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

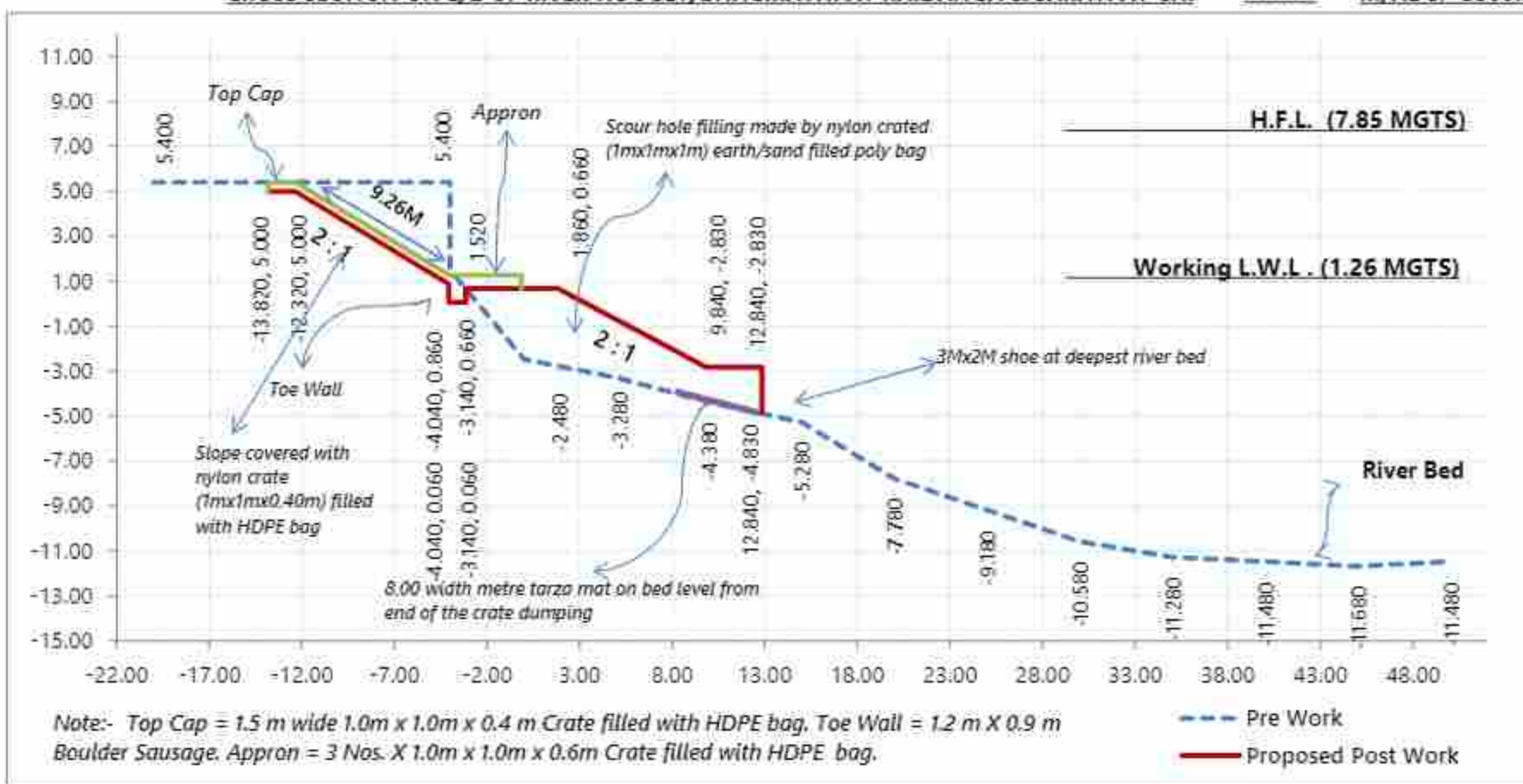
[Signature]
Sectional Officer
Chakdaha Irrigation Section

[Signature]
Sub- Divisional Officer
Ranaghat Irrigation Sub- Division

[Signature]
Executive Engineer
Nadia Irrigation Division

"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

CROSS SECTION ON L/B OF RIVER HOOGLY/BHAGIRATHI AT RAIDANGA & SARATI AT CH. 200.00 M/ADCP-3500M



Pre Work	
Dist. (M)	R.L.(M)
-20.000	5.400
-4.000	5.400
-4.000	1.520
0.000	-2.480
5.000	-3.280
10.000	-4.380
15.000	-5.280
20.000	-7.780
25.000	-9.180
30.000	-10.580
35.000	-11.280
40.000	-11.480
45.000	-11.680
50.000	-11.480

Proposed Post Work	
Dist. (M)	R.L.(M)
-13.820	5.000
-12.320	5.000
-4.040	0.860
-4.040	0.060
-3.140	0.060
-3.140	0.660
1.860	0.660
9.840	-2.830
12.840	-2.830
12.840	-4.830

Earth Work	Pre-Work	Ch. (Di)	-13.82	-4.00	-4.00	-3.14		Total
		R.L.(RLi)	5.40	5.40	1.52	0.66		Area
		Area (Ai)		53.03	0.00	0.94		53.97
Post Work		Ch. (Di)	-13.82	-12.32	-4.04	-4.04	-3.14	-3.14
		R.L.(RLi)	5.00	5.00	0.86	0.06	0.06	0.66
		Area (Ai)		7.50	24.26	0.00	0.05	0.00
Pre Work -Post Work = 22.16 Sqm								

Scour Hole Filling	Pre-Work	Ch. (Di)	-3.14	0.00	5.00	10.00	12.84		Total
		R.L.(RLi)	0.660	-2.480	-3.280	-4.380	-4.830		Area
		Area (Ai)		-2.86	-14.40	-19.15	-13.08		-49.49
	Post-Work	Ch. (Di)	-3.14	1.86	9.84	12.84	12.84		Total
		R.L.(RLi)	0.660	0.660	-2.830	-2.830	-4.830		Area
		Area (Ai)		3.90	-8.66	-8.49	0.00		-13.85
	Post Work -Pre Work =							35.64	Sqm

Note:- * Length of Slope for Pitching = 9.26 M , **Area in Sqm, Ai = 0.50 x [D(i+1) - Di] x [RLi + RL(i+1)]

Sectional Officer
Chakdaha Irrigation Section

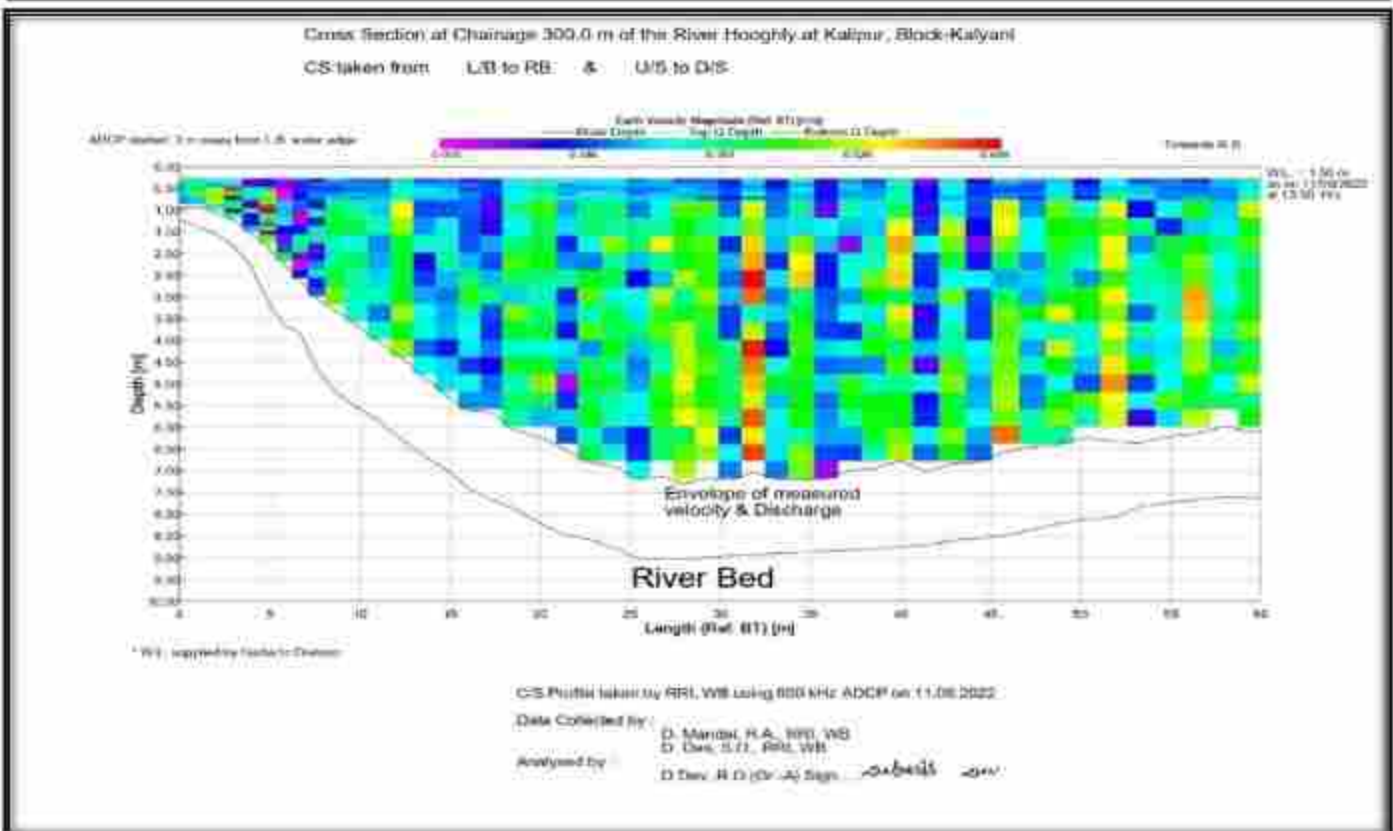
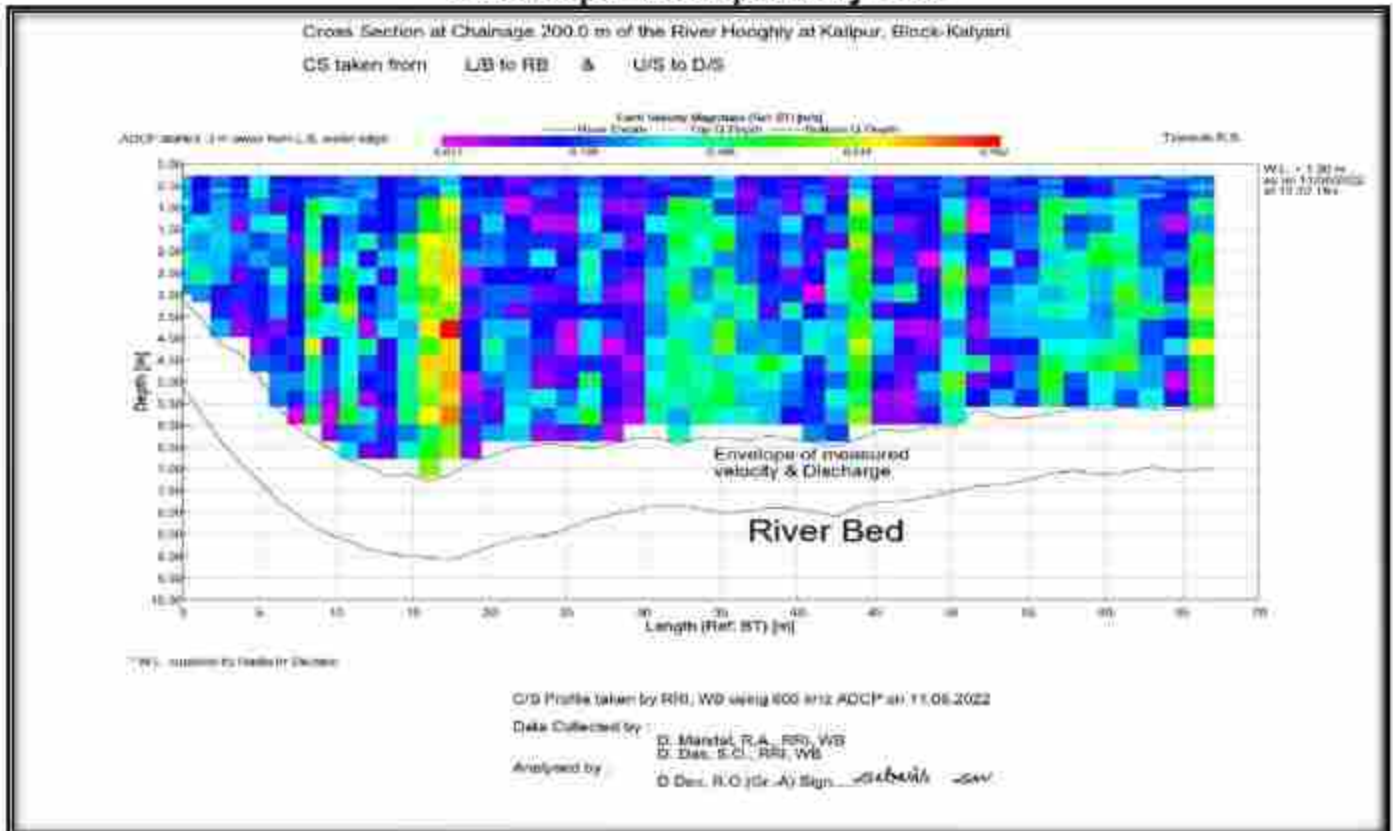
Sub-Divisional Officer
Ranaghat Irrigation Sub-Division

Executive Engineer
Nadia Irrigation Division

ADCP Survey Section

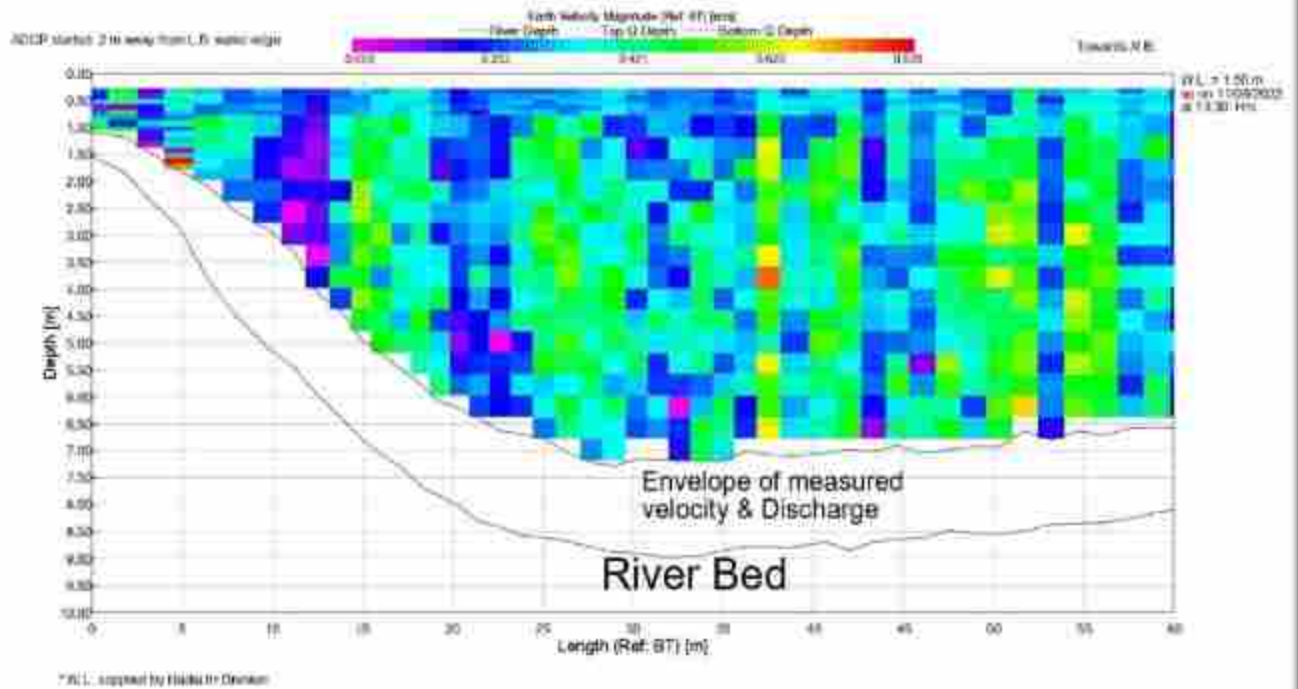
"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

At Tarinipur to Kalipur Ferry Ghat



Cross Section at Chainage 400.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

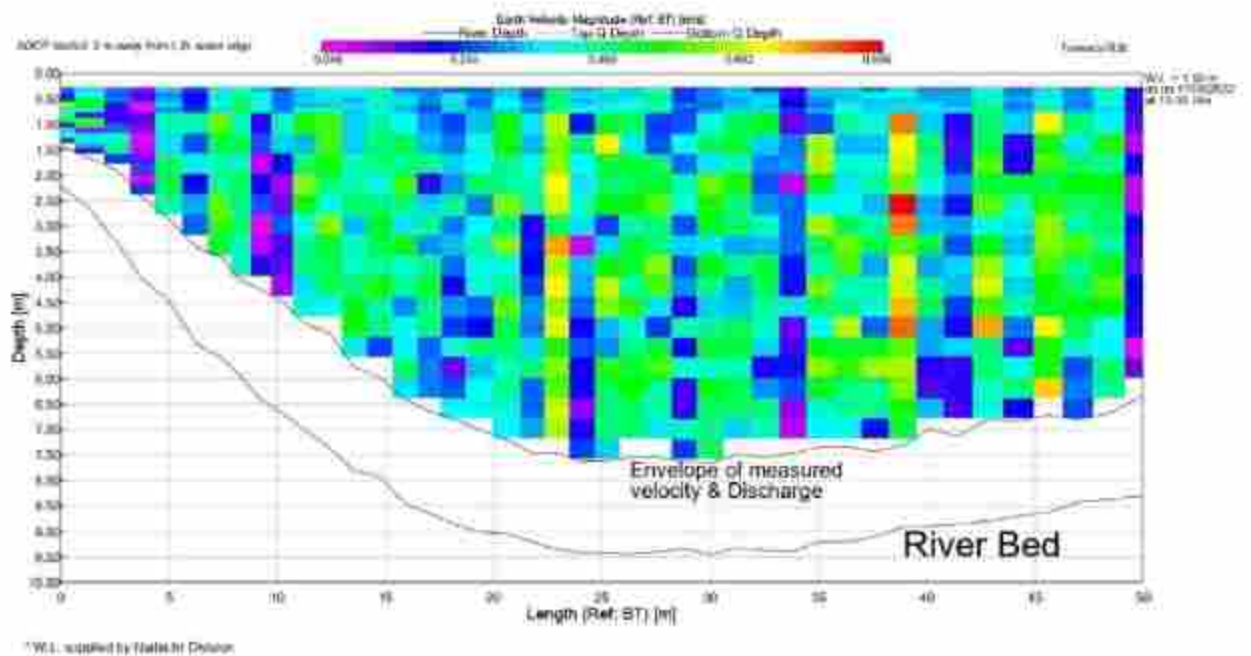
D. Das, S.O., RRI, WB

Analysed by:

D. Das, R.O. (Dr.-A) Sign. *Subash Das*

Cross Section at Chainage 500.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

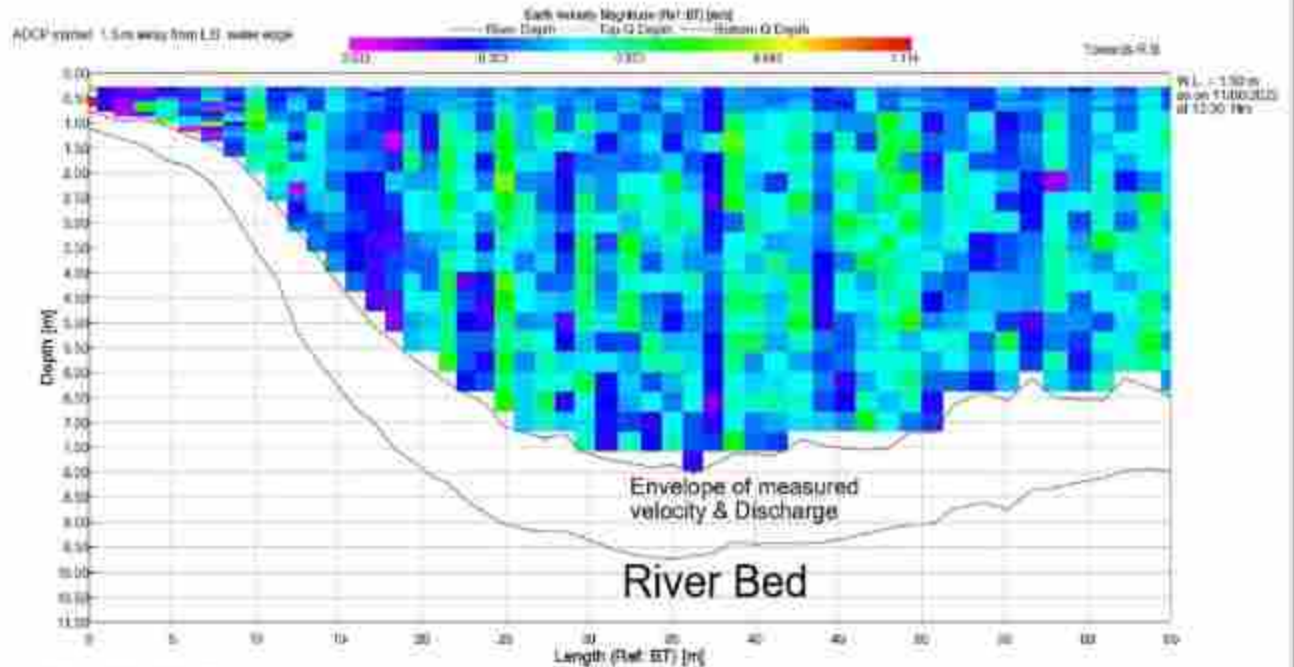
D. Das, S.O., RRI, WB

Analysed by:

D. Das, R.O. (Dr.-A) Sign. *Subash Das*

Cross Section at Chainage 600.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by

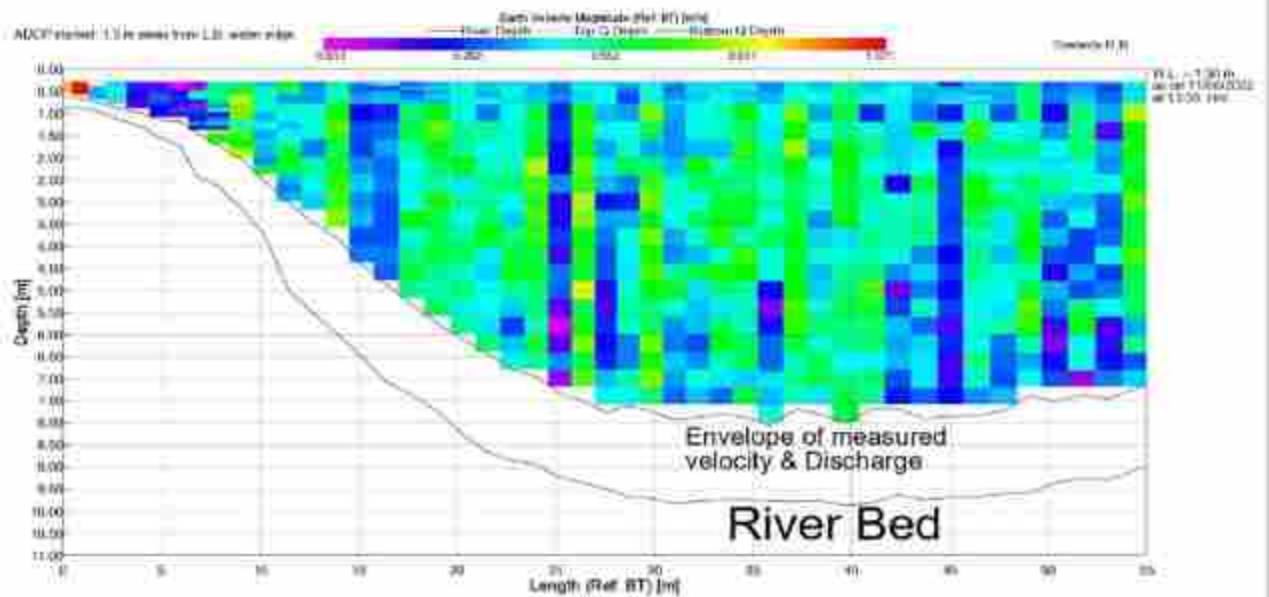
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by

D. Das, R.O. (R.A.) Sign. *subash*

Cross Section at Chainage 700.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by

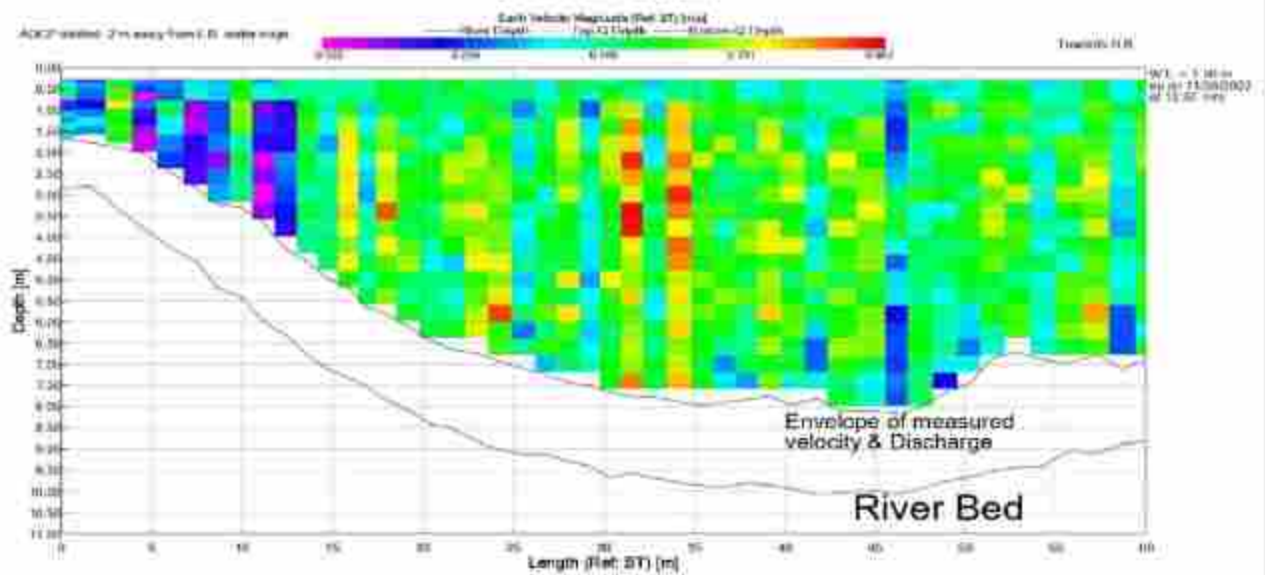
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by

D. Das, R.O. (R.A.) Sign. *subash*

Cross Section at Chainage 800.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by H&M to Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by :

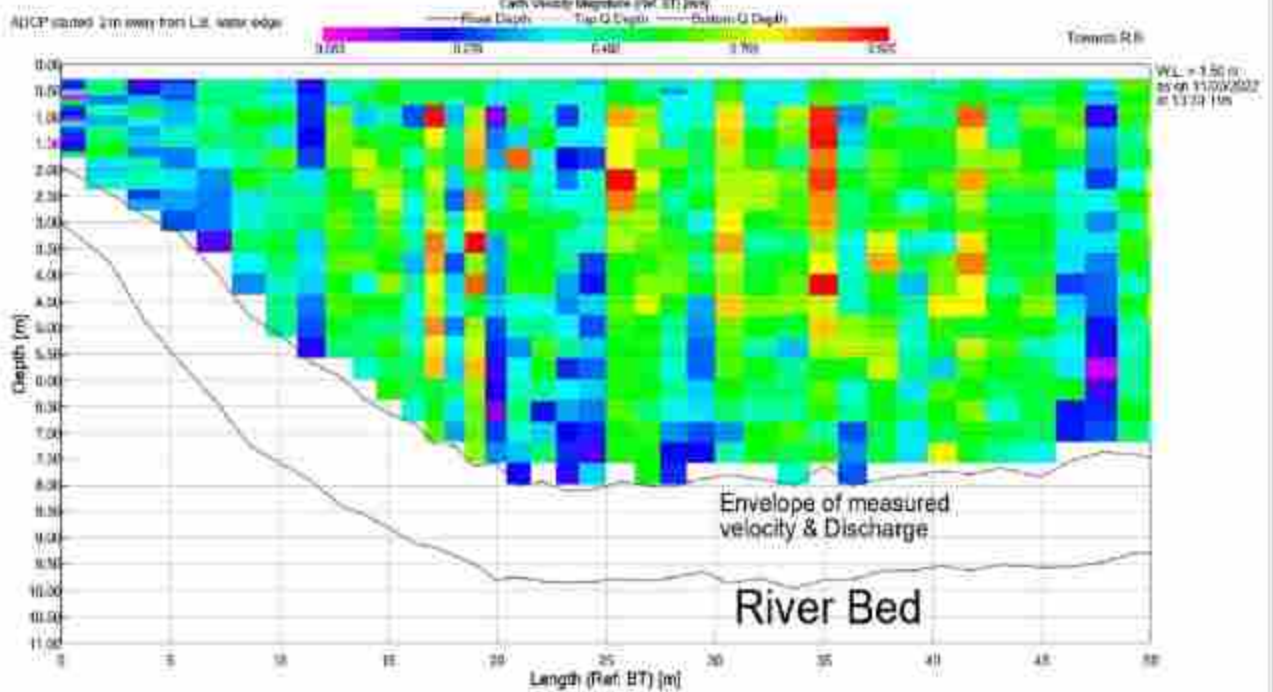
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Sr. A) Sign. *[Signature]*

Cross Section at Chainage 900.0 m of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by H&M to Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by :

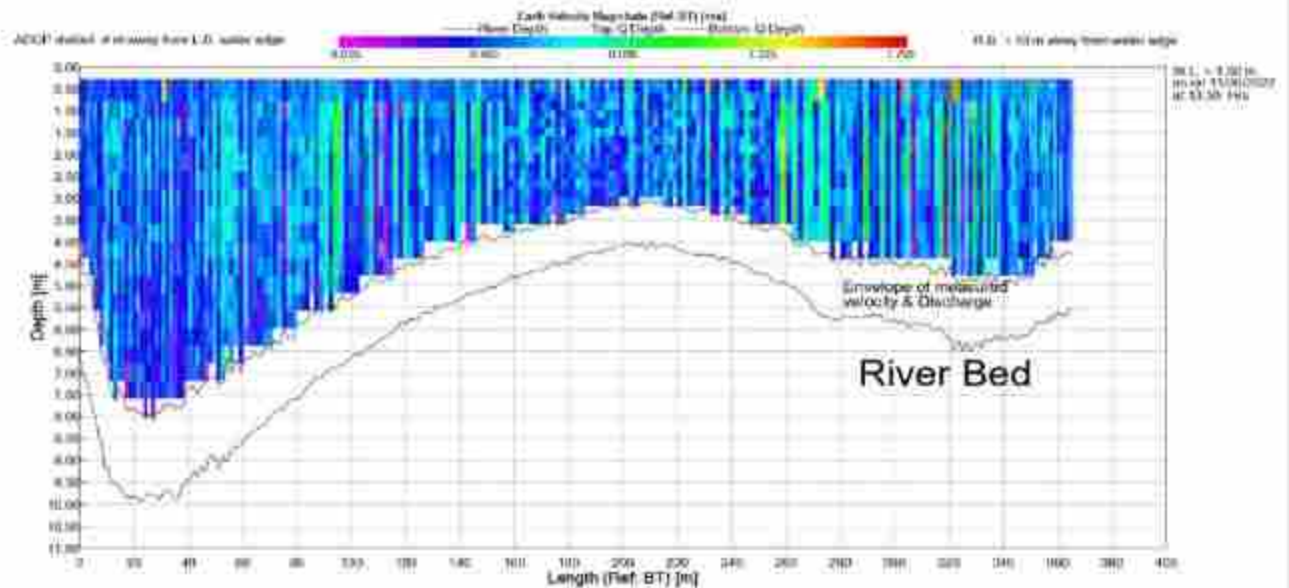
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Sr. A) Sign. *[Signature]*

Cross Section at Chainage 1000.0 m (Lat: 23°2.260300' N, Lon: 88°27.480400' E) of the River Hooghly at Kalipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



CS Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

G. Das, S.O., RRI, WB

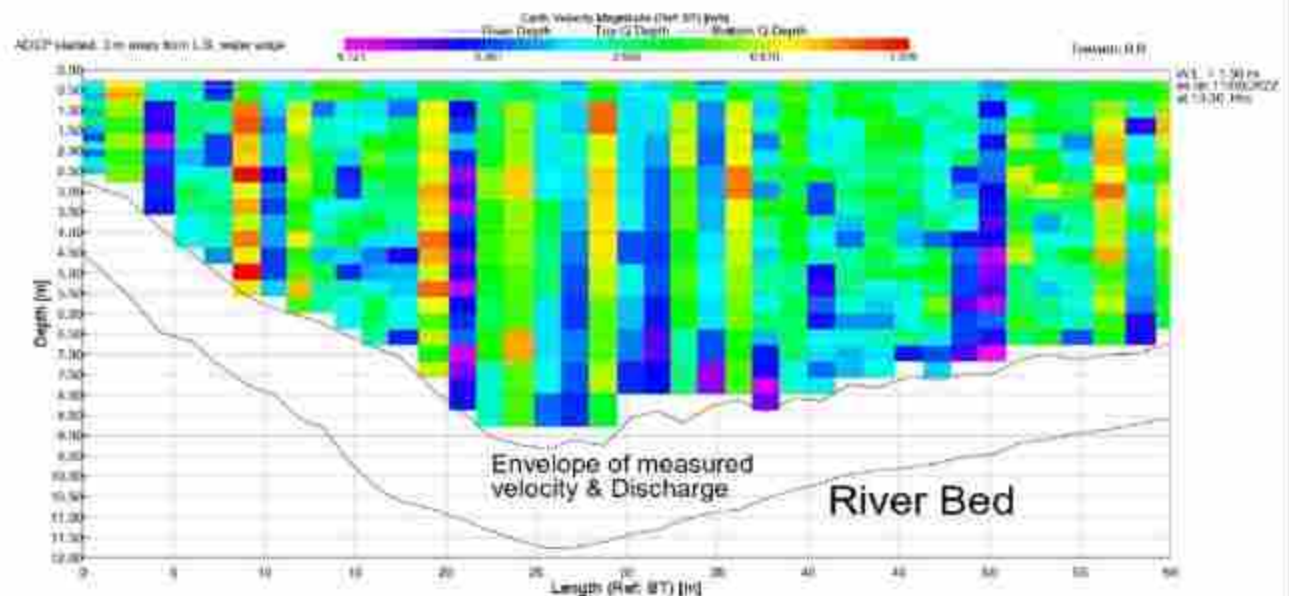
Analysed by:

D. Dev, R.O.(Gr-A) Sign: *[Signature]*

Cross Section at Chainage 1100.0 m (Lat: 23°2.233700' N, Lon: 88°27.488700' E) of the River Hooghly at Tarapur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S

Time: 14:30 hrs



CS Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

G. Das, S.O., RRI, WB

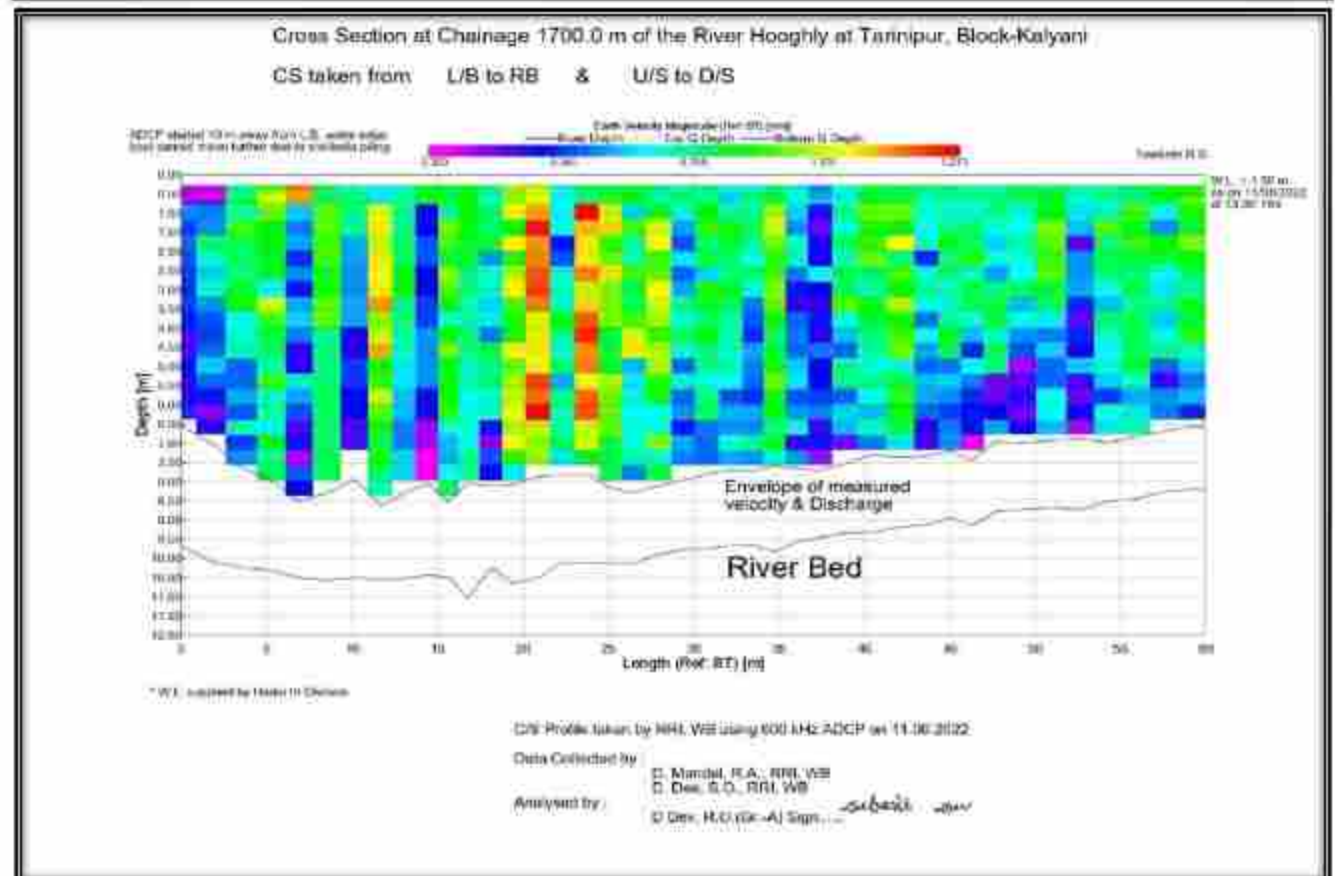
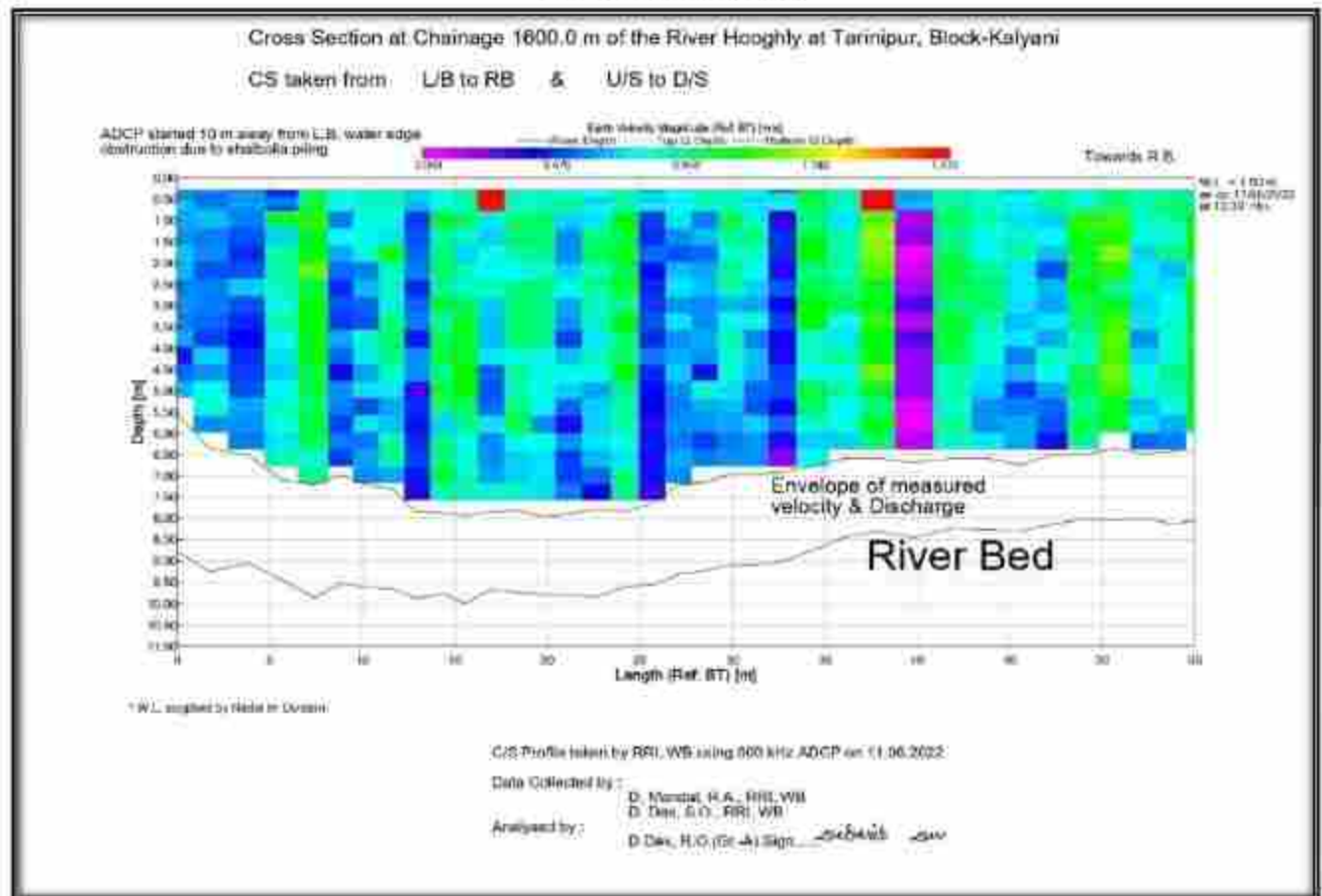
Analysed by:

D. Dev, R.O.(Gr-A) Sign: *[Signature]*

ADCP Survey Section for Tarinipur

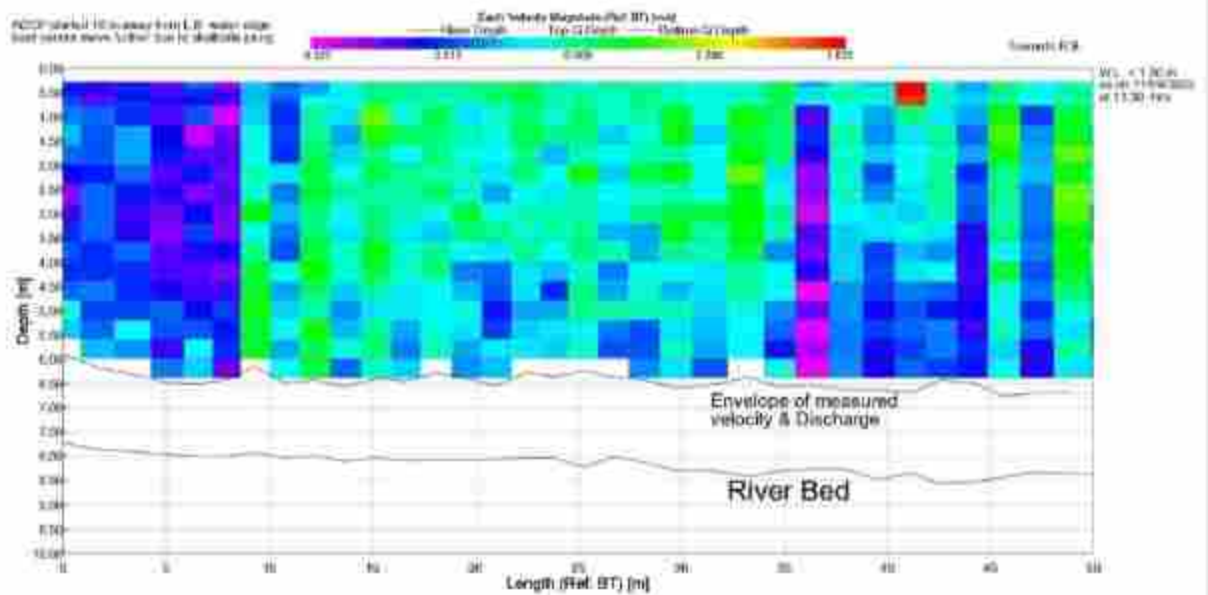
"Anti erosion work to the Left Bank of river Hooghly/Bhagirathi for a length of 3437.00 M (850M at Tarinipur to Kalipur Ferry Ghat, 900M at Tarinipur(South), 1100M at Ganga Manoharpur, 387M at Char Jatra Siddhi and 200M at Sarati & Raidanga) in Block & P.S: Kalyani, Dist. - Nadia."

At Tarinipur(South)



Cross Section at Chainage 1800.0 m of the River Hooghly at Tarinipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Field in District

C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.08.2022

Data Collected by :

D. Mandal, I.A., RRI, WB

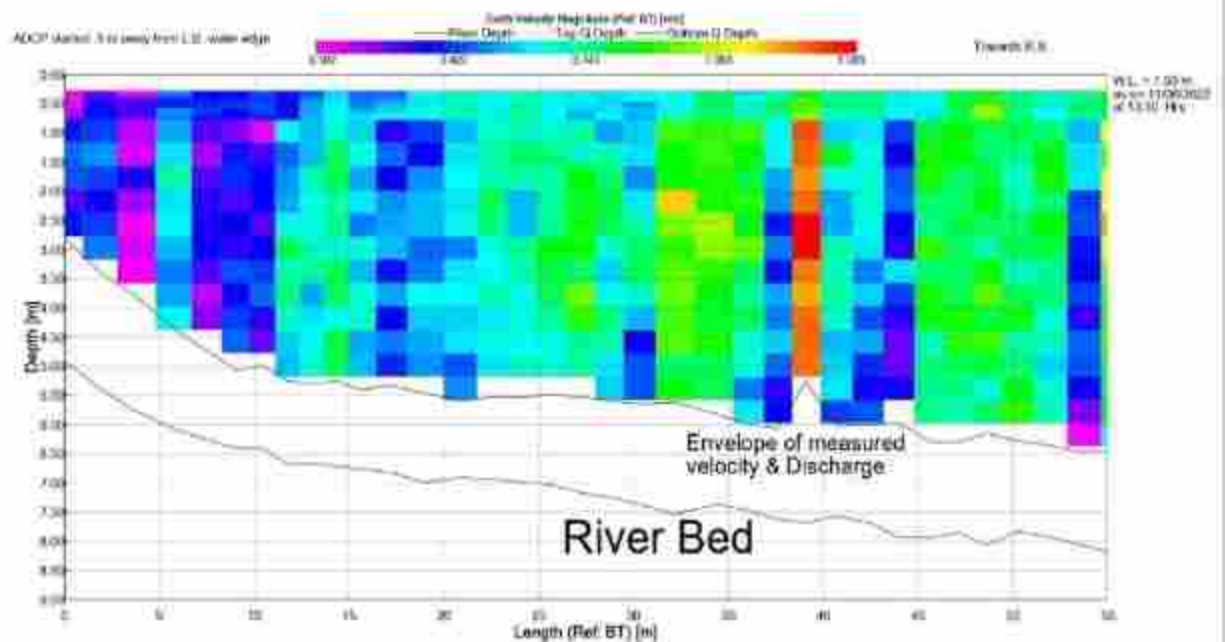
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Ct.-A) Sign *S. Das*

Cross Section at Chainage 1900.0 m of the River Hooghly at Tarinipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Field in District

C/S Profile taken by RRI, WB using 600 kHz ADCP on 11.08.2022

Data Collected by :

D. Mandal, I.A., RRI, WB

D. Das, S.O., RRI, WB

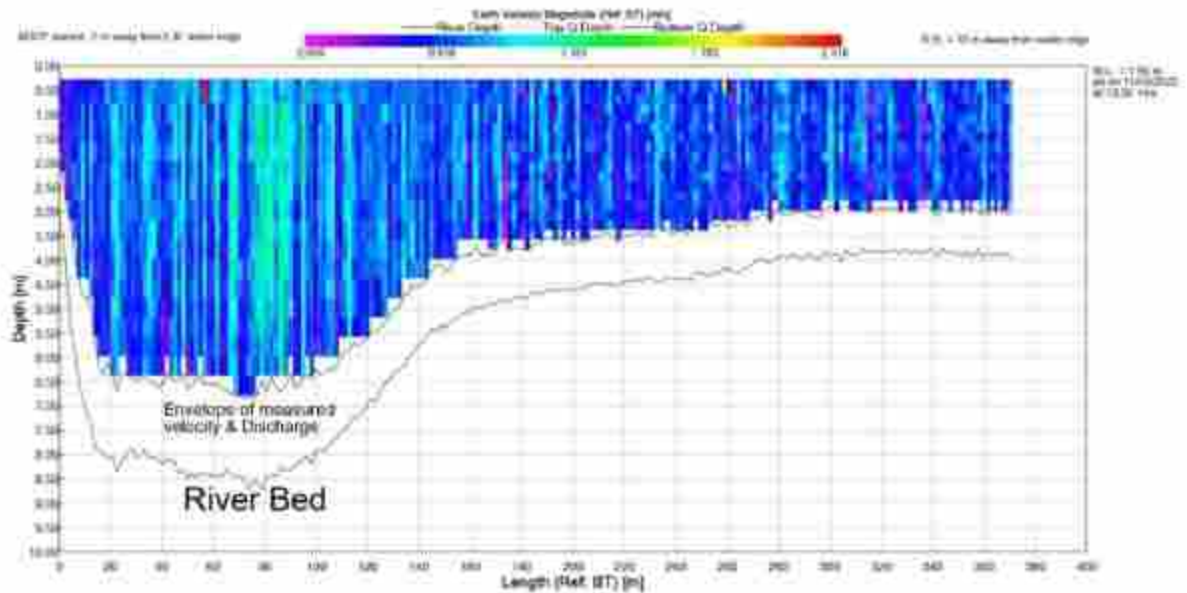
Analysed by :

D. Das, R.O. (Ct.-A) Sign *S. Das*

Cross Section at Chainage 2000.0 m (Lat: 23°1.807900' N , Lon: 88°27.317100' E) of the River Hooghly at Tatinpur, Block-Kalyani

CS taken from L/S to RB & U/S to D/S

Time: 14:57 hrs



* W.L. supplied by Station in Charge

CS Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

D. Das, S.O., RRI, WB

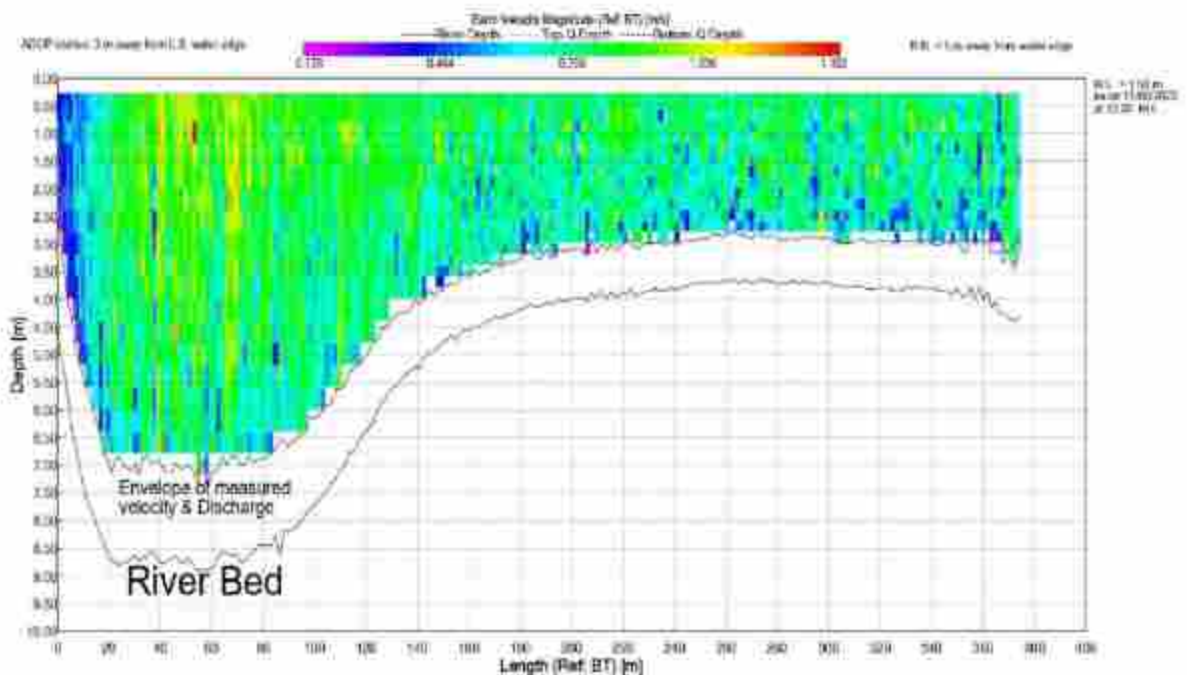
Analysed by:

D. Divi, R.O. (Gr-A) Sign: *Subash*

Cross Section at Chainage 2100.0 m (Lat: 23°1.759600' N , Lon: 88°27.294000' E) of the River Hooghly at Tatinpur, Block-Kalyani

CS taken from L/S to RB & U/S to D/S

Time: 15:46 hrs



* W.L. supplied by Station in Charge

CS Profile taken by RRI, WB using 600 kHz ADCP on 11.06.2022

Data Collected by:

D. Mandal, R.A., RRI, WB

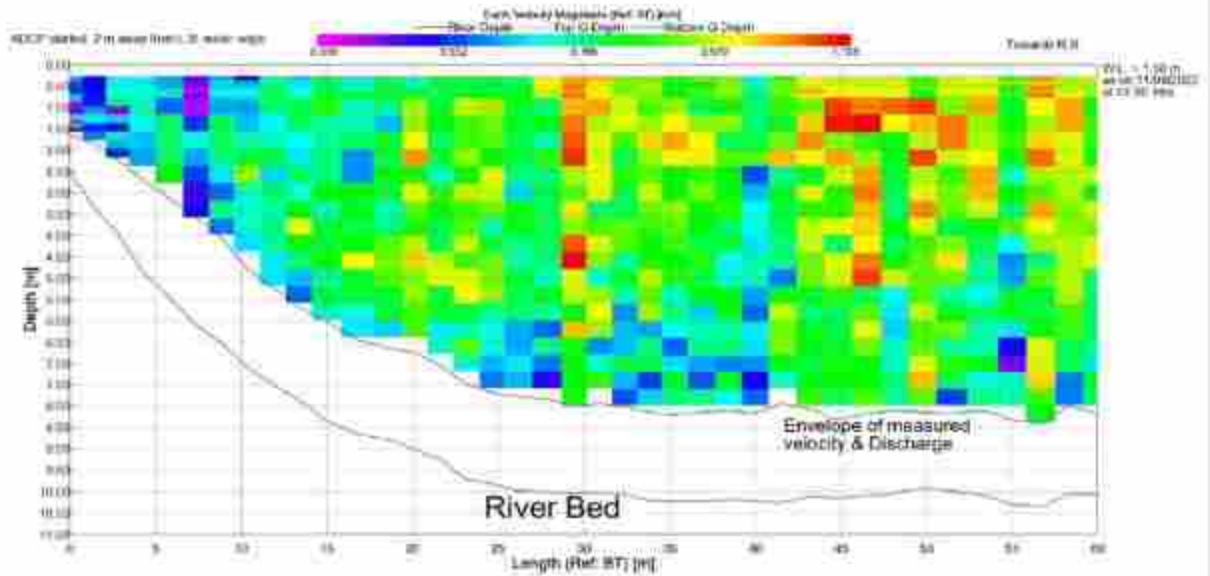
D. Das, S.O., RRI, WB

Analysed by:

D. Divi, R.O. (Gr-A) Sign: *Subash*

Cross Section at Chainage 2200.0 m of the River Hooghly at Tarinipur, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Metro Br. Division

CS Profile taken by RRI, WB using 800 kHz ADCP on 11.08.2022

Data Collected by:

D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

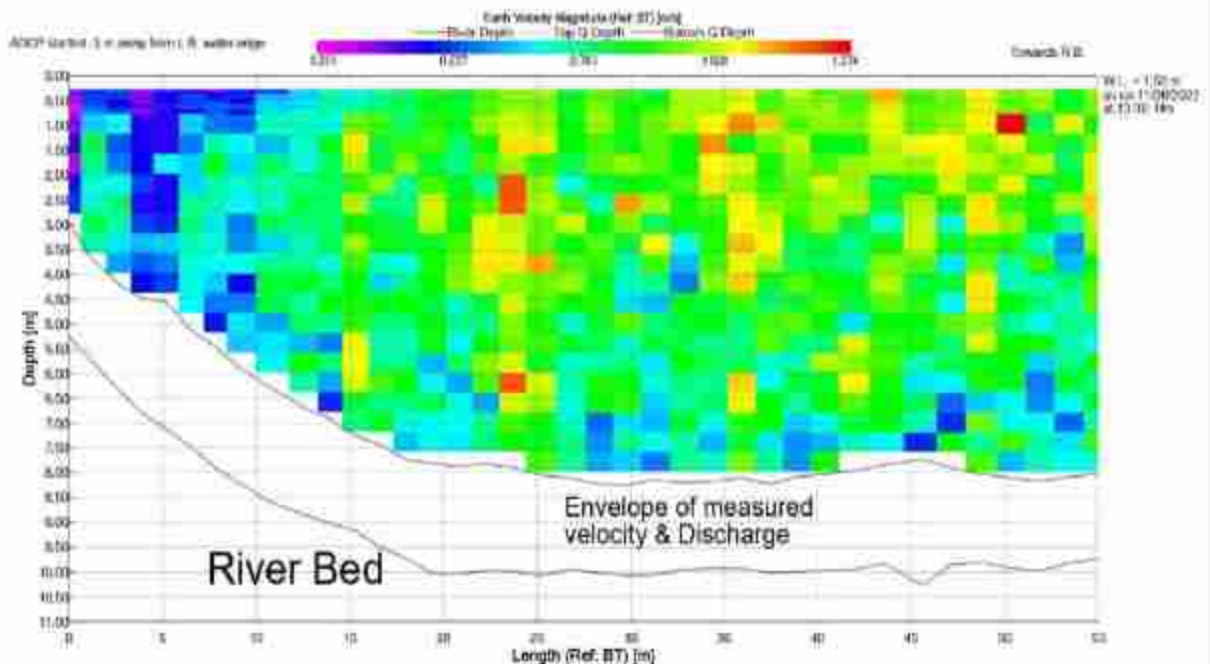
Analysed by:

D. Das, R.O. (Br-A) Sign: *subrata*

Cross Section at Chainage 2300.0 m (Lat: 23°1.621500' N, Lon: 88°27.227300' E) of the River Hooghly at Raidanga, Block-Kalyani

CS taken from L/B to RB & U/S to D/S

Time: 15:58 hrs



* W.L. supplied by Metro Br. Division

CS Profile taken by RRI, WB using 800 kHz ADCP on 11.08.2022

Data Collected by:

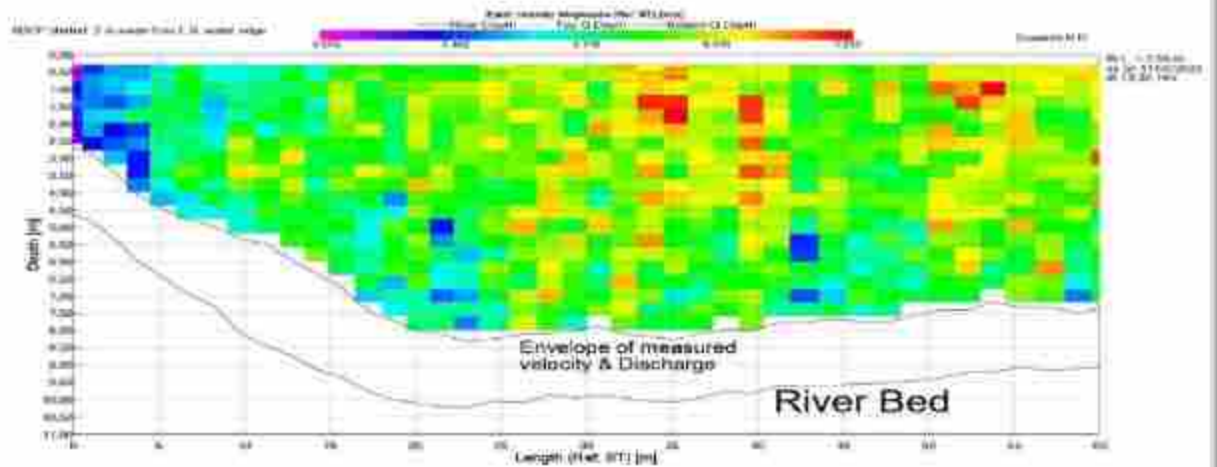
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by:

D. Das, R.O. (Br-A) Sign: *subrata*

Cross Section at Chainage 2400.0 m of the River Hooghly at Raidanga, Block-Kalyani

CS taken from L/RB to R/RB & U/S to D/S



* RT, supplied by Delta In Stream

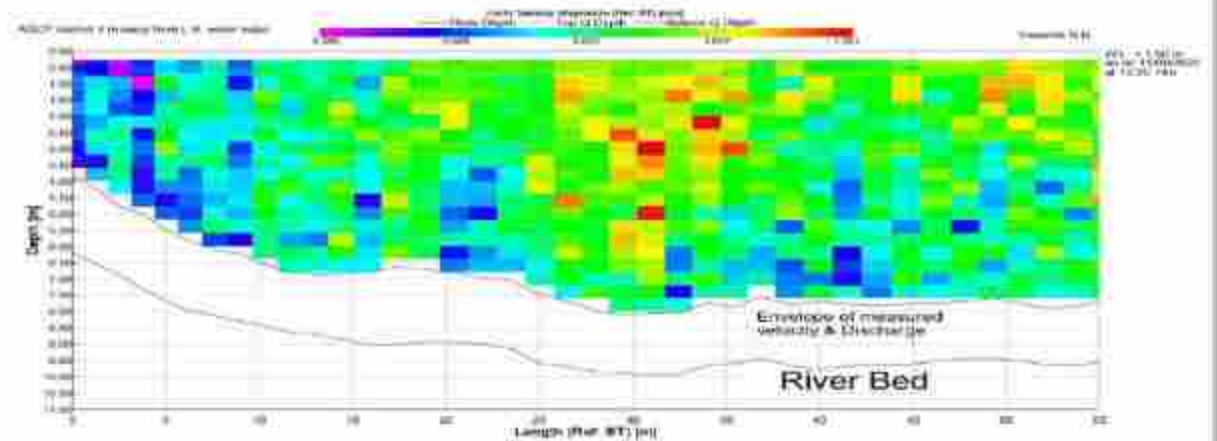
C/S Profile taken by RRS, WB using 800 kHz ADCP on 11.05.2022

Date Collected by:
D. Mandal, R.A., RRL, WB
D. Das, S.O., RRL, WB

Analysed by:
D. Das, R.O. (G-A) Sign. *Siddhanta*

Cross Section at Chainage 2500.0 m of the River Hooghly at Raidanga, Block-Kalyani

CS taken from L/RB to R/RB & U/S to D/S



* RT, supplied by Delta In Stream

C/S Profile taken by RRS, WB using 800 kHz ADCP on 11.05.2022

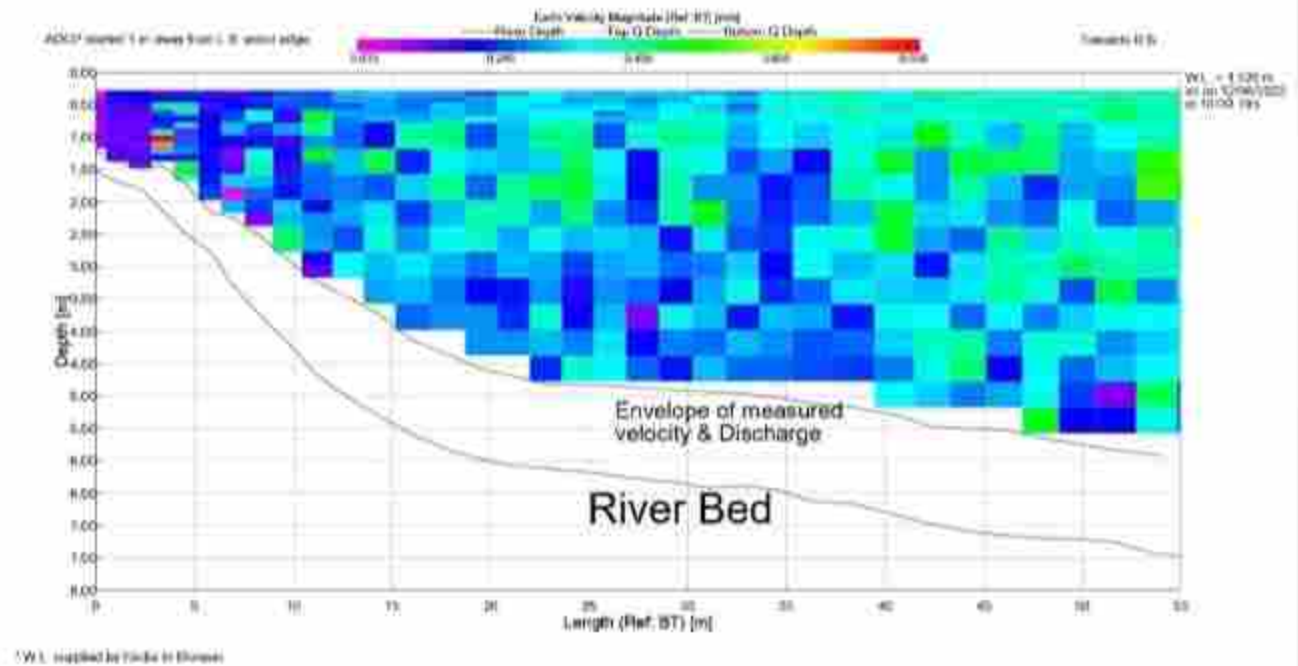
Date Collected by:
D. Mandal, R.A., RRL, WB
D. Das, S.O., RRL, WB

Analysed by:
D. Das, R.O. (G-A) Sign. *Siddhanta*

ADCP Survey Section for Gangamanoharpur

Cross Section at Chainage 4500.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

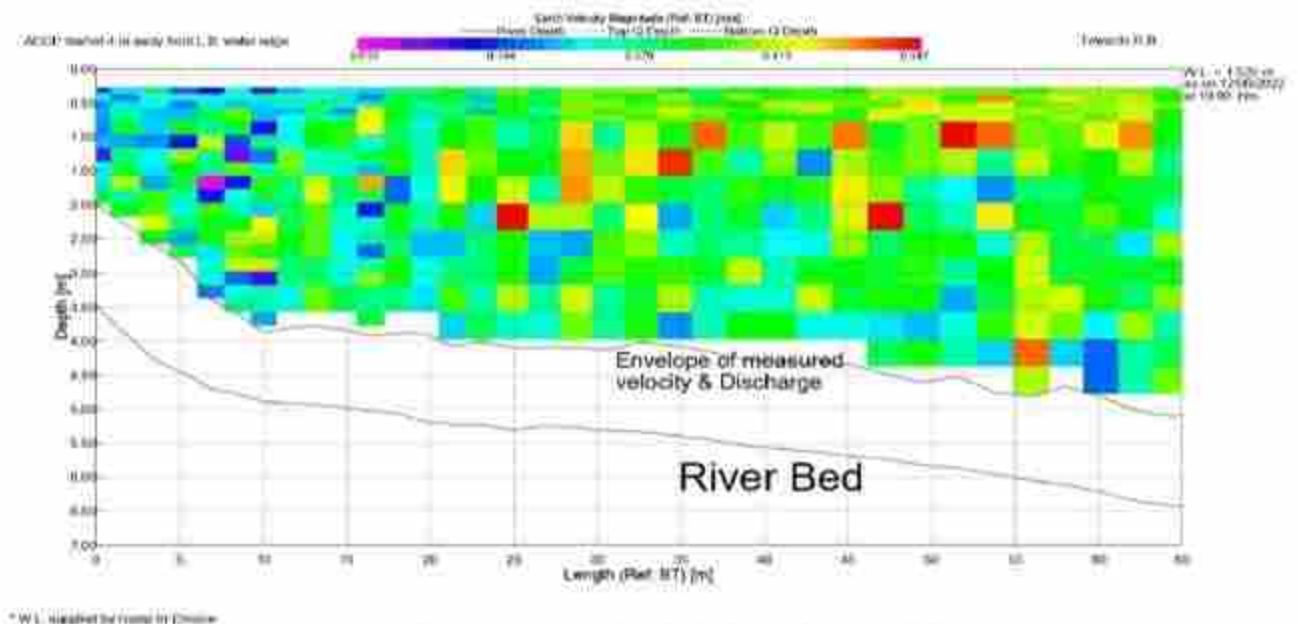
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O.(Gr.-A) Sign: *subash* *su*

Cross Section at Chainage 4600.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

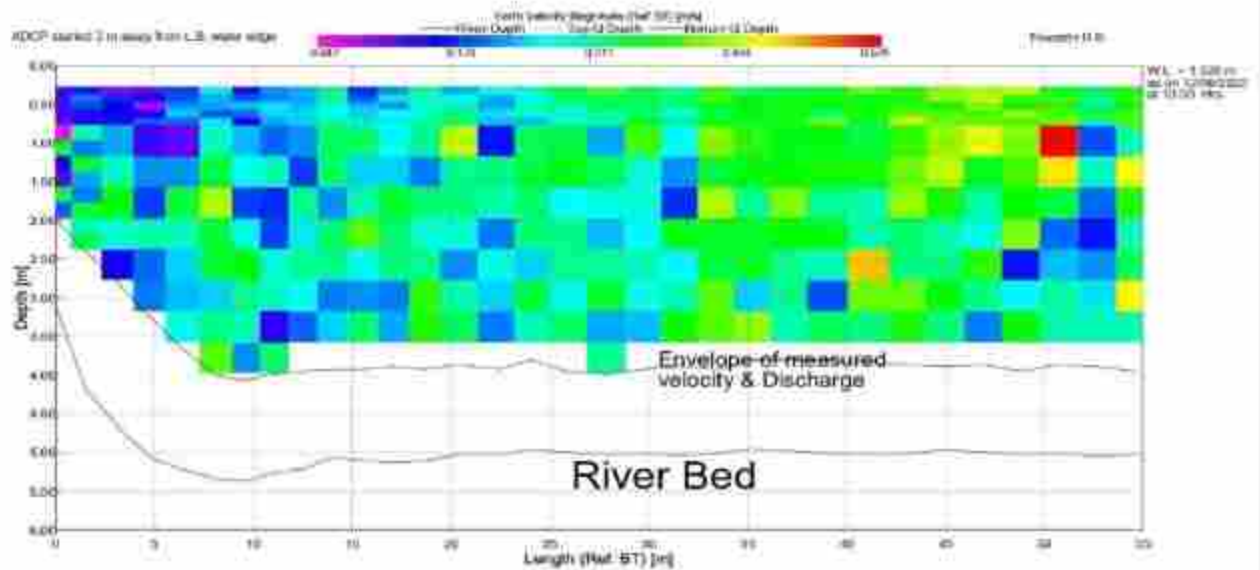
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O.(Gr.-A) Sign: *subash* *su*

Cross Section at Chainage 4700.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Naha H. Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

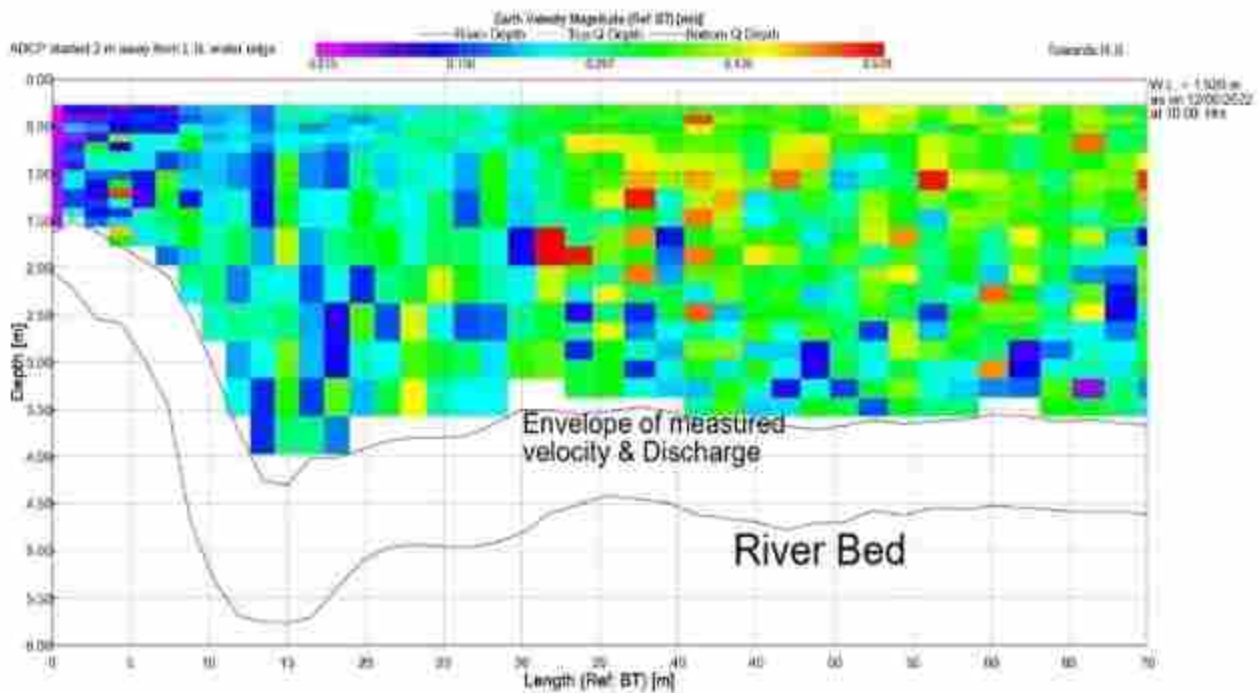
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr.-A) Sign. *[Signature]*

Cross Section at Chainage 4800.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Naha H. Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

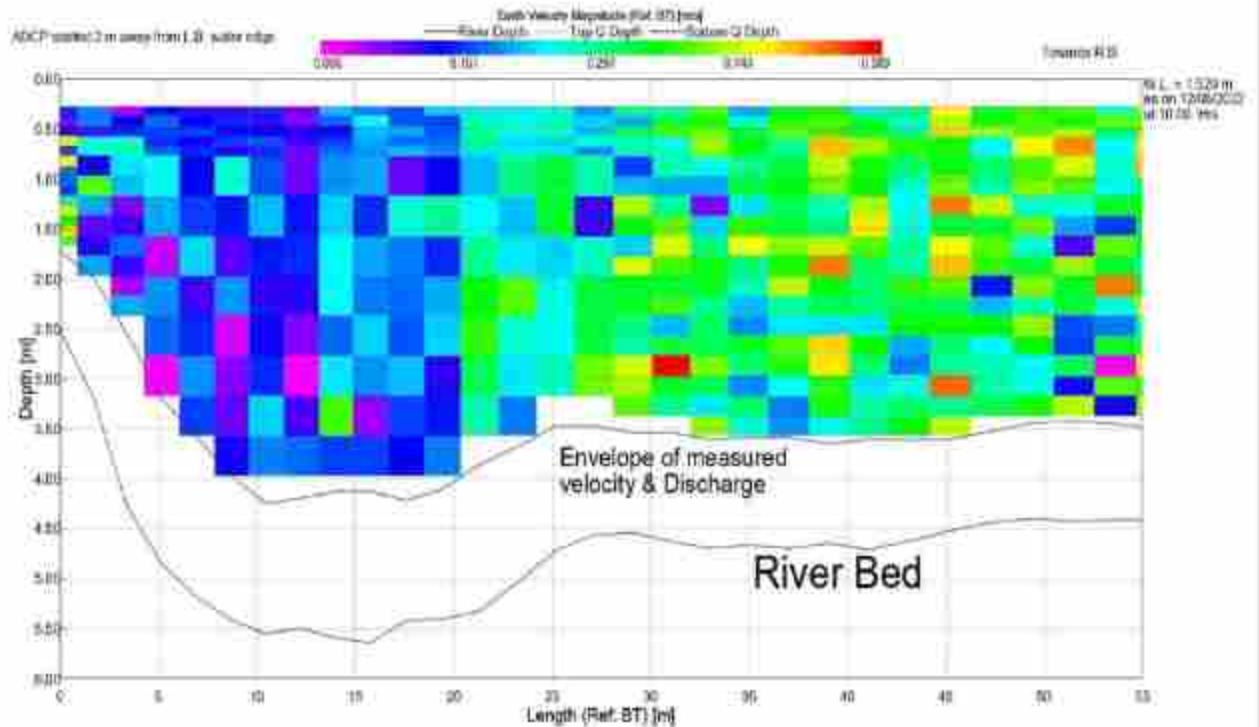
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr.-A) Sign. *[Signature]*

Cross Section at Chainage 4900.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supported by Nalla in Discharge

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

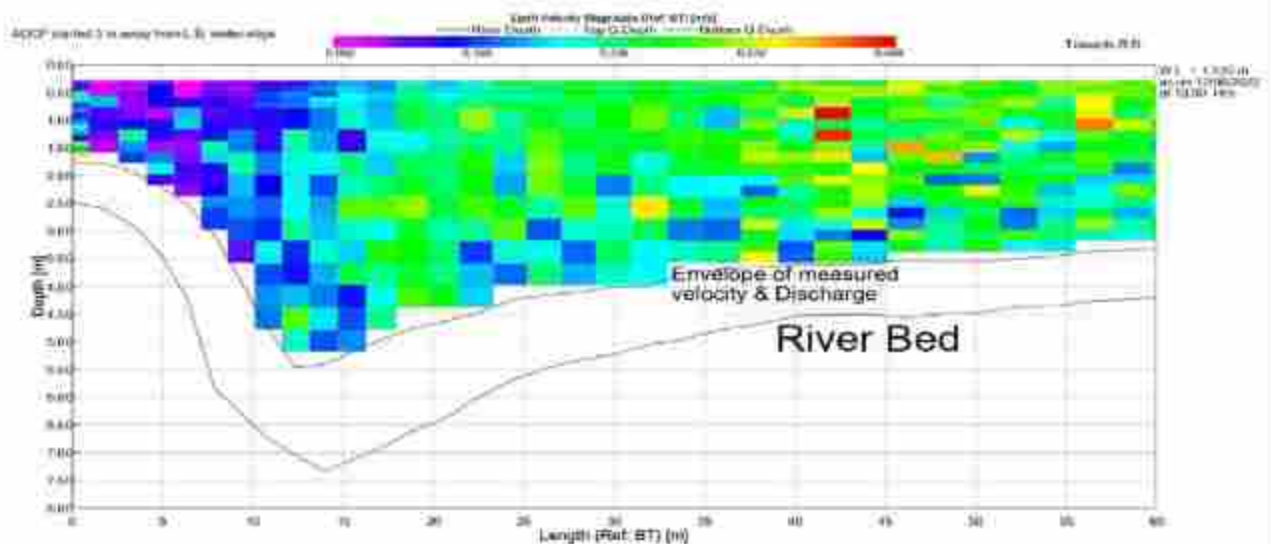
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr-A) Sign. *Subash* *gn*

Cross Section at Chainage 5000.0 m of the River Hooghly at Char Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supported by Nalla in Discharge

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr-A) Sign. *Subash* *gn*

CS taken from L/B to RB & U/S to D/S



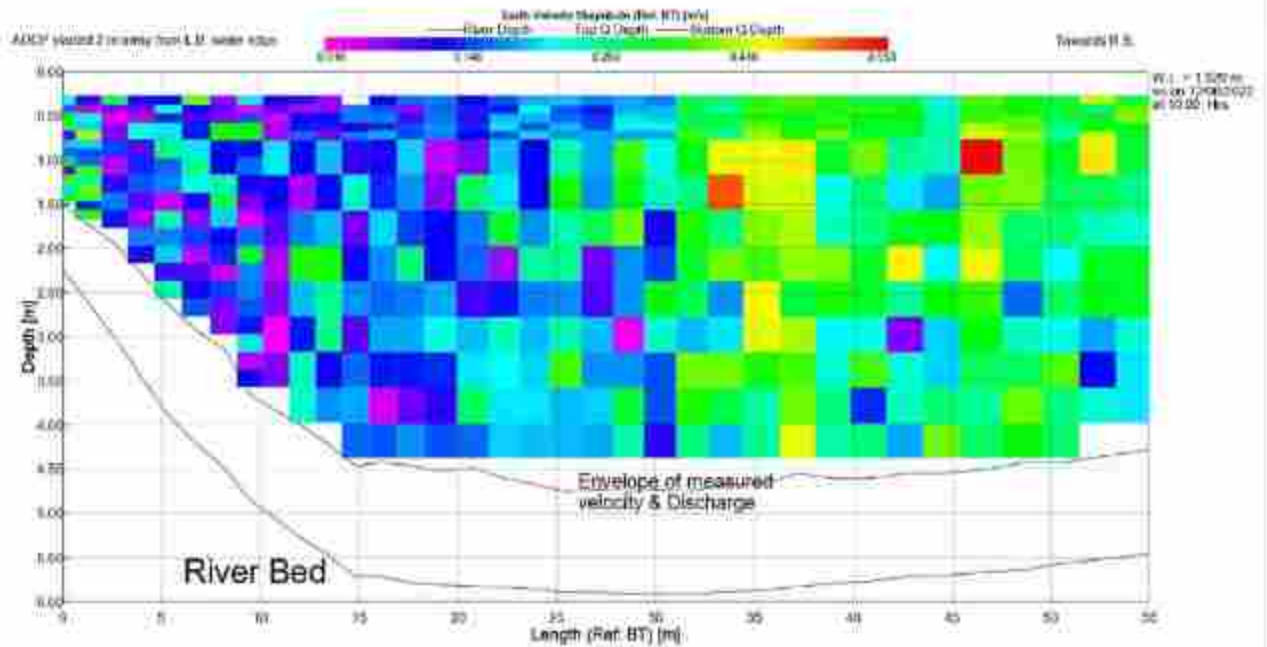
D. Dev. R.O. (Gr. A) Sign. Schmidt gar

CS taken from L/B to RB & U/S to D/S

D. Dev. R.O. (Gr. A) Sign subsis su

Cross Section at Chainage 5300.0 m (Lat: 23°0.473700' N , Lon: 88°25.900300' E) of the River Hooghly at Char Jajira, Block-Kalyani

CS taken from: L/B to RB & U/S to D/S



* W.L. supplied by Nadra Irr. Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

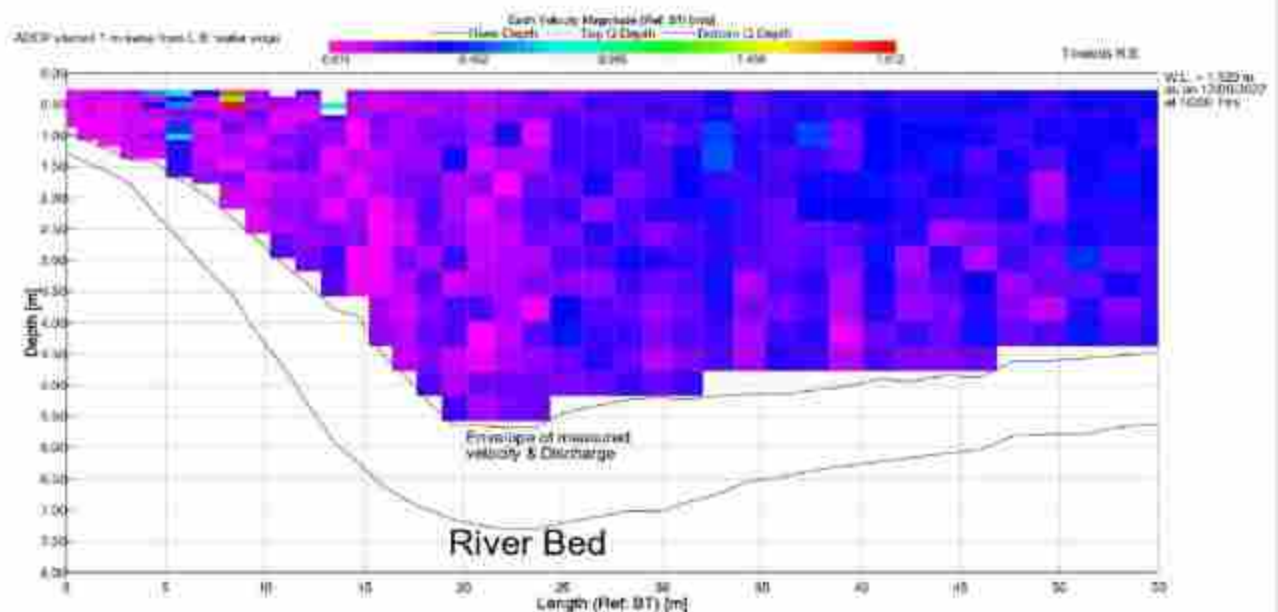
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O.(Gr-A) Sign... *sebas* *sw*

Cross Section at Chainage 5400.0 m of the River Hooghly at Char Jajira, Block-Kalyani

CS taken from: L/B to RB & U/S to D/S



* W.L. supplied by Nadra Irr. Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

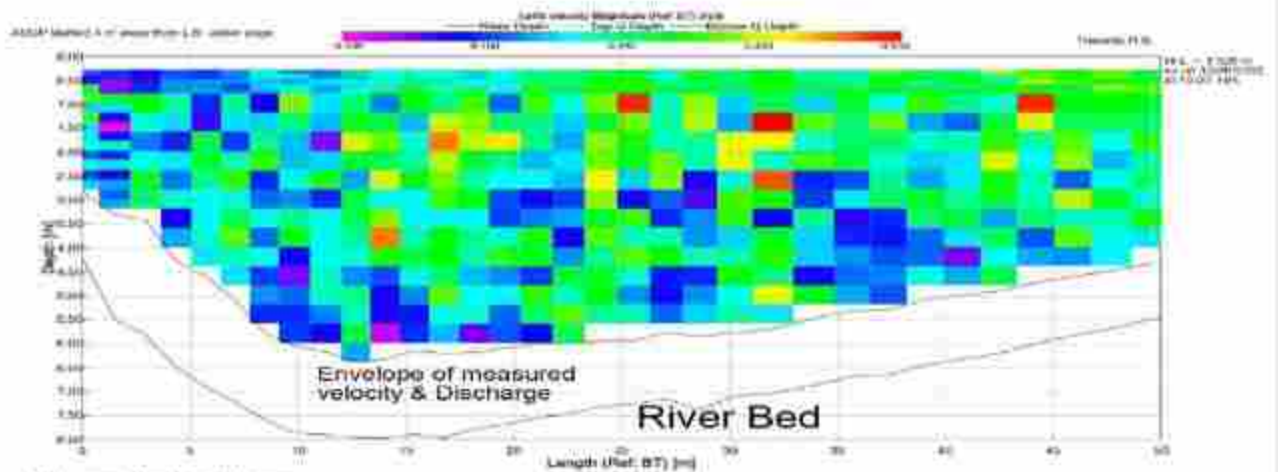
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O.(Gr-A) Sign... *sebas* *sw*

Cross Section at Chainage 5600.0 m of the River Hooghly at Char Jajira, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



*W.L. supplied by India In Distance

CS Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

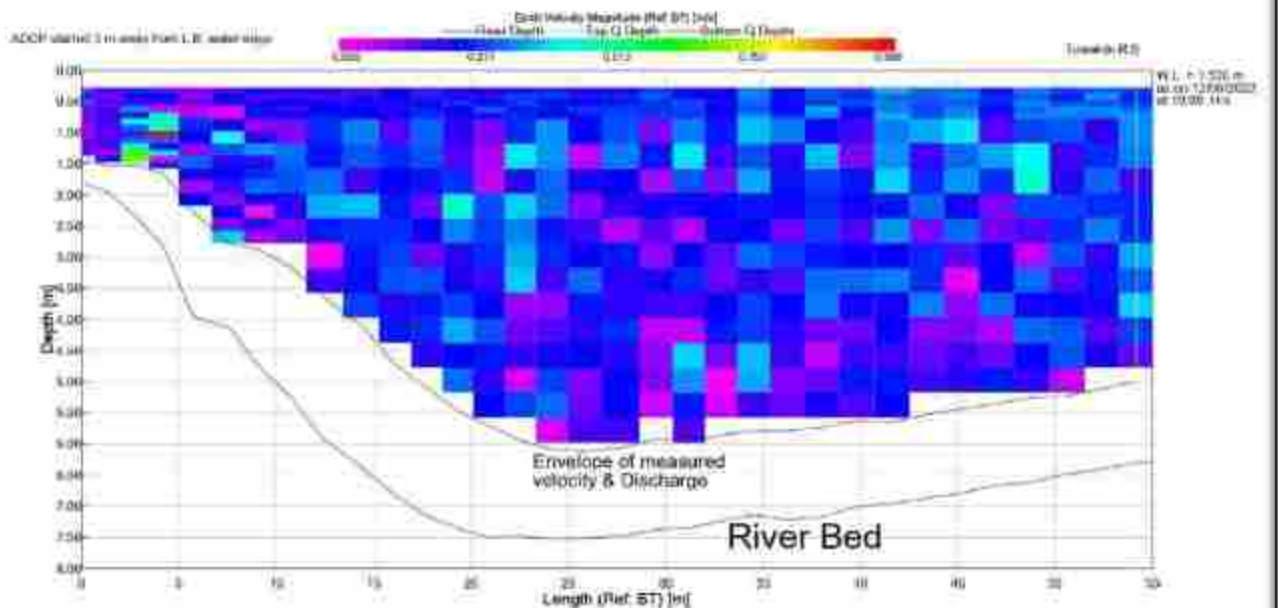
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr-A) Sign. *[Signature]*

Cross Section at Chainage 5600.0 m of the River Hooghly at Char Jajira, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



*W.L. supplied by India In Distance

CS Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

D. Das, S.O., RRI, WB

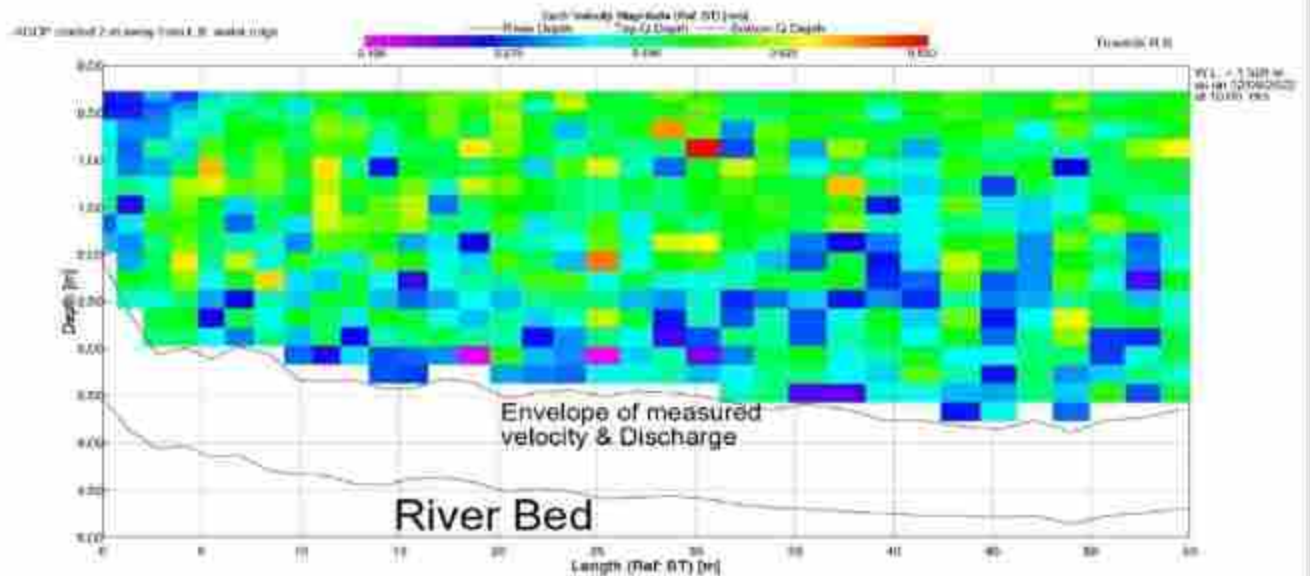
Analysed by :

D. Dev, R.O. (Gr-A) Sign. *[Signature]*

ADCP Survey Section for Char Jatra Siddhi & Sarati

Cross Section at Chainage 800.0 m of the River Hooghly at Char Jatra Siddhi, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Noida to District

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

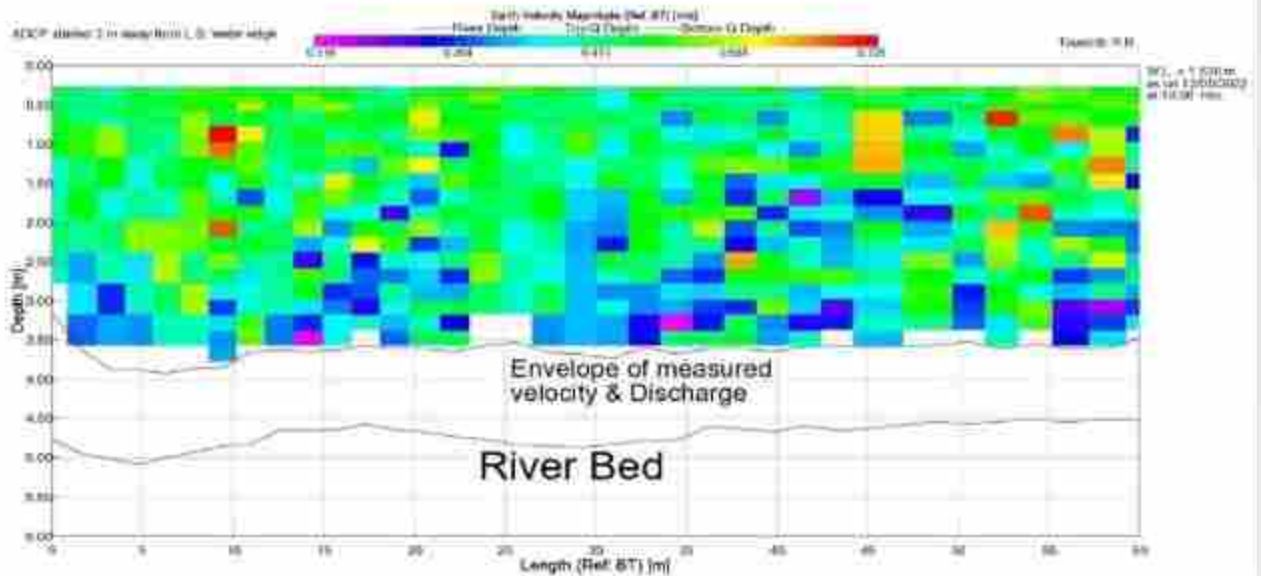
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O.(Gr.-A) Sign. *subash*

Cross Section at Chainage 500.0 m of the River Hooghly at Char Jatra Siddhi, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Noida to District

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

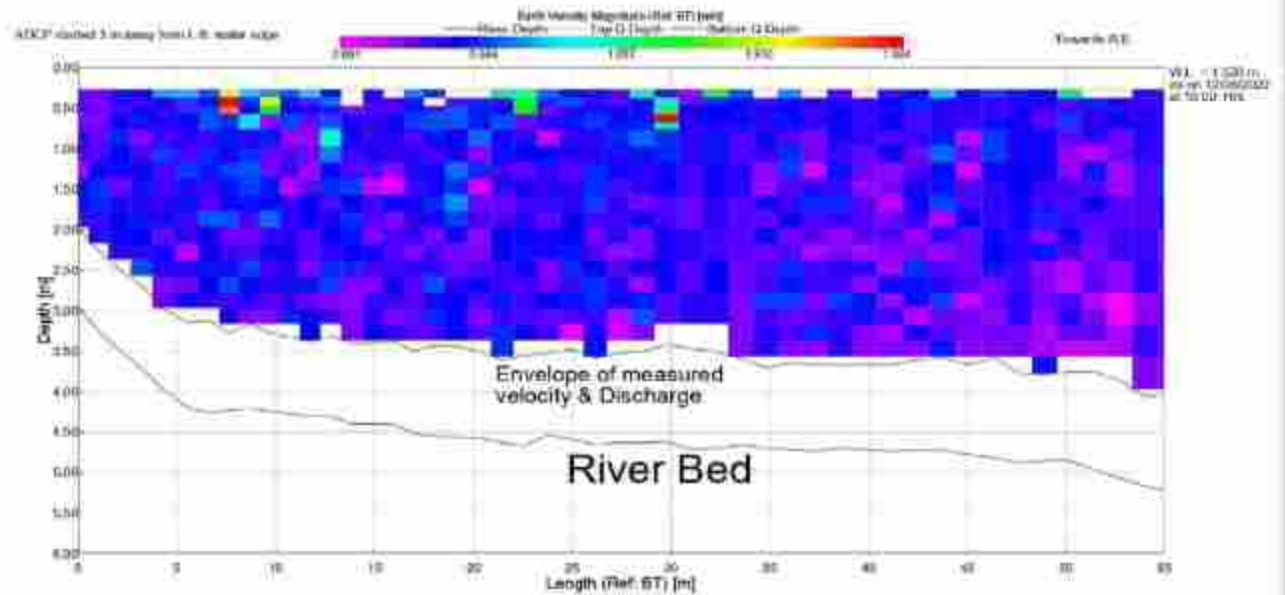
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O.(Gr.-A) Sign. *subash*

Cross Section at Chainage 400.0 m of the River Hooghly at Char Jatra Siddhi, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* WL, supplied by Staff of Damodar

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

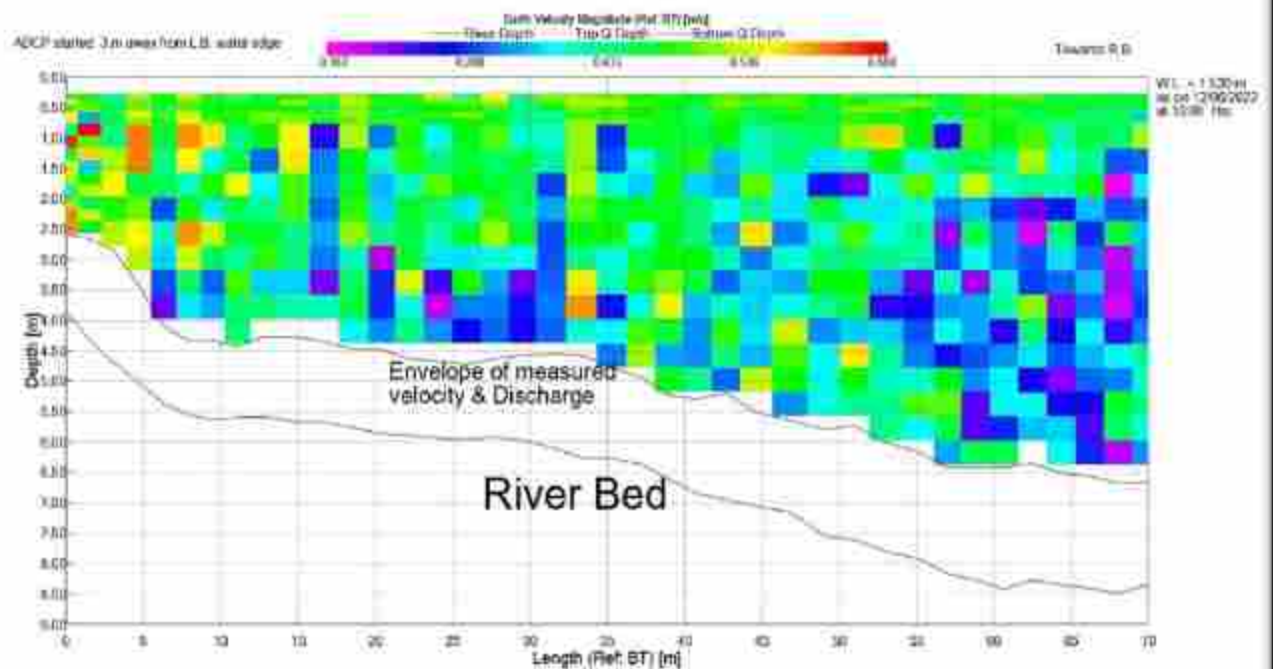
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Gr.-A) Sign. *subash sw*

Cross Section at Chainage 300.0 m of the River Hooghly at Char Jatra Siddhi, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* WL, supplied by Staff of Damodar

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

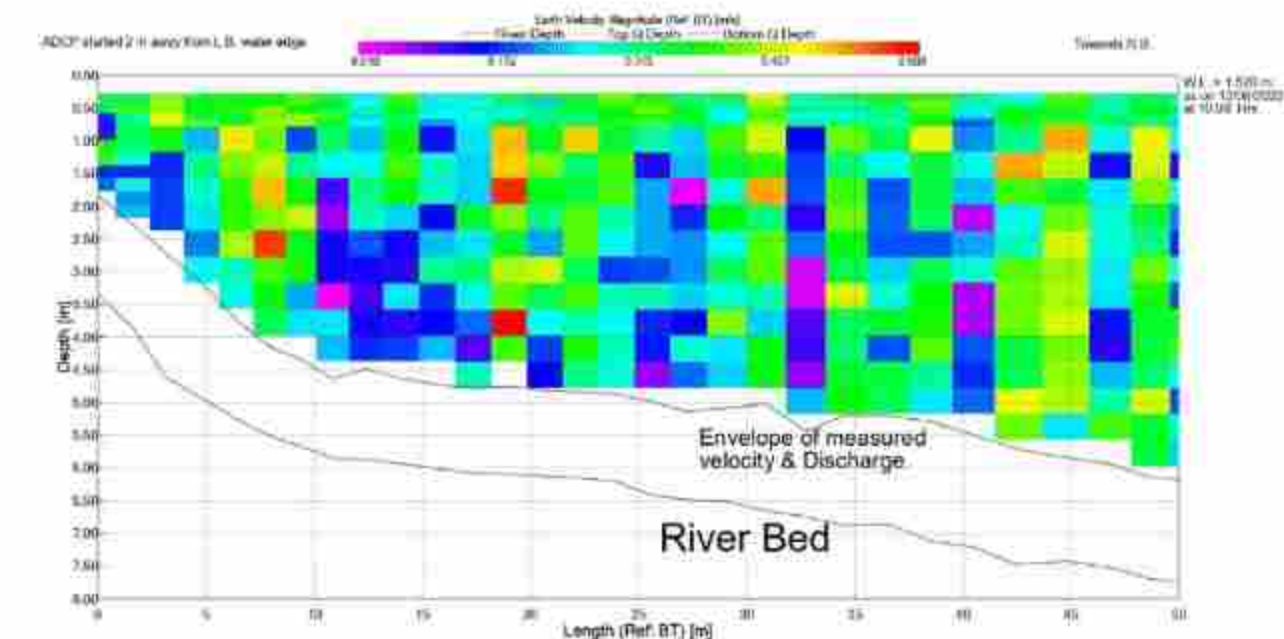
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Gr.-A) Sign. *subash sw*

Cross Section at Chainage 200.0 m of the River Hooghly at Char Jatra Siddhi, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Nadi in Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

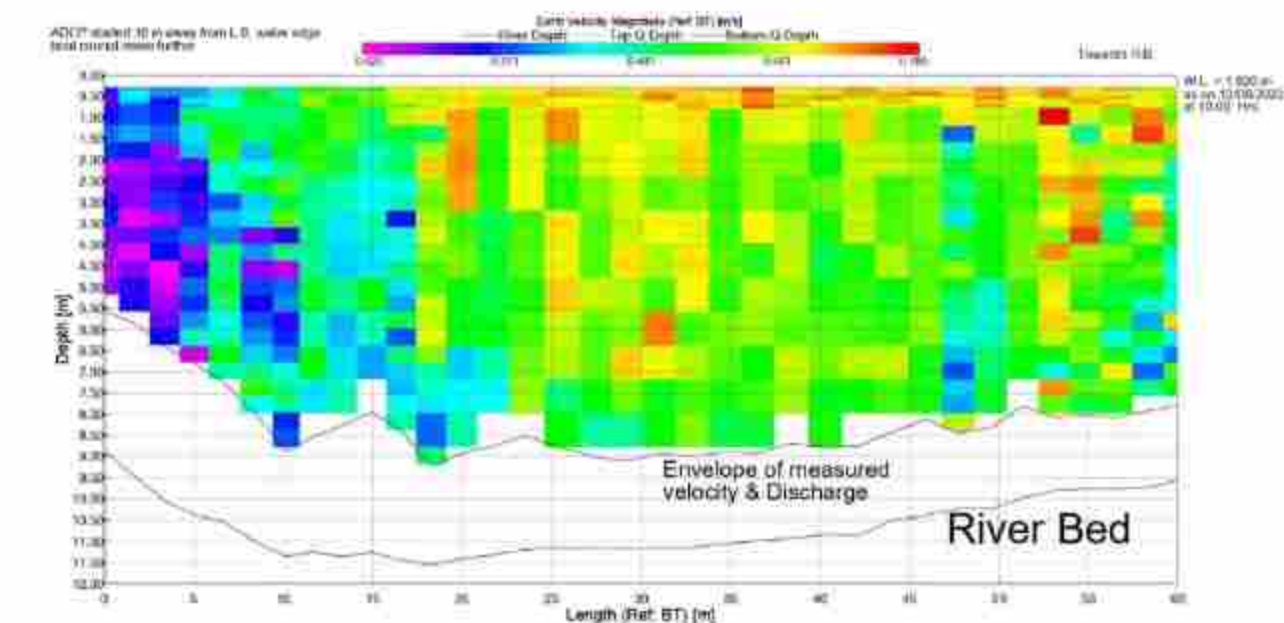
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr.-A) Sign. *subair*

Cross Section at Chainage 3300.0 m (Lat: 23°1.236100' N, Lon: 88°26.906400' E) of the River Hooghly at Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by Nadi in Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB

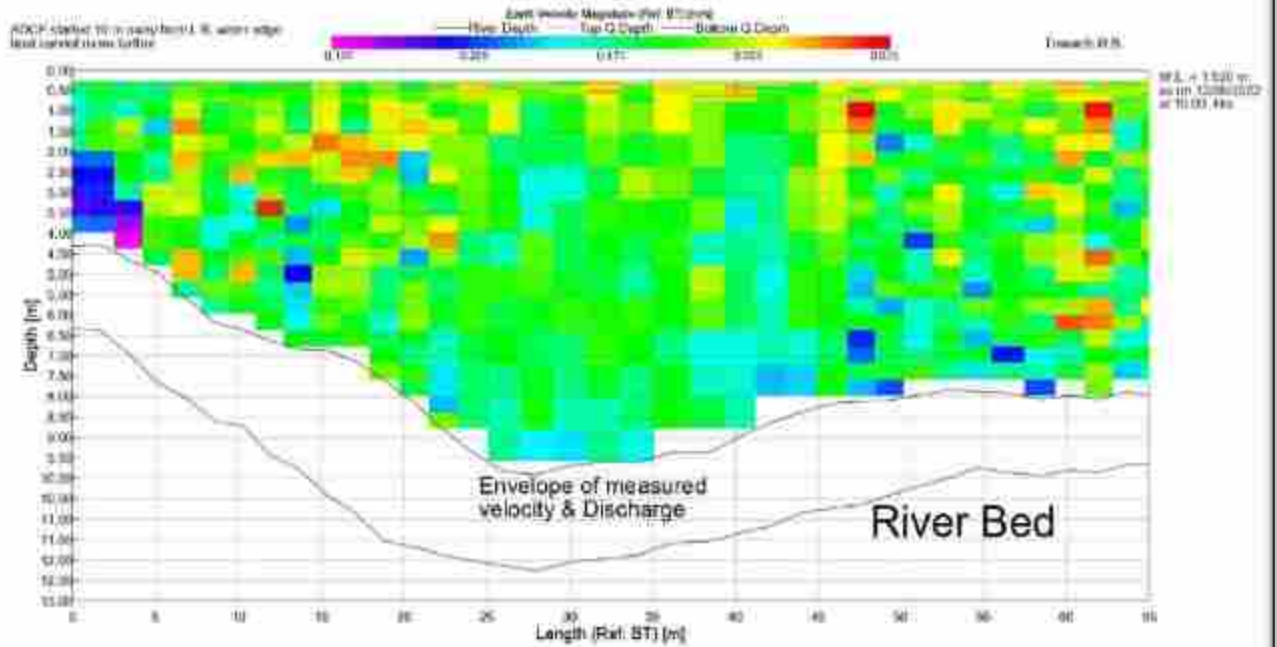
D. Das, S.O., RRI, WB

Analysed by :

D. Dev, R.O. (Gr.-A) Sign. *subair*

Cross Section at Chainage 3400.0 m of the River Hooghly at Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by focus in Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

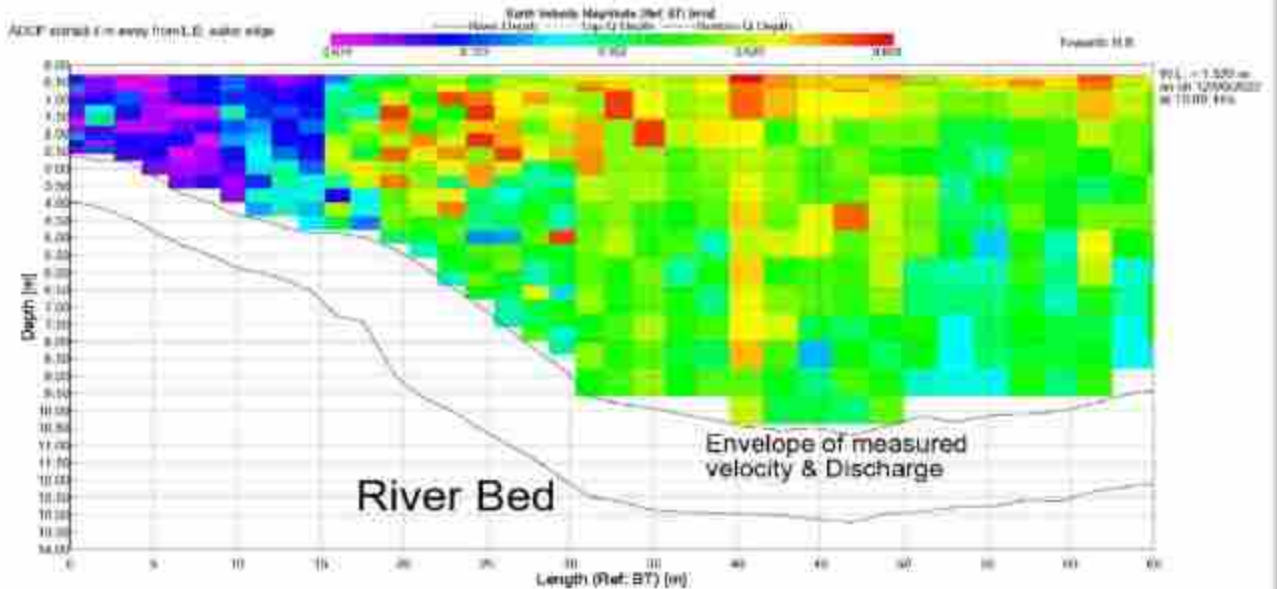
D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Gr.-A) Sign. *subash* *sw*

Cross Section at Chainage 3500.0 m of the River Hooghly at Sarati, Block-Kalyani

CS taken from L/B to RB & U/S to D/S



* W.L. supplied by focus in Division

C/S Profile taken by RRI, WB using 600 kHz ADCP on 12.06.2022

Data Collected by :

D. Mandal, R.A., RRI, WB
D. Das, S.O., RRI, WB

Analysed by :

D. Das, R.O. (Gr.-A) Sign. *subash* *sw*