SEDID- 03 (10) OF 2026-27

GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES

BID DOCUMENT

FOR THE WORK

"REPAIR AND CONSTRUCTION OF TROUGH WALL WITH BED LINING OF MALICHUA S/M -1 IN BETWEEN RD 900M TO 1100M. OF DID FOR THE YEAR 2026-27."

SUPERINTENDING ENGINEER
DEBAGADA IRRIGATION DIVISION
DEBAGADA

GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES
OFFICE OF THE SUPERINTENDING ENGINEER,
DEBAGADA IRRIGATION DIVISION, DEBAGADA
E-mail id-sedid821@gmail.com

e-Procurement Notice No. SEDID-03 /2026-27

Bid Identification No. SEDID-03(01)/2026-27 to SEDID-03(16)/2026-27

No.**1155** Date - 14.10.2026

Bid documents consisting of work, estimated amount put to tender, cost of tender paper, EMD, time of completion, class of contractor, the set of terms & conditions of contract and other necessary documents can be seen in e-procurement portal https://tendersodisha.gov.in complete online process only.

1.	**Nature of Works**	:	**Canal Works**
2.	**Nos. of works**	:	**16(Sixteen)**
3.	**Bid Identification No.**	:	**SEDID-03(01)/2026-27 to SEDID-03(16)/2026-27**
4.	**Estimated Cost**	:	**4.83 Lakhs to 13.38 Lakhs**
5.	**Earnest Money Deposit**	:	**Referred to DTCN**
6.	**Cost of Tender Paper**	:	**Referred to DTCN**
7.	**Period of Completion**	:	**Referred to DTCN**
8.	**Date and Time of availability of Bid Document in the Portal**	:	**Dt: 21.10.2026 at 11.00 AM to Dt: 30.10.2026 up to 05.00 PM.**
9.	**Last Date / Time for receipt of Bids in the Portal**	:	**Dt: 30.10.2026 up to 05.00 PM.**
10.	**Date of Bid opening**	:	**Dt: 31.10.2026 at 11.00 AM.**
11.	**Clarification seeking date**	:	**Dt: 21.10.2026 at 11.00 AM to Dt: 29.10.2026 up to 05.00 PM.**
12.	**Date of Lottery (if required)**	:	**Will be intimated later on.**

Further details can be seen from the e-procurement portal https://tendersodisha.gov.in.Any addendum/ corrigendum/ cancellation of tender can also be seen in said website.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

Memo No-1156 **/Date-** 14.10.2026

Copy submitted to the Engineer-in-Chief, Water Resources, Odisha, SechaSadan, Bhubaneswar for favour of kind information and necessary action.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

Memo No-1157 **/Date-** 14.10.2026 **(mailed-ipr.advt@gmail.com)**

Copy along with soft copy submitted to the Deputy Director-cum-Deputy Secretary, Advertisement, Information & Public Relation Department, Office of the Director of Public Relation, Govt. Of Odisha, Bhubaneswar with a request to publish the tender call notice in one most widely circulated English daily and two most widely circulated Odia daily newspaper. The complimentary copy of the advertisement of each paper may please be sent to this office for reference.
Encl:-Tender Notice-1 No.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

Memo No-1158 **/Date-**14.10.2026 **(mailed-tendersorissa@gmail.com)**

Copy along with soft copy of tender notice submitted to the Technical Head, State Portal Group, NIC, Odisha, Secretariate, Bhubaneswar for favour of kind information and necessary action with a request to hoist the notice in Govt. Website.
Encl:-Tender Notice-1 No.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

.

Memo No-1159 **/Date-** 14.10.2026

Copy along with copy of the enclosure submitted to the Chief Engineer and Basin Manager, Bramhani Basin, Samal / Director, Research and Quality Control, Unit-VIII, Delta Square, Bhubaneswar-12 / Additional Chief Engineer, Anugola Irrigation Circle, Anugola for favour of kind information and necessary action.
Encl:- 1 No. (Each)

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

.

Memo No-1160 **/Date-** 14.10.2026

Copy to Director, Monitoring, office of the Engineer-in-Chief water resources Odisha Bhubaneswar, to hoist the notice in the authorized Govt https://dowr.odisha.gov.in/ on or before 05-07-2024.
Encl: - Soft copy-1 No.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

.

Memo No-1161 **/Date-** 14.10.2026

Copy submitted to the Collector & District Magistrate, Debagada for favour of kind information and necessary action.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

Memo No-1162 **/Date-** 14.10.2026

Copy submitted to the Superintendent of Police, Debagada for favour of kind information and necessary action.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

.

Memo No-1163 **/Date-** 14.10.2026

Copy to all the Superintending Engineers under Angul Irrigation Circle, Angul /Superintending Engineer, Debagada (R&B) Division, Debagada / Additional Project Director (Tech.) DRDA, Debagada / Superintending Engineer ,R.W. Division, Debagada / Superintending Engineer R.W.S.S., Division, Debagada / Superintending Engineer, M.I. Division, Debagada /E.O, Debagada Municipality, Debagada / Division Notice Board / Tender Call Notice File / Divisional Accounts Officer / Cashier / Inspector in charge, Police Station, Reamal .Dist-Debagada for information and necessary action.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

.**Memo No-1164** **/Date-** 14.10.2026

Copy submitted to the District Informatics Officer, NIC, Collectorate, Debagada for information and necessary action. He is requested to display the tender notice in the District website.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

Memo No- 1165 **/Date-** 14.10.2026

Copy forwarded to Liason Officer, Office of the Chief Engineer & Basin Manager, Bramhani Basin, Samal (Bhubaneswar) for information and necessary action.

Sd/-
Superintending Engineer,
Debagada Irrigation Division, Debagada.

GOVERNMENT OF ODISHA

DEPARTMENT OF WATER RESOURCES

OFFICE OF THE SUPERINTENDING ENGINEER,
DEBAGADA IRRIGATION DIVISION, DEBAGADA

Email:-sedid821@gmail.com

"e" PROCUREMENT NOTICE NO:-SEDID-03/2026-27

INVITATION FOR BIDS (IFB)

The Superintending Engineer, Debagada Irrigation Division, Debagada, At/Po-Rengalbeda, Dist-Debagada,Pin;- 768119, Odisha, on behalf of Governor of Odisha invites **On-line percentage rate bids in single cover system through e-procurement method of** bidding for the works mentioned in the table below. The Bids should be submitted by the eligible class of contractors as mentioned below, registered with the State Governments and contractors of equivalent grade/class registered with Central Government / M.E.S./ Railways, through On-line in the Government web-site www.tendersodisha.gov.in The bidders should have necessary portal enrolment (with own digital signature certificate). The proof of registration from the appropriate authority shall be enclosed along with the bid. The registered bidders outside of Odisha State can also participate in this on-line tender process after necessary portal enrolment but shall have to subsequently undergo registration with the appropriate authority of the Odisha State Government within one month of acceptance of bid.

Sl. No.	Name of the Work	Bid Identification No.	Approx Estimated Cost excluding GST (in Lakhs)	EMD / Bid Security in Rs. (Online)	Cost of Tender Paper / Bid Documents (Rs.) (Online)	Class of Bidder	Time Period of Completion
1	2	3	4	5	6	7	8
1	Construction of right and front side boundary wall with main gate of C type Qtr at Rengalbeda Irrigation Colony of DID for the year 2026-27.	SEDID-03(01)/2026-27	6.27	6300	4000	'C' & 'D'	2 months
2	Repair and Renovation of permanent rest shed(IB) at Gohira Dam site for the year 2026-27.	SEDID-03(02)/2026-27	9.55	9600	4000	'C' & 'D'	2 months
3	Construction of plinth protection and paver block infront of Division office at Rengalbeda Irrigation Colony for the year 2026-27.	SEDID-03(03)/2026-27	9.72	9800	4000	'C' & 'D'	2 months
4	Construction of both side guard wall with bed lining in between RD 4360m to 4390m of Reamal Disty.of DID for the year 2026-27.	SEDID-03(04)/2026-27	6.66	6700	4000	'C' & 'D'	2 months
5	Construction of VRB at RD 21750m and bank raising 21380m to 21680(L/S) of GLMC of DID for the year 2026-27.	SEDID-03(05)/2026-27	6.71	6800	4000	'C' & 'D'	2 months

6	Construction of Guard wall in between RD 2900m to 2970m of of GLMC of DID for the year 2026-27.	SEDID-03(06)/2026-27	8.22	8300	4000	'C' & 'D'	2 months
7	Renovation of Fall at RD 1803m. and 2703m. of Rengalbeda Disty of DID for the year 2026-27.	SEDID-03(07)/2026-27	4.83	4900	4000	C' & 'D' '	2 months
8	Construction of Guard wall in between RD 1700m to 1850m of Tentoloi SM of GLMC of DID for the year 2026-27.	SEDID-03(08)/2026-27	6.75	6800	4000	'C' & 'D'	2 months
9	Repair and Renovation of Aqueduct (U/S and D/S) at RD 12460m of GRMC of DID for the year 2026-27.	SEDID-03(09)/2026-27	6.99	7000	4000	'C' & 'D'	2 months
10	Repair and Construction of trough wall with bed lining of Malichua S/M -1 in between RD 900m to 1100m. of DID for the year 2026-27.	SEDID-03(10)/2026-27	5.14	5200	4000	'C' & 'D'	2 months
11	Repair and Renovation of vented causeway at RD 8583m and VRB at RD 4690m of Bijabereni Distributary of GRMC under Deogarh Irrigation Division for the year 2026-27.	SEDID-03(11)/2026-27	13.38	13400	6000	'C' & 'D'	2 months
12	Construction of Guardwall in between RD 840m to 1010m of Bhaliadih SM of of GLMC of DID for the year 2026-27.	SEDID-03(12)/2026-27	7.46	7500	4000	'C' & 'D'	2 months
13	Construction of VRB at RD 18830m of GLMC and repair and renovation of VRB at RD 1306m of Bhalidiha SM under DID for the year 2026-27.	SEDID-03(13)/2026-27	8.34	8400	4000	'C' & 'D'	2 months
14	SR to VRB at RD 13610m, Fall of RDs 15928m, 16415m, 16761m, of GLMC of DID for the year 2026-27.	SEDID-03(14)/2026-27	5.78	5800	4000	'C' & 'D'	2 months
15	Construction, Supplying and fixing of Aluminium door and window of newly created division office building and construction of boundary wall adjacent to division office and C type Qtr at Rengalbeda Irrigation colony of DID for the year 2026-27.	SEDID-03(15)/2026-27	8.48	8500	4000	'C' & 'D'	2 months
16	Construction of Protection wall in between RD 5000 Mtr to 5130m of GRMC of DID for the year 2026-27.	SEDID-03(16)/2026-27	5.57	5600	4000	'C' & 'D'	2 months

1. Bid document consisting of information, plans, specification and bill of quantities of the works are available in web-site www.tendersodisha.gov.in and the set of terms and conditions of contract and other necessary documents can be seen in the web-site till last date of submission of bid.

2. Availability of tender for online bidding from **11.00 AM of dt-21.10.2026 to 5.00 PM of dt- 29.10.2026** from Govt. web-site www.tendersodisha.gov.in.
3. The bidder shall transfer the required amount of Bid Security in the prescribed format as per O.M No. 8943 dtd: -18.03.2021 of Finance Department and cost of Bid document as mentioned for the specified work in Col 5&6 respectively of above Table by online through a process as mentioned DTCN.

4. Additional Performance Security (As per Works Department OM No.173 dt.03.01.2026) shall be obtained from the bidder when the bid amount is less than estimated cost put to the tender. In such an event, only the successful bidder who has quoted less bid price / rates than the estimated cost put to tender shall have to furnish the Additional Performance Security as per the following rate.
Additional performance security shall be taken on an incremental basis from the selected bidder for low bid prices in the project works as under

(I) **Where the bid price is below 0% but not below 10% of the project cost put to bid,** no additional performance guarantee/security percentage is required.

(II) **Where the bid price is below 10% but not below 20% of the project cost put to bid,** the additional performance guarantee/security percentage shall be incremented by 0.1% for every percentage of bid price below 10% of the project cost put to bid starting at 11% with the additional bid performance guarantee being 0.1% and this additional performance guarantee percentage shall be applied on the bid price.

(III) **Where the bid price is 20% or more below of the project cost put to bid**, the additional performance guarantee percentage shall be incremented by 0.2% for every percentage of bid price below 20% of the project cost put to bid in additional to 1% of the bid price and this additional performance guarantee percentage shall be applied on the bid price.

(IV) The additional performance guarantee percentage shall be rounded off to the next lower percentage based on whether the decimal point of the percentage of bid price is below 0.5% or next higher percentage based on whether the decimal point of the percentage of bid price is 0.5% or more.

(V) The additional performance security shall be treated as part of the performance security.

(VI) Justification for abnormally low bids shall be scrutinized by the Departmental Technical Committee and recommended to the competent authority of the Administrative Department for the approval of the Additional Performance Security (APS). An abnormally low bid is one in which the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns as to the capability of the Bidder to perform the contract at the offered price. Procuring Entity may, in such cases, seek written clarifications from the Bidder, including detailed price analyses of its Bid price in relation to scope, schedule, resource mobilization, allocation of risks and responsibilities, and any other requirements of the bid document. If, after evaluating the price analyses, the procuring entity determines that the Bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Procuring Entity may reject the Bid/Proposal. However, it would not be advisable to fix a normative percentage below the estimated cost, which would automatically be considered as an abnormally low bid.

If more than one bid is quoted (decimal up to two numbers will be taken for all practical purposes), either at the estimated cost put to tender or less than the estimated cost put to tender, the tender accepting Authority will finalize the tender through a transparent lottery system, where all the concerned bidders/their authorized representatives, the concerned SE/EE of the concerned Division and Divisional Accounts Officer (DAO) will remain present.

If the rate quoted by the SC and ST Category Contractors comes to the rate quoted by the L1 bidder (decimal up to two numbers will be taken for all practical purposes) after availing 10% price preference as per Para 2 of Works Department Resolution No.27748 dated 11.10.1977, the tender shall be finalized by the tender accepting authority through a transparent lottery system along with other categories of contractors.

The Additional Performance Security (APS) shall be in shape of National Savings Certificate/Post Office Savings Bank Account/Post Office Time Deposit Account / Kishan Vikash Patra / Deposit Receipt of any Nationalized/ Scheduled Bank duly **pledged in favour of the Superintending Engineer, Debagada Irrigation Division, Debagada** within **seven days** of issue of Letter of Acceptance (LoA) by the Division Officer (by e-mail)to the successful bidder otherwise the bid of the successful bidder shall be cancelled. Further proceeding for blacklisting shall be initiated against the bidder. If the APS is submitted in shape of Bank Guarantee by the bidder. then the validity of the Bank Guarantee should be for a minimum period equal to the period allowed for completion of the work plus defect liability period of one year and one month extra for transaction period

5. Bid validity period of the tender is for a period of **90** days from the last date of submission of bid. Conditional bid is subject to forfeiture of EMD. If any bidder withdraws his Bid/tender before the said period or makes any

modification in the terms and condition of the bid, the E.M.D. deposited at the time of submission of tender / bid shall stand forfeited.

6. Exemption of EMD to the Engineer Contractor will be allowed for a maximum of three (3) work in a calendar year and the fact of the awarding a work with exemption of EMD should be entered in the original registration certificate of the Engineer Contractor. Engineer Contractor desires to avail the exemption of EMD is required to submit an affidavit to the effect that He / She has not availed the facility for more than two works during the current financial year.

7. The original affidavit should be retained by the bidder with him. **For multiple bidding separate affidavit for each work should be furnished by the bidders.** The bidders have to furnish the original documents to the Superintending Engineer, Debagada Irrigation Division, Debagada as and when required for verification of tender. The successful bidders have to submit the original affidavit to the Superintending Engineer, Debagada Irrigation Division, Debagada before drawl of the agreement.

8. Date of opening of tender: - Dated -**31.10.2026** at **11.00 AM** in the office chamber of the Superintending Engineer, Debagada Irrigation Division, Debagada. If the office happens to be closed in the last date of receipt of documents and on the date of opening it will be extended to the next working day and same time and venue.

9. If there are more than one valid lowest bidders for any work then the tender will be decided through transparent lottery to be conducted in the office of the Superintending Engineer, Debagada Irrigation Division, Debagada which will be intimated later on.

10. Agreement shall be drawn only after due verification of ISD & APS of the successful bidder. If any fake documents are detected, criminal proceedings will be initiated against the defaulting bidder and action will be initiated for black listing through license issuing authority.

11. GST to be imposed as per Govt. guidelines from time to time.

12. The bidder shall have to furnish “No relation Certificate “along with the bid documents to the effect that no officer of the Department to the rank of Assistant Engineer or above is related to him.

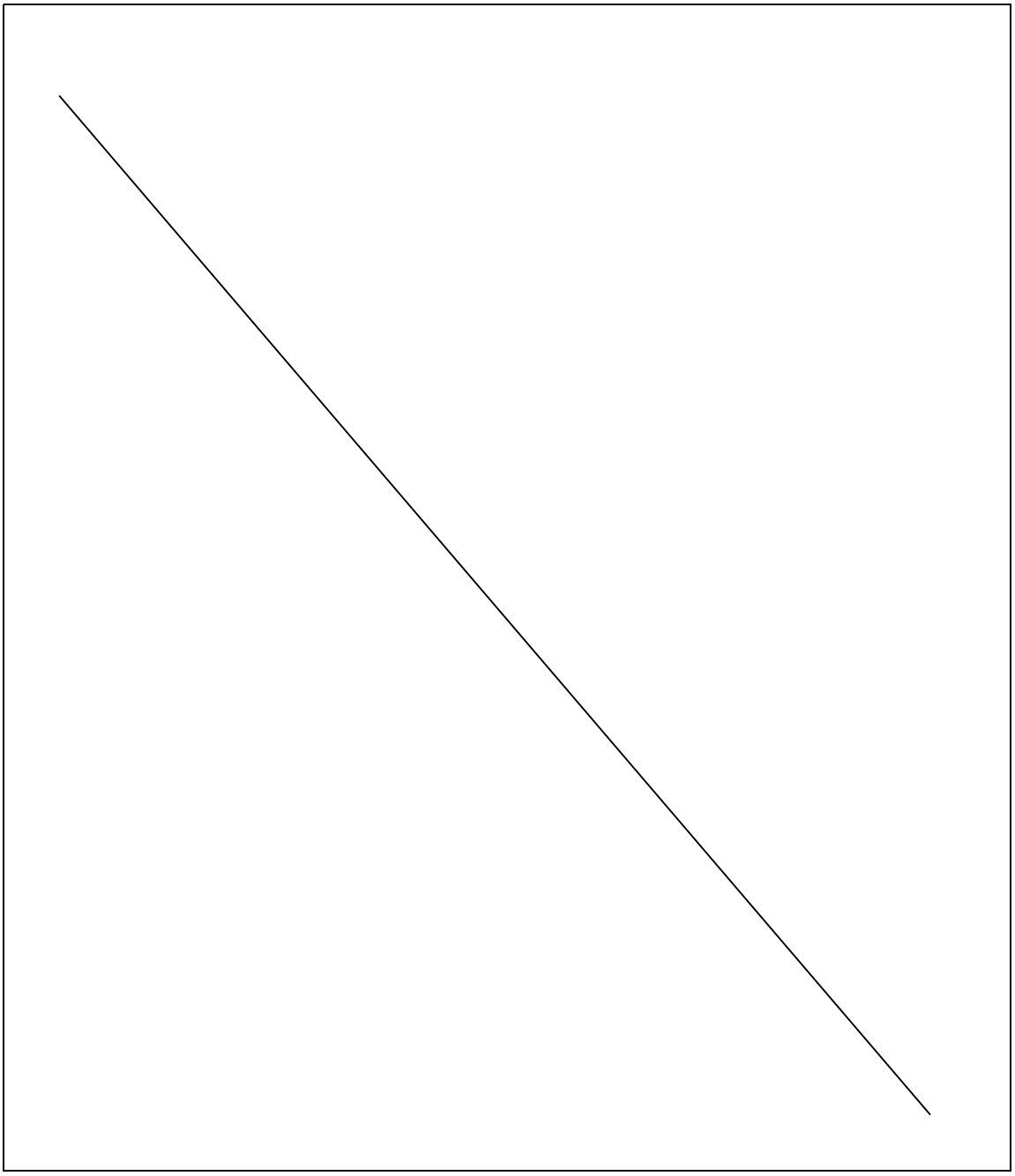
13. The Authority reserves the right to reject / cancel any or all the tenders without assigning any reasons thereof.

14. Other details and conditions can be seen in the bidding documents, which is available in the web-site www.tendersodisha.gov.in.

Sd/-
Superintending Engineer
Debagada Irrigation Division, Debagada

CONTENTS

Section	Items	Page No.
Section – 1	Detailed Tender Call Notice	1 – 12
Section – 2	Information & Instruction to Bidders	13 – 23
Section – 3	General Rules & Directions	24 – 29
Section – 4	Condition of Contract	30– 50
Section –5	Specifications	51 – 82
Section – 6	Drawings	83 – 84
Section – 7	Forms	85 – 90



SECTION - 1

DETAILED TENDER CALL NOTICE

GOVERNMENT OF ODISHA DEPARTMENT OF WATER RESOURCES,

OFFICE OF THE SUPERINTENDING ENGINEER,
DEBAGADA IRRIGATION DIVISION, DEBAGADA
Email:-sedid821@gmail.com

DETAILED TENDER CALL NOTICE

e" PROCUREMENT NOTICE NO:- SEDID-03/2026-27.
Bid Identification No- SEDID-03(10) /2026-27

1. **The Superintending Engineer, Debagada Irrigation Division, Debagada** on behalf of Hon'ble Governor of Odisha invites e-tender in the prescribed form to be eventually drawn in P.W.D. form No. P1 from "C" and "D" Class Contractors Registered with the Govt. of Odisha or from contractors of equivalent grade / class registered with other State Govt. / Central Govt. / M.E.S. / Railways or other Govt. undertakings. All the contractors are to be registered in the State portal andmust posses compatible digital signature certificate of Class-II and III for on line bidding. The website for online bidding is http://tendersodisha.gov.in for the work "Repair and Construction of trough wall with bed lining of Malichua S/M -1 in between RD 900m to 1100m. of DID for the year 2026-27."

2. The tender documents can be downloaded from the website identified as http://tendersodisha.gov.in from 11.00 AM of 21.10.2026 to 5.00 PM of 30.10.2026. The bidder for participation in on line bidding will have to pay ` 4000/- (Rupees Four Thousand) only for each set in shape of bank draft drawn in favour of Superintending Engineer, Debagada Irrigation division Debagada, drawn on any schedule bank payable at Debagada. The Bid will be received through e-procurement portal from 11.00 AM of 21.10.2026 to 5.00 PM of 30.10.2026. Each set of bid document contains both technical bid and an intelligent bill of quantity in MS Excel format. The bid will be opened on 31.10.2026 at 11.00. AM in the office of **the Superintending Engineer, Debagada Irrigation Division, Debagada** in presence of the tenderer or their authorized agents. The bidders who participated in the online bidding can witnessopening of the bid from any system logging on to the portal away from opening place. The bids can only be opened by the pre-designated officials only after the opening time mentioned in the bid. In the eventof the specified date of bid opening being declared a holiday the bid will be opened at the appointed timeand location in the next working day. The intimation letter will be sent through their postal address. If situation arises tender will be decided through transparent lottery to be conducted in the office of the undersigned which will be intimated later on and in the presence of the intending bidders as perprevailing code provisions.
3. The value of the work tendered for is 5.14 Lakhs
4. The bidders shall prepare the documents and upload the scanned typed document in PDF format and BOQ in excel format (or as specified in the portal) in appropriate place.
5. No tenderer will be permitted to furnish their tender in their own manuscript.
6. Bid security @ 1% of the amount put to tender i.e. 5,200**/-(Rupees Five Thousand Two Hundred)** only must accompany the tender. The bid security shall be in shape of National Savings Certificate/ Post Office Savings Bank Account/ Post officeTime Deposit account/ Kissan Vikas Patra/ Term Deposit Receipt of Schedule Bank duly pledged in favour of **Superintending Engineer, Debagada Irrigation Division, Debagada** and in no other form. For submission of bids through e-procurement portal, the bidder shall scan all the written pages of the bid security and cost of the bid document and upload to the system in designated place. The online bidder shall have to deposit the "bid security" and "cost of the bid document" in original "with the officer inviting the bid"before **05.00 P.M. on 30.10.2026**. The officer inviting bid shall not be responsible for any postal delay and/ or non-receipt due to any frivolous reasons. Non-submission of "bid security" and "cost of bid document" within the specified period shall debar the bidder from participating in the online bidding system. Adjustment of EMD given with other tenders previously and submitted in other tenders shall not be entertained.

7. a) Providing facilities to the Engineer Contractor :-

i. As per works Department No.FR-11/2001/10003/00 Bhubaneswar dt. 24.5.2001, Engineer-Contractor shall have to furnish EMD or surrender original license prior to opening of technical bid for noting exemption facility, failing which the tender will be liable for rejection. 5% preference allowed to Engineer contractor in the tender rates has been withdrawn

ii. The Engineer contractor shall have to execute the work if awarded to him under his direct supervision and he will not be allowed to execute such work through his Power of Attorney Holder.

b)No cheque / Bank Draft / Cash Payment will be accepted towards EMD.

c)Adjustment of earnest money given with other tenders previously and submitted in other tenders shall not be entertained.

d)Engineer contractor shall have to furnish EMD or surrender original license prior to opening of technical bid for noting exemption facility failing which the tender will be liable for rejection.

8. The work is to be completed in all respect within two working months from the date of issue of work order.

9. The plans, specifications and scope for the work can be seen in the office of the **Superintending Engineer, Debagada Irrigation Division, Debagada** during any working days.

10. The tenderers shall carefully study the tentative drawings and specifications applicable to the contract and all documents which form part of the agreement to be entered into by the accepted tenderer and detailed specifications for Odisha and other relevant specifications and drawings which are available with the tender document or with the **Superintending Engineer, Debagada Irrigation Division, Debagada.**

Complaint at a future date that plans and specifications have not been seen by the tenderers can

11. not be entertained.

The bidder can resubmit his bid through online e-procurement mode out of which the system shall

12. consider only the last bid submitted to the portal.

Every tenderer is expected before quoting his rates to inspect the site of the proposed work. He should also inspect the quarries and approach road to quarries and locality of the work and satisfy himself about the quality and availability of materials including the medical aids, labour and foodstuff etc. In every case the materials must comply with the relevant specifications.

The tenderer will be deemed to have satisfied himself that the rates quoted by him in the tender will be adequate to complete the work according to the specifications and conditions attached to and that he has taken into account all conditions, difficulties that may be encountered during its progress and to have quoted labour rates and materials, entry tax and other duties, leads, lifts, loading and unloading and freight for materials and all other charges necessary for the completion of the work to the entire satisfaction of the Engineer-in-charge of the work and his authorized subordinates.

13.

Each tenderer must quote a definite percentage rate for the work which will be included in the contract. Tenders containing indefinite terms such as estimated rates or schedule of rates will not be considered. Rates should be for finished items of work unless otherwise mentioned in the Tender Schedule to be quoted

14. at a certain percentage on the estimated cost.

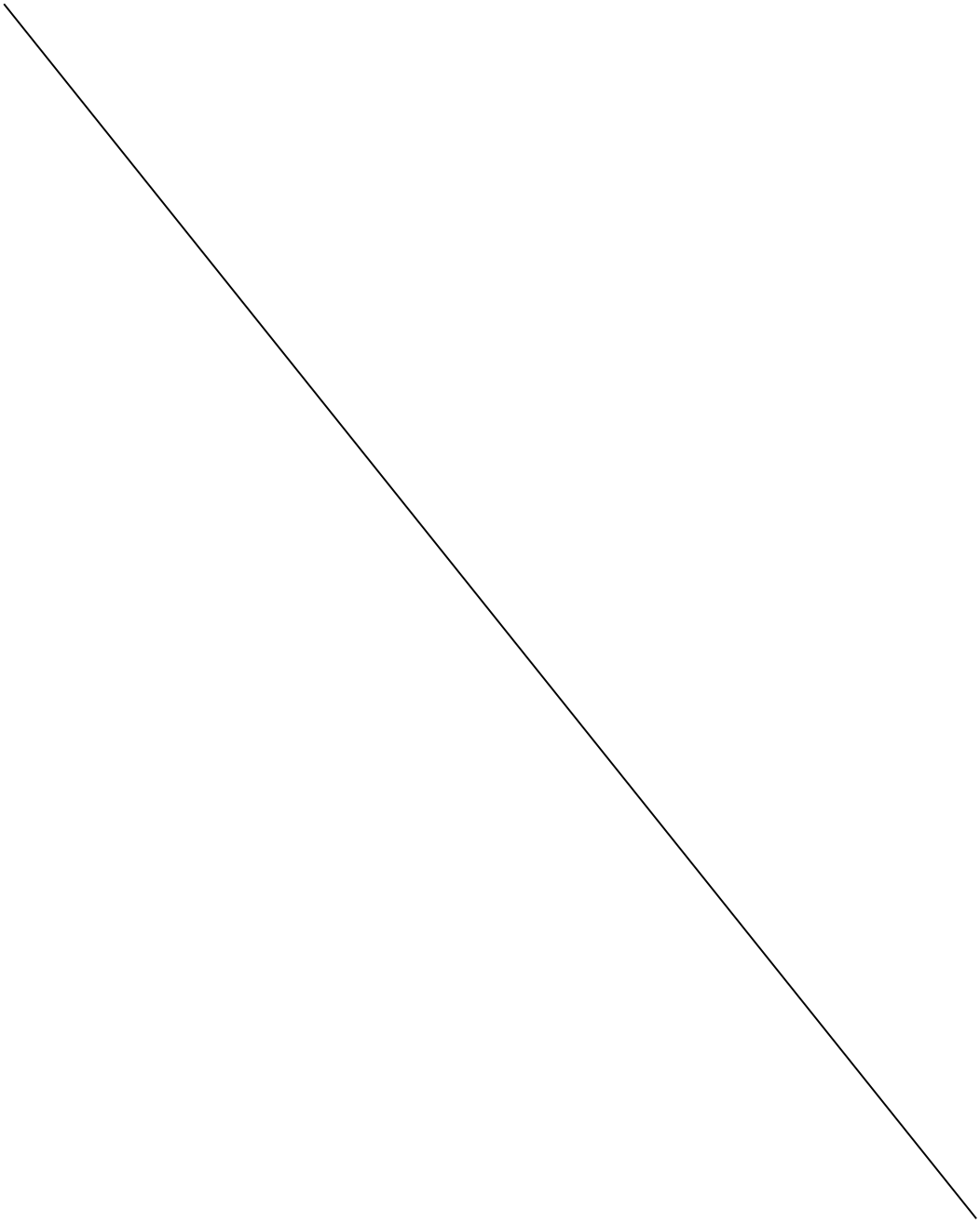
If any further necessary information is required, the bidder can seek clarification on the bids within 7 days from the start of sale of bid document. The employer response for the queries raised by the bidder

15. will be posted in the portal.

The percentage rate should be furnished for finished items of work unless otherwise mentioned in the tender schedule.

16. (a) An intelligent BOQ in MS Excel format shall be made available to the bidder through e-procurement portal. The bidder shall download that particular excel sheet and fill in the percentage rate in figures at the appropriate location. The bidder is not supposed to change or modify the format of the excel sheet in any form.

(b) In percentage rate contracts the schedule of quantities shall mention estimated rate of each item and amount thereto. The tenderer has to mention percentage excess over/ less than the estimated cost (in figures and words) in the prescribed format appended to the tender document. The tenderer who participates in the tender for more than one work will offer conditional rebate. Rebate offer submitted in separate sealed envelope shall be opened, declared and recorded first. wish to tender for two or more work shall submit separate tender of each. Each tender shall have the name and number of the works to which they refer, written on the envelope.



In the percentage rate tenders, only percentage quoted shall be considered. Percentage quoted by the tenderer shall be accurately filled in figures and words, so that there is no discrepancy. If any discrepancy is found in the percentage quoted in words and figures, then thepercentage quoted by the tenderer in words shall be taken as correct. If any discrepancy is foundin the percentage quoted in percentage excess/less and total rate quoted by the tenderer then percentage will be taken as correct. The percentage rate quoted in the tender without mentioningexcess or less and not supported with the corresponding amount will be treated as excess. The tenderer will write percentage excess or less up to two decimal point only. If he writes the percentage excess or less up to three or more decimal point, the first two decimal points shall only be considered without rounding off. Where the tenderer has omitted to quote the Percentage rates either in figures or in words, the Officer opening the tender should record the omission.

(c) The quantity mentioned in the BOQ can be increased or reduced to the extent of 10% for individual items subject to maximum of 5% over the estimated cost. If it exceeds this limit prior approval of competent authority is mandatory before payment.

(d) The period of completion is fixed and cannot be altered except in case of exceptional circumstances with the due approval from next higher authority.

17. (a) The bidder shall submit the documents in the designated locations of bid. Submission of bid documents shall be effected by using DSC of appropriate class and thus shall be in encrypted form. The bidder shall only submit single copy of the document. He is required to check the documents uploaded with the requirement asked for in the bid. Only after satisfying that all the documents have been uploaded he should activate submit button. His bid shall not be considered responsive and action as per relevant clause shall be taken if he does not provide the required documents or provides illegible documents. Clarity of the document may be ensured by taking out a sample printing.

(b) Non submission of bid security within the designated period shall debar the bidder from participating in the online bidding system and his portal registration shall be blocked. His name shall also be informed to the registering authority for cancellation of his registration as contractor.

18. Bidders desirous to hire machineries or equipments from outside the State are required to furnish 2% (Two percent) of the amount put to tender as bid security. Tender not accompanied with bid security and security for hired machineries as specified above shall be liable for rejection.

19. All taxes, fees, royalties payable under the local rule including Cess, income taxes & Surcharges as applicable will be borne by the contractor as admissible. Deducting of GST will be recovered as applicable.

20. It is allowed to modify the bid through the e-procurement portal. The bidder shall have to log in the system and resubmit the documents as asked for by the system including the price bid. In doing so, the bids already submitted by the bidder will be removed automatically from the system and latest bid only will be admitted. But the bidder should avoid modification of the bid at the last moment to avoid system failure or malfunction of the internet or traffic jam. If the bidder fails to submit his modified bids within the designated time of receipt, the bids already in the system shall be taken for evaluation.

21. Withdrawal of bid is also allowed in the e-procurement portal. The bidder has to click on the "withdraw" button and record the necessary justification for the same in the space provided. In addition to this he has to write a letter addressed to officer inviting the bid and upload the scanned document from portal in respective bid. The system shall not allow any withdrawal after expiry of the closure of the bid.

22. The e-procurement portal system shall reject submission of any bid through portal after closure of the receipt time. For all purpose the portal time displayed in the system shall be the time to be followed by the bidder.

23. All tenders received will remain valid for 90(ninety) days from the date of receipt of tenders and validity of tenders can also be extended if required without any monetary compensation.

24. **No Relation Certificate**

The contractor shall have to furnish certificate along with the tender to the effect that he is not related to any officer in the rank of an Assistant Engineer and above or Assistant Secretary and above in the Water Resources Department.

While determining the validity of tenders the following points shall be taken in to consideration by the authority empowered to accept tenders and his decision in the matter shall be final.

(a) Any special condition which does not find place in the tender notice and which are not acceptable.

(b) Indefinite conditions which will make it difficult for access to the financial implications.

(c) Tenders being incomplete in some important respects.

(d) Incomplete schedule of time for completion of the work.

(e) Failure to furnish the specified bid security.

(f) Tendered rates being unduly low and unworkable.

25. The Department reserves the right of authority to reject any or all tenders received without assigning any reason whatsoever.

26. The tender may not (at the discretion of the competent authority) be considered unless accompanied by attested true copies of Registration of Firms/S.S.I. unit/ EPM rate contract holder certificate, PAN Card, GSTN clearance certificate as the case may be and the original certificates are to be produced if required in any subsequent date during processing of tender. Attested true copy of work done certificate is to be furnished along with the tender obtaining from the Superintending Engineer concerned.

27. The earnest money will be retained in the case of successful tenderer and will be dealt with as per the terms and condition of O.P.W.D. code. The earnest money of the unsuccessful tenderer except the three lowest tenderer shall be refunded on application. The EMD given by the other two parties shall also be refunded within 15 days of acceptance of tender and drawl of agreement.

28. The EMD will be forfeited in any of the following cases.

(a) If the bidder withdraws the bid after bid opening during the period of bid validity.

(b) If the bidder does not accept the correction of the bid price.

(c) In the case of a successful bidder if the bidder fails within the specified time limit to

(i) Sign the agreement or

(ii) Furnish the required performance security.

(d) If any of the statements, documents, certificates uploaded by the bidder through e-procurement portal, is found to be false / fabricated / bogus; the bidder will be black listed and his EMD / Bid Security will be forfeited.

29. (a) The tenderer whose tender is selected for acceptance shall within a period of seven days upon intimation being given to him of acceptance of his tender make an initial security deposit in the form of NSC, postal time deposit, Post Office Bank Account / Term Deposit Receipt of Schedule Bank / Kisan Vikas Patra duly pledged in favour of the **Superintending Engineer, Debagada Irrigation Division, Debagada** and in no other form including the amount already deposited as earnest money shall be 2% of the value of the accepted tendered amount and sign agreement in the P.W.D. formNo. P_1 for the fulfillment of the contract in the office of the **Superintending Engineer, Debagada Irrigation Division, Debagada At/Po- Rengalbeda – 768119, Dist-Debagada .**

.

.

(b) The security deposit together with the earnest money, Initial Security money and the amount withheld according to the provision of P_1 agreement, shall be retained as Security for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposit as above shall entail forfeiture of the earnest money. The written agreement to be entered into between the contractor and the Govt. shall be the foundation of the rights of both the contractor and the Govt. and the contract shall be deemed to be incomplete until the agreementhas first been signed by the contractor and then by the proper officer authorized to enter into thecontract on behalf of the Govt.

(c) APS shall be deposited by the bidder when the bid amount is less than the estimated cost put to tender. In such an event the only successful bidder shall have to furnish the exact amount of differential cost i.e. estimate cost put to tender means the quoted amount as APS in shape of NSC / Post Office Savings / Bank Account / Post Office TDA / KVP / TDR of scheduled bank duly pledged in favour of Superintending Engineer, Debagada Irrigation Division, Debagada within such stipulated time as may be provided for; or else the bid of the successful bidder would be cancelled and thesecurity deposit would be forfeited if permissible in law and further proceeding for blacklistingwould be initiated as per law.

(d) If the rate quoted by the bidder is less than 15% of the tender amount, then such a bid shall be rejected and the tender shall be finalized basing on merits of rest bids. But, if more than one bid is quoted at 14.99% (Decimals up to two numbers will be taken for all practical purposes) less than the estimated cost, the tender accepting authority will finalize the tender through a transparent lottery system, where all bidders / their authorized representatives, the concerned Superintending Engineer and Divisional Accounts Officer will remain present.

(e) The security will be refunded after one year on completion of the work in all respect provided the final bill is passed and will not carry any interest. Any defect noticed during the period of one year after the actual date of completion shall be rectified by the contractor at his own cost. Failure to comply such rectification the cost involved to carry out the defective work shall be met from his dues available with Department. (Ref. works Dept. order No. 17823/WE dt. 11.10.2006. The e-procurement portal system shall generate the award of the contract letter and intimate the bidder in his e-mail after acceptance of the agreement.

30. Before acceptance of tender, the successful bidder will be required to submit a work programme and mile stone basing on the financial achievement so as to complete the work within the stipulated time and in case of failure on the part of the agency to achieve the mile stone liquidated damaged will be imposed.

31. The contractor shall sign as a token of final acceptance of the plans, sections and agreements for the work prior to take up the work for execution.

32. The date of commencement of work shall be as notified in work order.

33. On signing the agreement, the site will be handed over to the contractor for execution and completion of works in all respect.

34. On no account, the contract work should be sublet to any body. In such an event the contract may be rescinded.

35. The authority reserves the right to make such increase or decrease in quantity of items of works mentioned in the scheduled attached to the tender notice as may be considered necessary for the satisfactory completion of the contract work. All such increase or decrease shall in no way invalidate/ vitiate the contract rates. The contractor shall not be entitled for any compensation on this account, except grant of extension of time where considered necessary.

36. The work may be splitted up and distributed among several contractors if considered necessary on the exigency of the circumstances of the work and the contractor is not entitled to any compensation on this account.

37. That for the purpose of jurisdiction in the event of any dispute if any, the contract would be deemed to have been entered into within the State of Odisha and it is agreed that neither party to the contract will be competent to bring a suit in regard to the matter by this contract at any place outside the State of Odisha.

38. Under section 12 of contract labour (Regulation and Abolition Act 1970) the contractor who undertakes execution of work through labour, should produce valid license from licensing authority of labour department (labour license) to start the work before signing of Agreement.

39. The contractor shall be liable to fully indemnify the Department of any compensation under workmen compensation Act VII of 1993 on account of the workmen employed by the contractor and full amount of compensation paid will be recovered from the contractor. In the event of any claim sub-judice before any court of law, the claim amount shall be kept withheld till final disposal.

40. Contractor is required to abide by the fair wages clauses as introduced by Govt. of Odisha and will not pay less than the Fair wages fixed by Govt. to the labourers engaged by him for the work.

41. In case of any complaint by the labourer about the non-payment of his wages as per latest minimum wages Act., the Superintending Engineer will have the right to investigate and if thecontractor is found to be in at fault, Superintending Engineer may recover such amount due in anyform from the contractor and pay such amount to the labourer directly under intimation to the local labour office of the Govt. The decision of the Superintending Engineer is final and binding on thecontractor.

42. The contractor will have to submit the Superintending Engineer, Debagada Irrigation Division, Debagada monthly return of labour both skilled and unskilled employed by him on the work.

43. The contractor should keep himself in touch with the Engineer-in-charge for smooth execution of the work and arrange adequate labour depending on the workload and working space available.No claim for detention for labour on any account will be entertained. The contractor shall makehis own arrangement to shift men and machineries at his own cost before during and after natural calamities.

44. No compensation will be paid by the Department for any damage done by rain, flood, cyclone & earthquake tide or by any other natural calamities during the execution of the work. The contractor shall make his own arrangement to shift men and machineries at his own cost before,

45. during and after natural calamities.

It should be understood clearly that no claim whatsoever will be entertained in regard to extra items of work or extra quantity of any item besides estimated amount, unless written order is obtained from the Engineer-in-charge and rates settled before the extra items of work or extra

46. quantity of any item of work is taken up.

The tenderer shall have to abide by the C.P.W.D. safety code rules introduced by the Govt. of India, Ministry of Works, Housing and Supply in their standing order No.44150 dated 25.1.1957.

47. The tenderer shall bear various incidentals, sundries and contingencies necessitated by the work in full within the following or similar category.

(a) Rent, royalties and other charges of materials, octroi duty, entry tax & all other taxes including GST, Cess, ferry tolls, conveyance charges and other cost on account of land and buildings including temporary building and temporary electric connection to work site as well as construction of coffer dam, construction of service road, diversion road and its maintenance till completion of work required by the tenderer for collection of materials, storage housing of staff other purpose of the work. No tenderer will however be liable to pay for temporary occupation of land owned by Govt. at the site of the work.

(b) Labour camps or hutments including conservancy and sanitation arrangements up to the satisfaction of the local health authorities should be arranged by the contractor.

(c) Suitable water supply including pipe water supply wherever available for the staff and labour as well as for the work.

(d) Fees and duties levied by the municipal canal or water supply authorities.

(e) Suitable equipment and wearing apparatus for the labour engaged in risky operations and medical aid to the labourer engaged for the work.

(f) Suitable fencing, barriers, signals including paraffin and electric signals where necessary at work and approaches in order to protect public and employees from accident.

(g) Compensation including cost of any suit for injury to persons or property due to neglect of any major precautions also become payable due to operation of the workmen compensation Act.

(h) The contractor has to arrange adequate lighting arrangement for the work wherever necessary at his own cost.

48. In case of delay in acquisition of land handling over possession of work site no compensation will be admissible but extension of time will be allowed if applied in prescribed format within due time to keep the contract in force.

49. The department will have the right to supply at any time in the interest of the work and departmental material to be used in the work and the contractor shall use such materials at the stock issue rate fixed by the Department by adding + 10 percentage in a particular item of work or market rate whichever is higher.

50. If a contractor removes any Govt. material or stores supplied to him from the site of the work in contraception of the provision of this clause with a view to dispose of the same dishonestly, he shall be in addition to any other liability civil or criminal arising out of this contract be liable to pay penalty equivalent to (5) five times of the price of the materials cost. The penalty so imposed shall be recoverable at any time from the sum that may be due then or at any time thereafter become due to the contractor or from his security deposit or from his other available dues with the Department.

51. Over and above these conditions including the Technical specifications the terms, conditions, rules and regulations and specifications laid down in I.S.I/B.I.S. code are also binding on the part of the contractor.

52. Deduction of income tax at source and surcharge on income tax will be made from each running account bill for the work at the rate as per Income Tax Act and as amended from time to time. (Present rate 2% + Surcharge)

53. (a) The rates quoted by the contractor shall be deemed to be exclusive of GST and inclusive of CESS on all the materials that he will have to purchase for performance of this contract.

(b) The rates quoted by the contractor in the tender for works shall include CESS that may be levied on turnover on works contract according to the Laws and Regulations as applicable from time to time.

(c) Deduction of CESS at source as applicable will be made from each running account bill for the work at the rate 1% prescribed oridinance from time to time.

(d) GST as applicable will be paid extra on the value of work considered for payment and TDS towards GST will be made as applicable on the day of payment.

(e) The agency is required to submit his/her invoice along with every bill.

54. The amount on royalties of different materials as utilized by the contractor in the work will be recovered from his bill, basing on the rate fixed by the Govt. or as amended from time to time during the period of execution.

55. Schedule of quantity accompanies the tender notice: It shall be definitely under stood that the Government do not accept any responsibility for the correctness and completeness of this schedule and this schedule is liable for alternations or omissions, deductions or additions as set forth in the condition of contract and such omissions, deductions, additions or alternations shall in no way invalidate/ vitiate the contract and no extra monetary compensation will be entertained.

56. (a) For the purpose of estimate, the approved quarry lead is to be provided judiciously. Engineers-in Charge would be responsible for ensuring the quality of the materials supplied. The contractors would however be responsible for procurement of materials from authorized sources and voluntarily disclose the sources of procurement for the purpose of billing. Besides, the bidder would be required to submit the details of quarry for procurement while submitting the bids.

(b) Sample of stone, metal, chips, sand, cement, moorum etc. to be used are to be deposited noting the quarry under dated initial of the tenderer in the Office of the Concerned Sub-Divisional Officer, Debagada Irrigation Sub-Division-II, Gohira Dam Site before the procurement for testing and acceptance.The transportation to Dept. Laboratory & testing charges of construction materials will be borneby the contractor.

57. Items of works not covered by the tender notice shall be paid at the current schedule of rates of the State and those not covered by the said schedule of rate will be paid on actual analysis approved by the competent authorities prevailing during the period of execution of work.

58. All preliminary works such as vats, mixing platforms etc. are to be done by the contractor at his own cost. No payment will be made for benchmarks, level pillars, profiles, benching and leveling the ground where required. The rates to be quoted should be for finished items of works inclusive of such incidental items of works.

59. After the work is finished all surplus materials and debris's should be removed from 100 Mtr clear away from the site of the work. Preliminary work such as vats, mixing platforms etc. should be dismantled and all materials removed from the site and premises shall be made neat and clean and this is inclusive of the rates quoted by him.

60. The contractor is to supply necessary labour and materials for the purpose of alignment lying recording of levels whenever required at his own cost.

61. The contractor should arrange necessary tools and plants such as Pumps, Excavator, Trucks, compressors, Tippers, batching plants, Concrete Mixer, steel shutter plates etc. required for the efficient execution work at his own cost. The running charges of such plant and cost of consumables and conveyance are to be borne by the contractor. Any deviation from this may lead recession of contract.

62. In the event of delay in supply of design, reasonable extension of time shall be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any circumstances.

63. Under no circumstances, interest is chargeable for the dues or any additional dues, if any payable for the work.

64. An affidavit shall be furnished by the contractor at the time of submission of tender paper about the authentication of tender documents including bid security. The scanned copy of the affidavit is to be uploaded through the e-procurement portal along with the technical bid. The affidavit in original is to be produced before the officer inviting tender prior to opening of the technical bid.

65. **Prediction of flood / monsoon Damage.**

The contractor shall make his own arrangement at his cost to shift the machineries, equipment's, materials, labourer and departmental machineries if hired by the contractor to a safe place prior to flood. The work shall have to be resumed after the flood come to normal. No extension of time for the completion of the work may be considered by the Department if the discontinuance of the work is beyond the reasonable attempts of the contractor to such eventualities.

66. The debris, sand and other materials, accumulated in the work area during flood shall be removed by the contractor as required for continuing the work at his own cost. By any chance, if any excavated portion that could not be filled up with concrete by the contractor, gets filled up during the monsoon period with earth such removal will not be paid again. The contractor will have to re-excavate the same at his own cost.

67. It shall be distinctly understood that it is entirely the responsibility of the contractor to make such arrangements may be required from time to time to protect the men, machinery, materials and the work under progress and work for which the measurements were recorded and payment made, against any damages either during working season or during the flood. The department accepts no liability, what so ever for any damage or loss of men, materials, machinery and type of hindrance caused to the progress of work.

68. The contractor should provide at his own cost adequate protection measures to the completed works at the end of working season or work in progress against such eventuality till completion and handing overthe entire work to the Department.

69. Dewatering from the foundation of structures when and where necessary during execution will have to be done by the contractor and no extra payment will be made on that account. The rate of respective items of work is inclusive of the dewatering.

The term dewatering shall mean the execution or operation of the items due to standing water as well as due to percolation water.

70. In case of discrepancy revealed between P1 form and Detailed Tender Call Notice, condition in P_1 form shall prevail over the Detailed Tender Call Notice.

71. No claim for idle labour etc. on any account will be entertained by the Department.

72. The clause of printed form of P_1 contract with latest addition/ deletion/ corrections/ substitution etc. will also be binding.

73. All the measurement of earthwork is to be done by level section measurement, which will be accepted by contractor from time to time. Prior written approval of the Superintending Engineer will be taken in case of pitmeasurement with size of pits etc. where level section measurements can not be made.

74. For section measurement, levels will be taken in presence of the contractor at suitable interval and will be recorded in the level book before commencement of the work. The level should be accepted by the contractor and initial section be signed by him in token of acceptance. The final levels will be taken after completion of the work in presence of the contractor on the same position, as in the case of initial level. The measurement of earth work for filling sections will be recorded on finished compact section and payment will be made on level sections only as mentioned in the BOQ.

75. The measurement of fine dressing & turfing will be taken after satisfactory full growth of the turf.

76. Borrowing earth is the entire responsibility of the contractor. No extra cost will be considered for whatsoever reason.

77. Definitions

In the contract (as hereinafter defined) the following words and expressions will have the Meanings here by assigned to them.

(a) Approved / Approval - Means approved in writing.

(b) Construction Plant - Means all equipment, appliances or things of whatsoever nature required for the execution, or completion, maintenance of the works or temporary works but does not include materials or other things intended to form or forming part of the permanent work.

(c) Contract - means the instruction and information for tenderers General and Special conditions of the contract, Technical Specification, drawings, tender (including the schedule of quantities and tender prices) the formal agreement and all agenda and attachment related to the above.

(d) Contractor - means the particular person, firm or corporation with whom the contract has been made for executing the work.

(e) Drawing - Means the drawings referred to in the specifications, any modifications of such drawings approved in writing by the Superintending Engineer, Sambalpur Irrigation Division, Sambalpur and such other drawings as may from time to time be furnished or approved in writing by the Engineer-in-Charge.

(f) Engineer-in-Charge-Means the Superintending Engineer, in-charge of the work specified or parts of the works under the contract, or such other departmental assistants or sub-ordinates to whom the Superintending Engineer, in-charge may have delegated certain duties, acting separately within the scope of particular duties entrusted to them.

(g) Government - Means Government of Odisha, Department of Water Resources.

(h) I.S.S. / B.I.S. - Means Indian Standard Specifications / Bureau of Indian Standard.

(i) Temporary Works - Means all temporary works of every kind required for the performance of the contract.

(j) Specification - Whenever the terms "Specification" is used, apart from a specified standard specification, it shall mean the specification or plan prepared for a particular site as instructed to the contractor in executing that item of work.

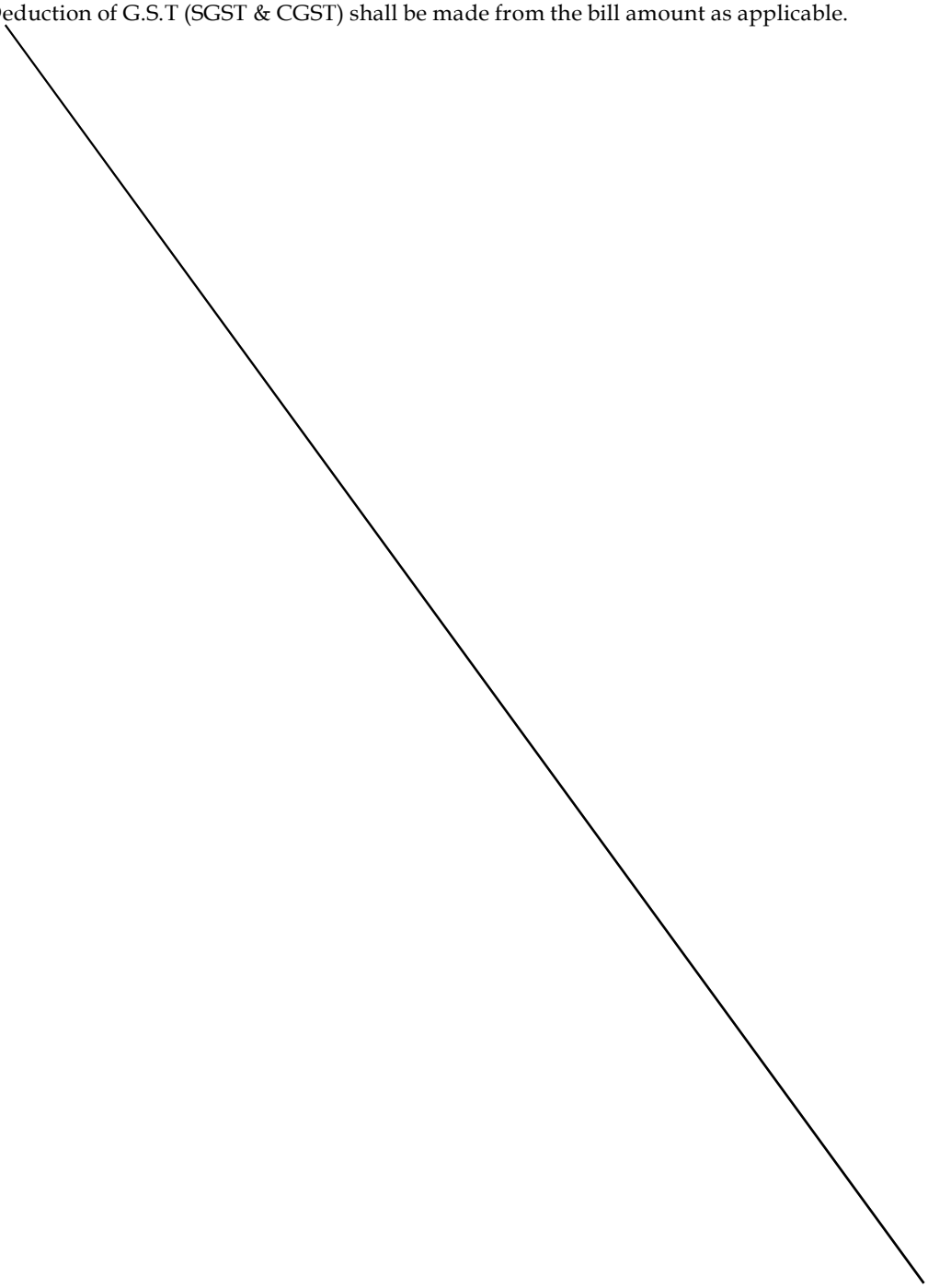
78. Labour welfare cess @ 1% will be deducted from the work bill of the Contractor as per Resolution No. 12653/ dt 15.12.08 of Labour & Employment Department, Govt. of Odisha.

79. Request for raising and lowering the rates or dealing with any point in connection with the tender will not be considered.

80. Conditional tenders will not be taken into consideration.

81. The quantities in respect of the items for which quoted rates are more than 25% of the estimated rates are not allowed to be varied by more than five percent. In case, if it exceeds the limit approval of the competent authority should be obtained prior to execution.

82. Consequent upon introduction of GST with effect from 01.07.2017 the enforcement of OVAT has been withdrawn and the deduction of VAT will not be effected from the bill with effect from 01.07.2017. Deduction of G.S.T (SGST & CGST) shall be made from the bill amount as applicable.



SECTION - 2

INFORMATION & INSTRUCTION TO BIDDERS

SECTION-2

1. Preparation of Tender Documents

The intending tenderer shall log in to the e-procurement portal identified as http://tendersorissa.gov.in and download the bid document. As per the requirement of the bid document, the bidder will fill up the required information and fill up the definite percentage rate excess over/less than the estimated cost in figures and words on the intelligent MS Excel sheet. The bidder is to scan his registration certificate, VAT clearance Certificate, PAN Card, Affidavit, labour licence, No relation certificate and certificate issued by competent authorities required for full filling the minimum qualification criteria specified in the bid document for the work. The bidder is also required to scan the RC books and other papers relating to the machineries and other documents as specified in the bid document.

2. Method of submission of Tender Documents

2.1 The tenderer shall upload the scanned copy / copies of the documents and information as per requirement of the bid documents through the e-procurement portal. All documents and scanned copies are to be uploaded in the designated location of the bid. The filled up intelligent bill of quantities in Excel format will be uploaded in the designated location of the bid. The bidder is required to upload the required documents in appropriate location of bid failing which the bid will be rejected. All the uploaded documents should be clear and legible. Before activating the submit button the clarity of the document may be ensured by taking out a sample copy. In the e-procurement tendering system the bidder is required only to submit the required information as per bid document instead of submitting the entire bid document. The "online" bidder shall digitally sign on all statements, documents, clarifications uploaded by him owning responsibility for their corrections / authenticity. If any of the information furnished by the bidder is found to be false / fabricated / bogus, the bidder will be black listed and his EMD / Bid Security forfeited.

2.2 2.2 The information required as per bid documents may be provided in the specified format annexed to the bid document.

2.3 2.3 If the intending tenderer is an individual, the documents shall be digitally signed by the individual while uploading the tender through e-procurement portal.

2.4 2.4 If the intending tender is a proprietary firm it shall be digitally signed by the proprietor while uploading the tender through e-procurement portal.

2.5 If the intending tenderer is a firm in partnership it shall be digitally signed by a partner holding the power of attorney for the firm in partnership in which case a certified copy of power of attorney shall accompany in the technical bid documents.

2.6 If the intending tenderer is a limited company or Corporation, it shall be digitally signed by a duly authorized person holding the power of attorney in which case certified copy of power of attorney shall accompany.

2.7 All witness and sureties shall be of person of status and probity and their full names, occupation and address shall be stated below in the appropriate place.

2.8 The agency will install display board mentioning information about the work at worksite after drawl of the agreement at his own cost.

3. Opening of Tender Documents.

The bids will be opened on 31.10.2026 at 11.00.AM in the office of the **Superintending Engineer, Debagada Irrigation Division, Debagada**, in the presence of tenderers or their authorized representative, who wish to be present.

4. Final Decision making authority

The competent authority reserves the right to accept or reject or disqualify any of the tender without assigning any reasons and its decision shall be final.

5. Where it will be found necessary by the Department, the Officer-in-Charge of the work shall issue an order book to the contractor to be kept at the site of the work with pages serially numbered. Orders regarding the work whenever necessary are to be entered in his book by the PWD Officer-in-Charge with their dated signatures and duly noted by the contractor or his authorized agents with their dated signature. Orders entered in his book and noted by the contractor's agent shall be not be removed from the considered to have been duly given to the contractor for following the instructions of the Department. The order book shall be the property of the PWD and shall not be be removed from the site of work without written permission of the Engineer-in-charge and to be submitted to the Engineer-in-Charge every month.

6. INSTRUCTION TO BIDDERS FOR LATEST E-PROCUREMENT

1. This office memorandum consists of the procedural requirement of e-procurement and shall be made part of the Detailed Tender Call Notice or Instruction to Bidder for all "Works" tenders hoisted in the portal.
2. The e-procurement portal of Government of Odisha is https://tendersodisha.gov.in
3. Use of valid Digital Signature Certificate of appropriate class (Class II or class III) issued from registered certifying authorities (CA) as stipulated by Controller of Certifying Authorities (CCA), Government of India such as n-Code, Sify, TCS, MTNL, e-Mudhra is mandatory for all users.
4. The DSC issued to the Department users is valid for the period of two years only. All the Department users are responsible to revalidate their DSC prior to expiry.
5. For all purpose, the server time displayed in the e-Procurement portal shall be the time to be followed by all the users.
6. Government after careful consideration have decided to hoist all tenders costing 10 lakhs or above in the e-procurement portal. This will be applicable across all Engineering Departments such as Works Department, Department of Water Resources, Rural Development and Housing & Urban Development Department. Government of Odisha also welcomes hoisting of tenders by any other departments, authority, corporations, local bodies etc. of the State with prior approval from Works Department. Works Department is the Nodal Department for the implementation of e-Procurement in the State.
7. The e-procurement shall be operated compliant to relevant provisions of OGFR/OPWD code / Accounts code / Government statues including any amendments brought from time to time to suit to the requirement of the best national practice.
8. Registration in the e-procurement portal is without levy of any charges but Government reserves the right to levy any charges for such value added services in future.
9. Contractor not registered with government of Odisha can participate in the e-procurement after necessary enrolment in the portal but have to subsequently register themselves with the appropriate registering authority of the State Government before award of the work as per prevalent registration norms of the State.
10. For the role management "Department" is the Administrative Department, Organization or wingis the Chief Engineer or highest tender accepting authority or equivalent officer, Division is the Superintending Engineer or equivalent officer and subdivision is the Assistant Executive Engineer or equivalent officer.
11. The e-procurement software assigns roles for operation of the module for specific function. The terminologies used in the portal and their respective functions in the software are as follows.

11.1. Application Administrator (NIC & State Procurement Cell)

i. Master Management
ii. Nodal Officer Creation
iii. Report Generation
iv. Transfer of Officer's login ID
v. Blocking & unblocking of officer's and bidder's login ID.

11.2. Nodal Officer (At organization level not below the Superintending Engineer or equivalent rank)

i. Creation of users
ii. Role Assignment
iii. Report Generation

iv. Transfer of Officer's login ID
v. Blocking & unblocking of officer's login ID.

11.3. Procurement Officer – Publisher (Officer having tender inviting power at any level)

i. Publishing of Tender
ii. Publishing of Corrigendum / addendum / cancellation of Tender
iii. Bid Clarification
iv. Uploading of Pre-Bid minutes
v. Report generation

11.4. Procurement Officer – Administrator (Generally sub-ordinate officer to Officer Inviting Tender)

i. Creation of Tender
ii. Creation of Corrigendum / addendum / cancellation of Tender
iii. Report generation

11.5. Procurement Officer Opener (Generally sub-ordinate officer to Officer Inviting Tender)

i. Opening of Bid

11.6. Procurement Officer Evaluator (Generally sub-ordinate officer to Officer Inviting Tender)

i. Evaluating Bid

11.7. Procurement Officer -Auditor (Procurement Officer Publisher and / or Accounts Officer / Finance Officer)

i. To take up auditing

12. NOTICE INVITING BID (NIB) OR INVITATION FOR BID (IFB)

12.1. The Notice Inviting Bids (NIB) and Bid documents etc. shall be in the standard formats as applicable to conventional Bids and will be finalized / approved by the officers competent as in the case of conventional Bids.

12.2. The officers competent to publish NIB in case of conventional Bids will host the NIB in portal. Simultaneously, a notification shou**ld** al**so** be publish**ed** in th**e** newspapers, as per existi**ng** rules preferably, in the following format, to effect economy :-

Government of Odisha "e" procurement Notice

Bid Identification No. ……

1. Name of the work : ……..
2. Estimated cost : ` ……
3. Period of completion ……
4. Date & Time of availability of bid document in the portal _____
5. Last Date / Time of receipt of bids in the portal _____
6. Name and address of the O.I.T …….
7. Further details can be seen from the e-procurement portal "https://tendersodisha.gov.in"

12.3. The tender documents published by the Tender Inviting Officer (Procurement Officer Publisher) in the website https://tendersodisha.gov.in will appear in the "Latest Active Tender." The Bidders / Guest Users can download the Bid documents only after the due date and time of sale. The publication of the tender will be for specific period of time till the last date of submission of bids as mentioned in the 'Notice Inviting Bid' after which the same will be removed from the list of "Latest Active tenders"

13. ISSUE OF ADDENDA / CORRIGENDA / CANCELLATION NOTICE

13.1. The Procurement Officer Publisher (Officer Inviting Tender) shall publish any addendum/corrigendum/cancellation of tender in the website https://tendersodisha.gov.in, notice board and through paper publication and such notice shall form part of the biding documents.

13.2. The system generates a mail to those bidders who have already uploaded their tenders and those bidders if they wish can modify their tenders. The bidders are required to watch the website till last date and time of bid submission for any addendum/corrigendum/cancellation thereof. Tender Inviting Authority is not responsible for communication failure of system generated mail.

14. CREATION AND PUBLISHING OF BID :

14.1. All the volumes / documents shall be uploaded in the portal by the tender creating officer (Procurement Officer Administrator) and published by the Officer Inviting Tender (Procurement Officer Publisher) using their DSCs in appropriate format so that the document is not tampered with

14.2. The tender document comprise the notice inviting tender, bid document / SBD, drawings in .pdf format and the schedule of quantities / BOQ in .xls format to be uploaded by the Officer Inviting Tender.

14.3. Procurement Officer Administrator creates tender by filling up the following forms :

i. BASIC DETAILS

ii. COVER CONTENT: The Procurement Officer Administrator should briefly describe the name and type of documents to be uploaded by the bidder in the following format :

(a) For Single Cover/Packet

Sl. No	Cover Type	Document Description	Type
1.	Free / Prequal / Technical / Finance	Tender Cost, EMD, GST, PAN, Contractor RC	.pdf
		Affidavits, undertakings and any other document as per SBD / DTCN	.pdf
		BOQ	.xls

iii. **TENDER DOCUMENT**: The Procurement Officer Administrator should upload the NIT in .pdf format.

iv. WORK ITEM DETAILS

v. **FEE DETAILS**: The Procurement Officer Administrator should mention the cost of tender paper and EMD amount as laid down in DTCN/SBD.

vi. **CRITICAL DATES**: The Procurement Officer Administrator should mention the critical dates of tender such as publishing date, document download start date and end date, seek clarification start date & end date (optional), bid submission start date & closing date, bid opening date as per DTCN/SBD.

vii. **BID OPENER SELECTION:** The Procurement Officer creator can select two / three / four bid openers for a particular bid. If required the bid openers can also be selected within an organization from other procurement units (Circles / Divisions).

viii. **WORK ITEM DOCUMENTS**: The Procurement Officer Administrator should upload the digitally signed tender document (SBD / DTCN) or any other addition document/drawings in .pdf format and Bill of Quantities in .xls format.

ix. PUBLISHING OF TENDER: The Procurement Officer Publisher shall publish the tender using his/her DSC after detail scrutiny of the fields created and documents uploaded by the Procurement Officer Administrator. The Procurement Officer Publisher can publish tenders for multiple procurement units using multiple DSCs procured for each post separately. After being relieved from the additional charges he has to surrender the additional DSCs to the Nodal Officer of the concerned organization

15. PARTICIPATION IN BID:

PORTAL REGISTRATION: The contractor / Bidder intending to participate in the bid is

15.1.1 Bidders participating through joint Venture shall declare the authorized signatory through memorandum of understanding duly registered and enroll in the portal in the name and style of the Joint Venture Company. It is mandatory that the DSC issued in the name of the authorized signatory is used in the portal.

15.1.2 Any third party / company / person under a service contract for operation of e-procurement system in the State or his / their subsidiaries or their parent companies shall be ineligible to participate in the procurement process that are undertaken through the e-procurement system irrespective of who operates the system.

15.2. **LOGGING TO THE PORTAL:** The Contractor / Bidder is required to type his/her Login ID and password. The system will again ask to select the DSC and confirm it with the pass word of DSC as a second stage authentication. For each login, a user's DSC will be validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in system database. The system checks the unique Login ID, Password and DSC combination and authenticates the login process for use of portal.

15.3. **DOWNLOADING OF BID**: The bidder can download the tender of his choice and save it in his system and undertake the necessary preparatory work off-line and upload the completed tender at his convenience before the closing date and time of submission.

15.4. **CLARIFICATION ON BID**: The bidder may ask question related to tender online in the e-procurement portal using his/her DSC, provided the questions are raised within the period of seeking clarification as mentioned in tender call notice / Bid. The Officer Inviting the Bid / Procurement Officer-Publisher will clarify queries related to the tender.

15.5. PREPARATION OF BID

15.5.1 The bids may consist of general arrangements drawings or typical or any other drawings relevant to the work for which bid has been invited. Bidder may download these drawings and takeout print for detail study and preparation of his bid. Any other drawings and documents pertaining to the works available with the Officer Inviting the bid will be open for inspection by the bidders.

15.5.2 The bidder shall go through the bid carefully and list the documents those are asked for submission. He shall prepare all documents including cost of bid document, bid security, declaration form, price bid etc. and store in the system.

15.6. PAYMENT OF EMD/BID SECURITY AND COST OF BID DOCUMENTS:

15.6.1 The bidder shall furnish, as part of his Bid, a Bid security for the amount mentioned under NIT/Contract Data. The bidder shall scan all the written/printed pages of the bid security and up load the same in portable document format (PDF) to the system in designated place of the technical BID. Furnishing scanned copy of such documents is mandatory otherwise his/her bid shall be declared as non-responsive and liable for rejection.

15.6.2 The EMD or Bid Security payable along with the bid is 1% of the estimated contract value (ECV) or as mentioned in the bid documents. The validity period of the E MD or Bid Security shall be as mentioned in the bid document. Any bid not accompanied by an acceptable Bid Security and not secured as indicated in the bid document shall be rejected as non-responsive. The bid security shall be retained till such time the successful bidder furnished Initial Security Deposit (ISD) or Performance Security acceptable to the Officer Inviting the Bid. Failure of the successful Bidder to comply with the requirements shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security. The Bid security in the form of FD shall be from a Nationalized Bank valid for a period of 45 days beyond the validity of the bid. Bid security in other form is acceptable if the bid document provides for it.

15.6.3 The Fixed Deposit / or any other form as mentioned in detailed tender call notice in respect of Earnest Money Deposit / Bid Security and the Bank Draft in respect of cost of Bid are to be scanned and up loaded in portable document format (PDF) along with the bid.

15.6.4 The tender accepting authority will verify the originals of all the scanned documents of the successful lowest bidder only within 5 days of opening of the tender. In the eventuality of failure on the part of the lowest successful bidder to produce the original documents, he will be debarred in future from participating in tender for 3 years and will be black listed by the competent authority. In such a situation, successful L-2 bidder will be required to produce his original documents for consideration of his tender at the negotiated rate equal to L1 bidder.

15.6.5 Contractor exempted from payment of EMD will be able to participate in the tender directly by uploading documentary evidences towards his eligibility for such exemption.

15.6.6 Government of Odisha have been actively considering integrating e-payment gateway in to the portal for payment of cost of bid and Bid Security / Earnest Money Deposit. The process of using e-payment gateway shall be issued separately after it is established.

16. SUBMISSION OF BID :

16.1. The bidder shall carefully go through the tender and prepare the required documents. The bid shall have a technical Bid & a Financial Bid. The bid generally consists of cost of Bid documents, EMD / Bid Security, VAT, PAN / TIN, Registration Certificate, Affidavits, Profit Loss Statement, Joint Venture Agreement, List of similar nature of works, work in hand, list of machineries and any other information required by OIT with the Bill of Quantities (BOQ) in an intelligent excel format and any other price related information / undertaking including rebates.

16.2. Bidders are to submit only the original BOQ (in.xls format) uploaded by Procurement Officer Publisher (Officer Inviting Tender) after entering the relevant fields without any alteration / deletion / modification. Multiple BOQ submission by bidder shall lead to cancellation of bid. In case of item rate tender, bidders shall fill in their rates other than zero value in the specified cells without keeping it blank. In the percentage rate tender the bidder quoting zero percentage is valid and will be taken at par with the estimated rate of the work put to tender.

16.3. The bidder shall upload the scanned copy/copies of document in support of eligibility criteria and qualification information in prescribed format in Portable Document Format (PDF) to the portal in the designated locations of Technical Bid.

16.4. The bidder shall write his name in the space provided in the specified location in the Protected Bill of Quantities (BOQ) published by the Officer Inviting tender. The bidder shall type rates in figure only in the rate column of respective item (s) without any blank cell in the rate column in case of item rate tender and type percentage excess or less up to two decimal place only in case of percentage rate tender.

16.5. The bidder shall log on to the portal with his/her DSC and move to the desired tender for up loading the documents in appropriate place one by one simultaneously checking the documents.

16.5.1 Bids can not be submitted after due date and time. The bids once submitted can not be viewed, retrieved or corrected. The bidder should ensure correctness of the bid prior to uploading and take print out of the system generated summary of submission to confirm successful uploading of bid. The bids can not be opened even by the OIT or the Procurement Officer Publisher / opener before the due date and time of opening.

16.5.2 Each process in the e-procurement is time stamped and the system can detect the time of log in of each user including the Bidder.

16.5.3 The Bidder should ensure clarity / legibility of the document uploaded by him to the portal.

16.5.4 The system shall require all the mandatory forms and fields filled up by the contractor during the process of submission of the bid / tender.

16.5.5 The bidder should check the system generated confirmation statement on the status of the submission.

16.5.6 The Bidder should upload sufficiently ahead of the bid closure time to avoid traffic rush and failure in the network.

16.5.7 The Tender Inviting Officer is not responsible for any failure, malfunction or breakdown of the electronic system used during the e-procurement process.

16.5.8 The Bidder is required to upload documents related to his eligibility criteria and qualification information and Bill of Quantity duly filled in. It is not necessary for the part of the Bidder to up-load the drawings and the other Bid documents (after signing) while uploading his bid. It is assumed that the bidder has referred all the drawings and documents uploaded by the Officer Inviting the Bid.

16.5.9 The bidder will not be able to submit his bid after expiry of the date and time of submission of bid (server time). The date and time of bid submission shall remain unaltered even if the specified date of the submission of bids declared as a holiday for the Officer Inviting the Bid.

16.6. SIGNING OF BID: The 'online bidder' shall digitally sign on all statements, documents, certificates uploaded by him, owning responsibility for their correctness / authenticity as per IT ACT 2000. If any of the information furnished by the bidder is found to be false / fabricated / bogus, his EMD / Bid Security shall stand forfeited and his registration in the portal shall be blocked and the bidder is liable to be blacklisted.

17. SECURITY OF BID SUBMISSION:

17.1. All bid uploaded by the Bidder to the portal will be encrypted.

17.2. The encrypted Bid can only be decrypted / opened by the authorized openers on or after the due date and time.

18. RESUBMISSION AND WITHDRAWAL OF BIDS:

18.1. Resubmission of bid by the bidders for any number of times before the final date and time of submission is allowed.

18.2. Resubmission of bid shall required uploading of all documents including price bid afresh.

18.3. If the bidder fails to submit his modified bids within the pre-defined time of receipt, the system shall consider only the last bid submitted.

18.4. The bidder should avoid submission of bid at the last moment to avoid system failure or malfunction of internet or traffic jam or power failure etc.

18.5. The Bidder can withdraw his bid before the closure date and time of receipt of the bid by uploading scanned copy of a letter addressing to the Procurement Officer Publisher (Officer Inviting Tender citing reasons afro withdrawal. The system shall not allow any withdrawal after expiry of the closure time of the bid.

19. OPENING OF THE BID:

19.1. Bid opening date and time is specified during tender creation or can be extended through corrigendum. Bids cannot be opened before the specified date and time.

19.2. All bid openers have to log-on to the portal to decrypt the bid submitted by the bidders.

19.3. The bidders & guest users can view the summary of opening of bids from any system. Contractors are not required to be present during the bid opening at the opening location if they so desire.

19.4. In the event of the specified date of bid opening being declared a holiday for the Officer Inviting the Bid, the bids will be opened at the appointed time on the next working day.

19.5. Combined bid security for more than one work is not acceptable.

19.6. The electronically submitted bids may be permitted to be opened by the predefined Bid opening officer from their new location if they are transferred after the issue of Notice Inviting Bid and before bid opening. Further, action on bid documents shall be taken by the new incumbent of the post.

19.7. In case of non-responsive tenders the officer inviting tender should complete the e-Procurement process by uploading the official letter for cancelled / re-tender.

20. EVALUATION OF BIDS:

20.1. All the opened bids shall be downloaded and printed for taking up evaluation. The officer authorized to open the tender shall sign and number on each page of the documents downloaded and furnish a certificate that "the documents as available in the portal containing_____nos. of pages".

20.2. The bidder may be asked in writing / online (in their registered e-mail ids) to clarify on the uploaded documents provided in the Technical Bid, if necessary, with respect to any doubts or illegible documents. The Officer Inviting Tender may ask for any other document of historical nature during Technical Evaluation of the tender. Provided in all such cases furnishing of any document in no way alters the bidder's price bid. Non submission of legible documents may render the bid non-responsive. The authority inviting bid may reserve the right to accept any additional document.

20.3. The bidders will respond in not more than 7 days of issue of the clarification letter, failing which the bid of the bidder will be evaluated on its own merit.

20.4. The Technical evaluation of all the bids shall be carried out as per information furnished by bidders.

20.5. The Procurement Officer-evaluators; will evaluate bid and finalize list of responsive bidders.

20.6. The financial bids of the technically responsive bidders shall be opened on the due date of opening. The Procurement Officer – Openers shall log on to the system in sequence and open the financial bids.

20.6.1 The Financial Bid will be opened on the notified date and time in the presence of bidders or their authorized representative who wish to be present.

20.6.2 At the time of opening of "Financial Bid" , bidders whose technical bids were found responsive will be opened.

20.6.3 The responsive bidders name, bid price, item wise rates, total amount of each item in case of item rate tender and percentage above or less in case of percentage rate tenders will be announced.

20.6.4 Procurement Officer – Openers shall sign on each page of the downloaded BOQ and the Comparative Statement and furnish a certificate to that respect.

20.6.5 Bidder can witness the principal activities and view the documents / summary reports for that particular work by logging on to the portal with his DSC from anywhere.

20.6.6 System provides an option to Procurement Officer Publisher for reconsidering the rejected bid with the approval of concern Chief Engineer / Head of Department.

21. NEGOTIATION OF BIDS:

21.1. For examination, evaluation and comparison of bids, the officer inviting the bid may, at his discretion, ask the lowest bidder for clarification of his rates including reduction of rate on negotiation and breakdown of unit rates.

22. NOTIFICATION OF AWARD AND SIGNING OF AGREEMNT

22.1. The employer / Engineer-in-Charge shall notify acceptance of the work prior to expiry of the validity period by cable, telex or facsimile or e-mail confirmed by registered letter. This letter of acceptance will state the sum that the Engineer-in-Charge will pay the contractor in considerationof execution and completion of the Works by the contractor as prescribed by the contract and the amount of Performance Security and Additional Performance Security required to be furnished. The issue of the letter of Acceptance shall be treated as closure of the bid process and commencement of the contract.

22.2. The contractor after furnishing the required acceptable Performance Security & Additional Performance Security, "Letter to Proceed" or "Work Order" shall be issued by the Engineer-in-Charge with copy thereof to the Procurement Officer – Publisher. The Procurement Officer – Publisher shall up load the summary and declare the process as complete.

22.3. If the L-1 bidder does not turn up for agreement after finalization of the tender, then he shall be debarred from participation in bidding for three years and action will be taken to blacklist the contractor. Besides the consortium / JV / firm where such an agency / firm already happens to be or is going to be partner / member / proprietor, he /they shall neither be allowed for participation in bidding for three years nor his/their application will be considered for registration and action will be initiated to blacklist him/them. In that case, the L-2 bidder, if fulfils other required criteria, would be called for drawing agreement for execution of work subject to condition that the L-2 bidder negotiates at par with the rate quoted by the L-1 bidder, otherwise the tender will be cancelled.

23. BLOCKING OF PORTAL REGISTRATION

23.1. If the Registration Certificate of the Contractor is cancelled / suspended by the registering authority / blacklisted by the competent authority his portal registration shall be blocked automatically on receipt of information to that effect.

23.2. The portal registration blocked in the ground mentioned in the above Para-23.1 shall be unblocked automatically in receipt of revocation order of cancellation / suspension / blacklisting from the concerned authority.

23.3. The Officer Inviting Tender shall make due inquiry and issue show cause notice to the concerned contractor who in turn shall furnish his reply, if any, within a fortnight from the date of issue of show cause notice. Thereafter the Officer Inviting Tender is required to issue an intimation to the defaulting bidder about his unsatisfactory reply and recommend to the Chief Manager (Tech.) for blocking of portal registration within 10 days of intimation to the defaulting bidder regarding his unsatisfactory reply with intimation to the Registering Authority and concerned Chief Engineer / heads of Office if any of the following provision are violated.

23.3.1 Fails to furnish original Technical / Financial (Tender Paper cost, EMD / Bid Security) instruments before the designated officer within the stipulated date and time.

23.3.2 Backs out from the bid on any day after the last date of receipt of tender till expiry of the bid validity period.

23.3.3 Fails to execute the agreement within the stipulated date.

23.3.4 If any of the information furnished by the bidder is found to be false / fabricated /bogus. Accordingly the Officer Inviting Tender shall recommend to the Chief Manager (Tech.) State Procurement Cell , Odisha for blocking of portal registration of bidder and simultaneously action shall also be initiated by OFFICER INVITING TENDER for blacklisting as per Appendix – XXXIV of OPWD code, Volume – II.

24. GUIDELINES FOR UNBLOCKING OF PORTAL REGISTRATION:

24.1. UNBLOCKING OF PORTAL REGISTRATION

Unblocking of portal registration of a contractor shall be done by a committee consisting of the following members.

EIC (Civil)-cum-CPO	-	Chairman
Engineer-in-Chief (WR)	-	Member
Concerned Chief Engineer	-	Member
Sr. Manager (Finance), SPC	-	Member
Office Inviting Tender	-	Member
Chief Manager (Technical), SPC	-	Convener

24.2. The Chief Manager (Tech.), State Procurement Cell will be the convener and he will maintain all records for this purpose. The Committee shall meet not less than once in a month if required and shall consider the recommendation of the officer inviting tender for unblocking of portal registration. The quorum of the meeting will be four.

24.3. The minimum period of blocking of Portal Registration shall in no case be less than 90 days. After blocking of Portal Registration, the contractor whose Portal Registration has been blocked may file application to the concerned officer inviting tender showing sufficient ground for unblocking of his portal registration along with a Treasury Challan showing deposit of Rs. 10,000/- (Rupees Ten Thousand only (non-refundable) under the head of accounts '0059-Public Works' as processing fees. The officer inviting tender shall forward the application filed by the contractor to the Chief Manager (Tech.), State Procurement Cell.

24.4. On receipt of recommendation from the concerned Chief engineer along with the copy of challan as mentioned above, the Chief Manager (Tech.) being the member convener of the Committee shall place the case before the Committee for examination and taking a decision in this regard. After examination the Committee may recommend for unblocking of the portal registration of said contractor if the Committee is satisfied that the fault committed by the contractor is neither unintentional nor done for the first time.

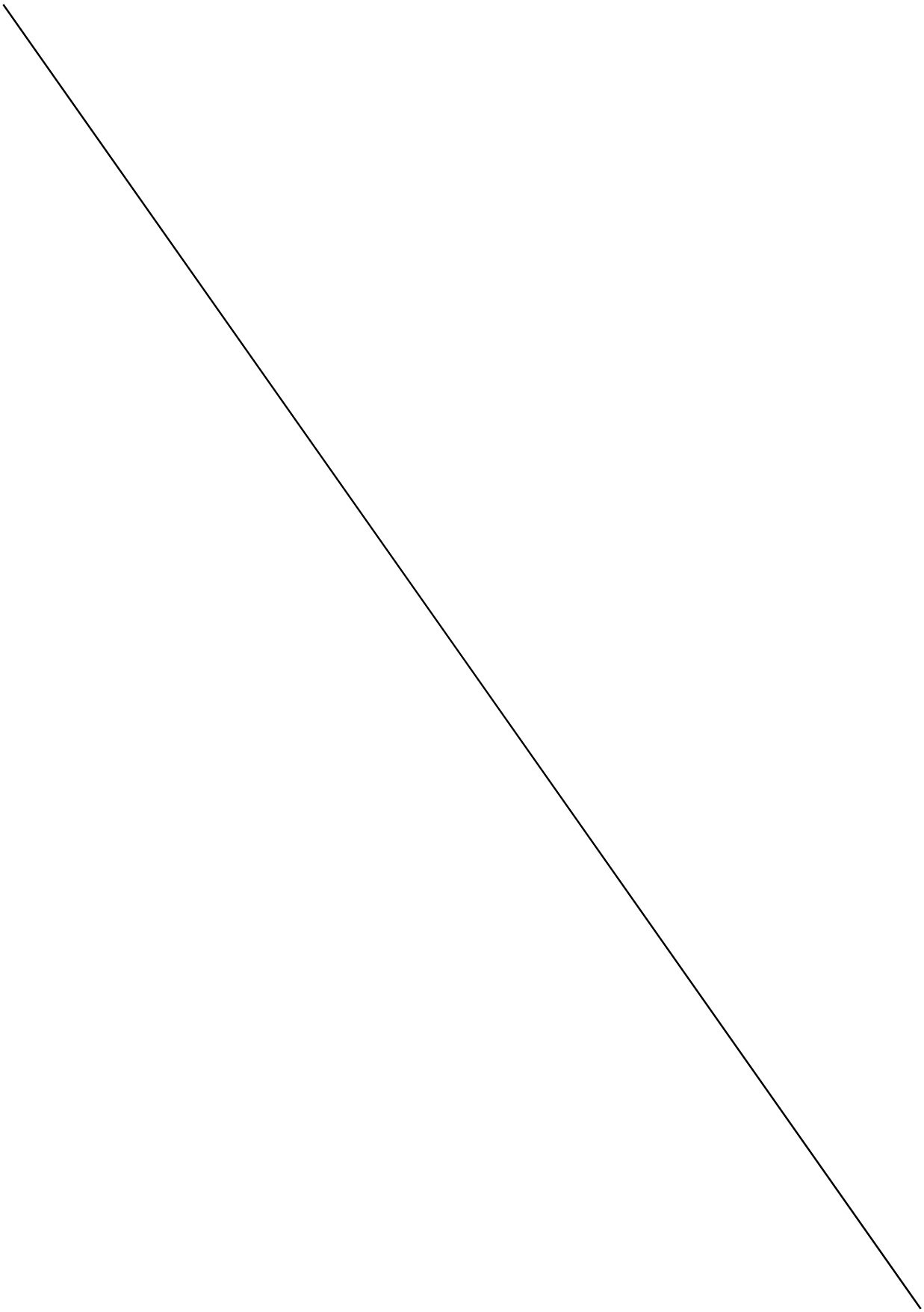
24.5. After scrutiny by the State procurement Cell if it is found that the portal registration of a contractor has been blocked for the 2nd time, the Chief Manager (Tech.), SPC may not consider his case to be placed before the Committee and may advice the concerned officer inviting tender to issue show cause notice to the contractor asking him to explain as to why his portal registration shall not remain blocked. On receipt of show cause reply from the contractor the officer inviting tender shall examine the same and if considered proper he may report to the Chief Manager (Tech.), SPC along with his views furnishing the copy of the show cause reply for placement of the same before the Committee for taking a decision in respect of blocking / unblocking. If the Committee found that the contractor is in habit of committing such fault again and again intentionally, the committee may advice the concerned officer inviting tender to initiate proceeding for blacklisting as per the existing rule.

1. These amendments shall take effect from the date of issue of the order.
2. This amendment is an addition to the existing provision and will be placed below Appendix-IX to OPWD code, Vol. –II
3. Accordingly Office Memorandum No. 1027 dt. 24.01.2009 stands modified.
4. This has been concurred in by the Finance Department vide their U.O.R No 3-WF-I 4.01.2013.

25. The selected tenderer after entering into the agreement with the SE, Debagada Irrigation Division, Debagada have to procure Bitumen & Bitumen Emulsion from the main producers such as IOCL & HPCL or OSICfor utilization of the same in the work. And it is mandatory to produce the proforma invoice issued by the said companies/corporation along with the bill failing which the settlement of their bills will not be entertained vide No.FIN-ES2-MISC-0023-2013-24148(4) Dt.19.07.13 of Finance Dept.

SECTION - 3

GENERAL RULES & DIRECTIONS



ODISHA PUBLIC WORKS DEPARTMENT
(FORM P1)
PERCENTAGE RATE TENDER AND CONTRACT FOR WORKS
GENERAL RULES & DIRECTIONS FOR THE GUIDANCE OF CONTRACTORS

1. The work proposed for execution by contract will be notified in a form of invitation to tender pasted on a board hung up in the office of the Superintending Engineer, Debagada Irrigation Division, Debagada.

This notice will state the work to be carried out, the items and approximate quantities thereof as well as the date for submitting and opening tenders also the amount of earnest money to be deposited and the amount of the security deposit by the successful tenderer and the percentage if any to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the submission of tender signed for the purpose of identification by the Sub-divisional Officer/Superintending Engineer shall also be open for inspection by the contractor at the office ofthe Sub-Divisional Officer/Superintending Engineer during office hours.

2. In the event of the tender being submitted by a firm it must be signed separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so.

3. Receipts for payment made on accounts of works, when executed by a firm must also be signed by the several partners, except where the contractors are described in their tender as a firm in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having authority to give effectual receipts for the firm.

4. The memorandum of work tendered for and the memorandum of materials to be supplied by the Public Works Departments and their issue rates shall be filled in and completed in the office of the Sub-Divisional Officer/ Superintending Engineer before the tender from is issued if a from is issued to an intendingtender without having been so filled in and completed, he shall request the office to have this done beforehe completes and delivers his tender.

5. The amount of earnest money to be deposited will be 1% of estimated cost.

6. Any person who submits a tender shall fill up the usual printed form stating at what percentage rate he is willing to undertake the work. Incomplete tender and tender percentage rate he is willing to undertake the work specified in the said form of invitation to tender or which the contain any other conditions of any sort, or omit to note the time within which the work can be finished or which are not accompanied by the required earnest money will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more work shall submit a separate tender for each tender. Tender shall bear the name of the work to which they refer written outside the envelope.

7. The Engineer or his duly authorized assistant will open the tenders in the presence of any intending contractors who may be present at the time and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of tender being rejected the document for the earnest money forwarded therewith shall thereupon be returned to the tenderer.

8. The Engineer-in-charge shall have the right of rejecting all or any of the tenders.

9. In the event of a tender being selected for acceptance the Engineer-in-charge who opened the tenders will, if he is competent to accept the tender, inform the tenderer of the selected tender who shall there upon sign copies of the specification and other documents with the tender. The tenders to the selected tender shall also deposited the required amount of the security money within the prescribed time. If the tenderer fails to deposited the required amount of the security money within the prescribed rime the Engineer-in-charge may reject the tender.

If the Engineer-in-charge is not competent to accept the tender himself, he will inform the tenderer of the tender which he decides to recommended for acceptance, such tender shall thereupon sign forthwith copies of the specification and other documents mentioned in rules 1 and 4 and shall deposit the required amount of the security money with in the prescribed time. The tender with the specification and other documents signed by the tenderer will then be forwarded for acceptance to the Engineer who is competent to accept the same. If the said Engineer rejects the tender the security money deposited shall be refunded to the tenderer.

10. When a tender is selected for acceptance, the tenderer shall deposit the required amount of the security money in prescribed format duly pledged in favour of **Superintending Engineer, Debagada Irrigation Division, Debagada**. No tender shall be finally accepted until the required amount of the security money hasbeen deposited.

11. The amount of security money to be deposited by the tenderer whose tender is selected for acceptance shall be 2 (two) percent of the contract value of the work and towards this amount the earnest money already deposited by him shall be taken into account.

Any balance of the security money outstanding after completion of the contract with the tenderer may be made up along with deduction of 3% / 5% of the amount of each payment to be made to himunder clause of the condition of contract for work done under the contract.

Taxes as per provisions of Government shall be deducted from the bills of tenderer.

12. When tender has been selected for acceptance and the required amount of the security money has been deposited the Engineer shall scrutinize a pages of the form of percentage, Rate Tendered and Contract for works to see that the form has been properly filled up and signed by the contractor and the signature witnessed. He shall then, if he is competent to accept the tender, sign the acceptance of the tenders or if he is not so competent to, shall send the form for signature of the acceptance to the officer competent to accept it.

13. All tenderers are required to submit a list of works, which are in hand at the time of submitting their tenders. The list of works are required to be submitted in the proforma by the Superintending Engineer underwhom he has executed the work in order to judge their past performance (vide Works Department Circular No. 15443 dt. 01.08.2005.)

14. The earnest money deposited is liable to be forfeited to Govt. if the tenderer backs out from the offer before acceptance of the tender by the competent authority.

15. T.D.S (Tax Deducted at Source) towards VAT & CESS etc. will be deducted at the rate prescribed in the Odisha Value Added Tax (Amendment) ordinance 2005, Building & other construction works welfare Cess Act 1996 & as amended from time to time.

TENDER FOR WORKS

I / We hereby tender for the execution for the Government of Odisha for the work specified in the under written memorandum at the rates specified therein a period of Two working months from the dateof written order to commence and in accordance in all respects with the specifications designs and other documents referred to in rule. I here of and subject to the annexed conditions of contract and with such materials as are provided for by and in all other respects in accordance with such condition so far as applicable.

MEMORANDUM

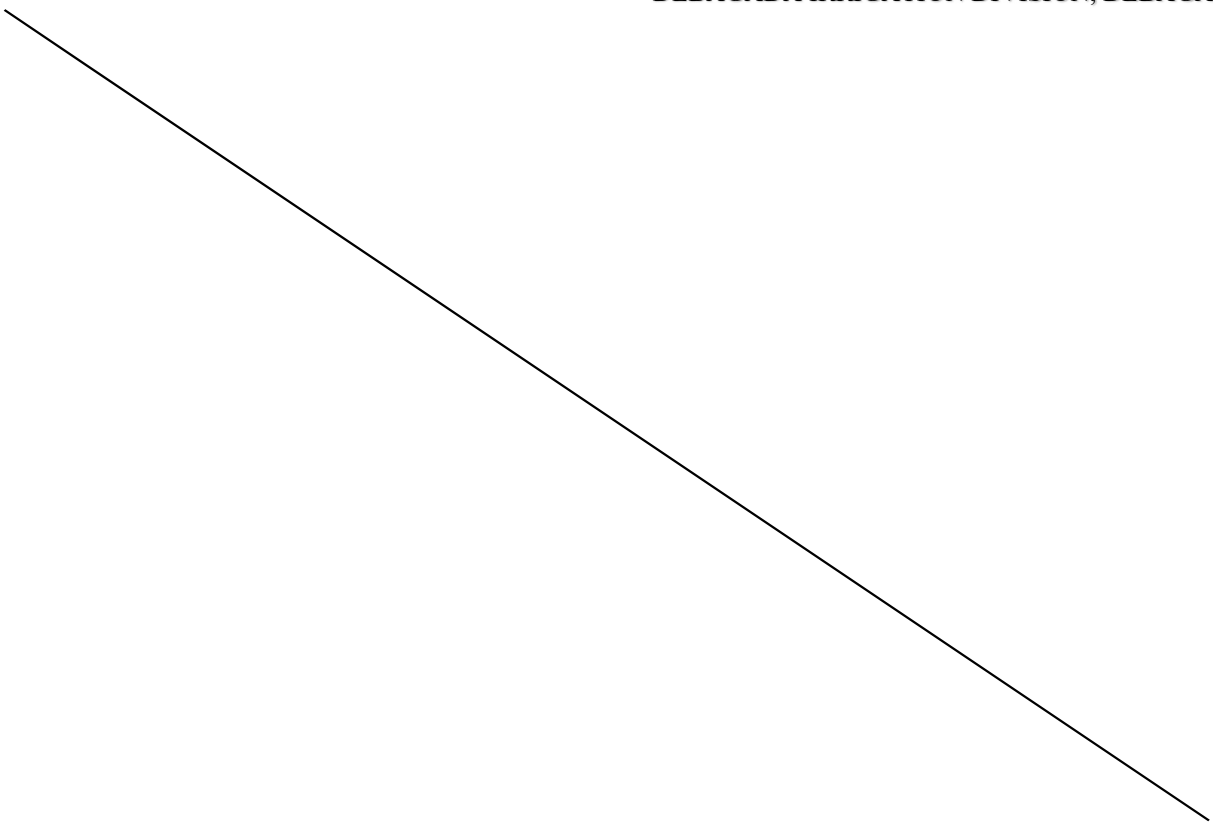
a) If several sub-works are included they should be detailed in a separatesheet.	(a)	Name of Work	Repair and Construction of trough wall with bed lining of Malichua S/M -1 in between RD 900m to 1100m. of DID for the year 2026-27.
	(b)	Estimated Cost : (Amount put to tender)	:
	(c)	Agreement Value % Excess/Less	
	(d)	E.M.D along with tender	
e) This deposit will be 2 percent of the estimated cost of the work	(e)	Initial security deposits (including earnest money) to be deposited before the commencement of the work.	:
	(f)	Additional Performance Security (APS)	
g) This percentage from bills will be credited to the contractor's security	(g)	Security deposits to be deducted from bills. GST I.T. Cess	:
	(h)	Time required for the work from date of written order to commence	:
	(i)	Date of written order to commence	:
	(j)	Actual date of commencement of work	:
	(k)	Schedule date of completion	:
	(l)	Total number of item of works tender for	:

Nature of contractor before submission of tender	Should this tender be accepted I/We hereby agree to abide by and fulfill the terms and provision of the said condition of contract annexed here to so far as applicable, or in defaults thereof to forfeit and pay to the Government of Odisha or his successors in office, the sum of money mentioned in the said conditions.
Signature of witness to one tender's signature	Dated the ……..Day of …….. Witness : Address:

CONTRACTOR

Signature of Officer by whom accepted	The above tender is hereby accepted by me on behalf of the Government of Odisha. Dated the ……..Day of ……..

SUPERINTENDING ENGINEER,
DEBAGADA IRRIGATION DIVISION, DEBAGADA



SECTION - 4

CONDITIONS OF CONTRACT

CONDITION OF CONTRACT

Clause 1-

Compensation for delay

All compensation or other sum of money payable by the contractor to Government under the terms of his contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due or may become due to the contractor by Government on any account what so ever and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid, the contractor shall within ten security deposit or any days there after make good in cash or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or raised by, sale of the part thereof.

Clause 2 (a

The work should not be considered finished until such date as the E.E. shall certify as the date on which the work is finished after necessary rectification of defects as pointed out by E.E. or his authorized agents are fully complied with by the contractor to the E.Es satisfaction.

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which the written order to commence work is given to the contractor, The work shall throughout the stipulated period of the contract be carried on with all due diligence (time being deemed to be of the essence of the contract on the part of the contractor) and the contractor shall pay as compensation an amount equal to ½ % on the amount of the estimated cost if the whole work as shown by the tender for every day that the work remains un-commenced, or unfinished after the proper dates (The work should not be considered finished until such date as the Superintending Engineer shall certify as the date on which thework is finished after necessary rectification of defects as pointed out by the Superintending Engineer, or his authorized, agents are fully complied with by the contractor to the Superintending Engineer's satisfaction). And further to ensure good progress during execution of the work the contractor shall be bound, inall cases in which the time allowed for any work exceeds one month, to complete one fourth of the whole work before one fourth of the whole time allowed under contract has elapsed one half of the work, before one half of such time has elapsed and three-forth of the work before three-forth of such time has elapsed. In the events of the contractor failing to comply with the condition, he shall be liable to pay as compensation an amount equal to one third percent on the said estimated cost of the whole work for every day that the due quantity of work remains incomplete, provided always that the entireamount of compensation to be paid under the provision of this clause shall not

Action when whole security deposit is forfeited

(b) If there are possibilities of exceeding this compensation amount as mentioned in clause (a) 10% of the estimated cost or in any case in which under any clause or clauses of this contract the contractor shall have tendered himself liable to pay compensation amounting to the whole of his security deposit in the hands of Govt. (whether paid in one sum or deducted by installments) the Superintending Engineer on behalf of the Governor of Odisha, shall have power to adopt anyof the following courses as he may deem best suited to the interest of Government

(i) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Superintending Engineer shall be conclusive evidence) 20% of the value of left over work will be realized from the contractor as penalty.

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

(ii) Security deposit of contractor for each work will be refunded only twelve month after the date of completion of work provided the final bill has been paid and defects if any rectified.

Clause-3 In any case in which any of the powers, conferred upon the Superintending Engineer by clause 3 thereof, shall become exercisable and the same shall not be exercised the nonexercise thereof shall not constitute a waiver of the conditions here of and such powers shall not withstanding be exercisable in the event of any clause or clauses thereof he is declared liable to pay compensation amounting to the whole of his security deposit, and the liability of the contractor for past and future compensation shall remain unaffected in the event of the Superintending Engineer putting in force the powers vested in him under the preceeding clause he may if he so desire, take possession of all or any tools, plants, materials & stores, in or upon the works or the site thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof paying or all wing for the same in the account at the contract, rates, or in case of these not being applicable ; atcurrent market rates to be certified by the Superintending Engineer whose certificate thereof shall be final; otherwise the Superintending Engineer may give notice in writing to the contractor or his clerk of the works, foreman or other authorized agent required him to remove such tools, plants, materials or stores from the premises (within a time to be specified in such notice) and in the event of the contractor failing to comply with any requisition to the Superintending Engineer may remove them at the contractor'sexpense or sell them by auction or private sale on account of the contractor and at hisrisk in all respects and the certificate of the Executive Engineer as to the expense of removal and the amount of proceeds and expense of any such sale shall be final and

Contractor remain liable to pay compensation if action not taken under clause-5

Power to take possession of or require removal of or sell contractor plants

Clause-4 If the contractor shall desire on extension of time for completion of the work, on the ground of his having been unavoidable hindrances in its execution or any other ground he shall apply in writing to the Superintending Engineer within 30 days of the dateof the hindrance on account of which he desires such extension as aforesaid and theSuperintending Engineer shall, if in his opinion (which shall be final) reasonable be showntherefore, authorize such extension of time if any, as may in his opinion, be necessaryor proper. The Superintending Engineer shall at the same time inform the contractor

Extension of time

Clause-5 whether he claims compensation for delay.

Final Certificate

On completion of the work, the contractor shall be furnished with a certificate by the Superintending Engineer (here-in-after called the Engineer-in-charge) of such completion, but no such certificate be given, nor shall the work be considered to be complete until the contractor shall have removed from the area of premises (to be distinctly marked by the Superintending Engineer in the site plan) onwhich the work shall be executed, all scaffolding surplus materials and rubbish and cleaned offthe dirt from all wood work doors, windows, walls, floors or other parts of any building in uponor about which the work is to be executed, or of which he may have had possession for the purpose of the execution thereof nor until the work shall have been measured by the officer of the PWD in accordance with the rules of the department whose measurements shall be binding andconclusive against the contractor the contractor shall fail to comply with the requirements of thisclause as removal of scaffolding surplus materials and rubbish and cleaning of dirt on or beforethe date fixed for the completion of the work the Engineer-in-charge may at the expenses of the contractor, remove such scaffolding surplus materials and rubbish and dispose of the same as hethinks fit and clean off such dirts as aforesaid and the contractor shall forth with pay the amountof all expenses incurred and shall have no claim in respect of any such scaffolding, or surplus materials as aforesaid except for any sum actually realized by the sale thereof

Sub clause-5

"If in the opinion of the Engineer-in-charge which shall be final and binding on the contractor occupation or utilization of a portion of the work completed in no way interferers with the progress for rest of the work, the same may be occupied or utilized by or on behalf of the Govt. under the written order of the Engineer-in-charge to get the defects of any rectified by the contractor at his (Contractor) own cost within six months from the date of completion of the whole work provided that the contractor will not be allowed any other concession either in the shape of extensions of stipulated period or any other monetary compensation on account of such occupation or use.

Clause-06

Payment on intermediate certificate be regarded as advance & bill to be submitted monthly

A bill shall be submitted by the contractor each month on or before the date fixed by the Engineer in-charge for all works executed in the previous month, and the Engineer-in-charge or his subordinate shall take the requisite measurement for the purpose of having the same verified and the claim as far as admissible' adjusted if possible before the expiry of ten day from the presentation of the bill. If the contractor does not submit the bill within the time fixed as aforesaid, the Engineer-in-charge or his subordinate shall measure up the said work in the presence of the contractor whose countersignature to the measurement list will be sufficient warrant and the Engineer-in-charge or his subordinate shall prepare a bill from such list which shall be binding on the contractor in all respects. Provided that, if any balance of the 7% security isoutstanding from each such payment shall be deducted so much, not exceeding 5% as may be necessary to make up the balance of the security. All such intermediate payments shall be regarded as payment by way of advance against the final payment only and not as payments forwork actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskillful work to be removed and taken away and requiring or re-erected, or be considered as an admission of the due performance of the contract, or any part thereof in any respect, or the actual of any claim nor shall it conclude, determine or effect in any way the powersof the Engineer-in-charge under these conditions or any of them as the final settlement or adjustment of the accounts or otherwise or in any other way vary or effect the contract

Clause-7

The final bill shall be prepared by the offices of the P.W.D. in accordance with the rules of department in the presence of the contractor within one month of the date fixed for completion of the work.

Clause-8

Store supplied by Government

If the specification of estimate of the work provides for the use of any special description of materials to be supplied from the Engineer-in-charge's store, or it is required that the contractor shall use certain stores to be provided by the Engineer-in-Charge under the conditions of this contract [such materials and stores and the prices to be charged thereof as herein after mentioned being so far as practicable for the convenience of the contractor, but not so as in any way to control the meaning or effect of his contract are specified in the schedule or memorandum here to annexed] the contractor shall be supplied with such materials and store noted in the annexed schedule as are required from time to time to be used by him for the purposes of the contract only, and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule may be set off or deducted from any sums then due, or there after to become due to the contractor under the contract or otherwise or against or from the security deposit, orthe proceed of sale thereof if the same is held in Government securities, the same or a sufficient portion thereof being in this case sold for the purpose. All materials supplied to the contractor shall remain the absolute Property of Government and shall not any account be removed from the site of the work, and shall at all time be open to inspect by the Engineer-in-charge. Any such materials unused and in perfectly good condition at the time of completion or determination of the contract shall be returned to the Engineer-in-charge's store, at the prevailing market rate or at the issue rate which ever is less if by a notice in writing under his hand he shall so require, but the contractor shall not be entitled to return any such materials unless with such consent and shall have no claim for compensation no account of any such materials so supplied to him as aforesaid being unused by him, or for any wastage in or damage to any such materials.

Clause-8(a)

"If a contractor removes any materials or stock so supplied to him from the site of the work in contravention of the provision of this clause with a view to dispose of the same dishonestly, he shall in addition to any other liability, civil or criminal, arising out of this contract be liable to pay a penalty equivalent to five times the price of the said materials or stock according to the stipulated rate. The penalty so imposed shall be recoverable from any sum, that may be then, or at any time thereafter may become due to the contractor; or from his security deposit, or the proceeds of sale thereof."

Clause-8(b)

Owing to difficulty in obtaining certain materials in the open market the Government have undertaken to supply materials specified in the schedule here to annexed. There may be delay in obtaining materials by the Department and the contractor is therefore required to keep himself in touch with day position regarding the supply of materials from the Engineer-in-charge and to so adjust the progress of the work that their labour may not remain idle nor may there be any other claim due to or arising from delay in obtaining the materials.

It should be clearly understood that no monetary claim whatsoever shall be entertained by the Government on account of delay in supplying materials. However extension of time for the completion of work can be granted on timely application by the contractor vide clause 5.

Clause-9 The contractor shall execute the whole and every part of the work in the most substantial and workman like manner and both as regards materials and otherwise in every respect in strict accordance with the specification. The contractor shall also confirm exactly fully and faithful to the design, drawings & instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office and to which the contractor shall be entitled to have access at such office for the purpose of inspection during office hours and the contractor shall, if he so require be entitle at his own expense to make or cause to make copies of the specifications and of all such designs, drawings and instructions as aforesaid.

Works to be executed in accordance with specification drawing & orders etc.

Sub clause-9 The work should be done strictly in accordance with the relevant specifications of the I.S.I. Codes. If the work is not covered by the specification of I.S.I. it should be done in accordance with the provision in the Odisha Detailed Standard Specifications (O.D.S.S). In case, the work is not covered by O.D.S.S. the work should be executed as per the instruction of the Engineer-in-charge.

Clause-10 The Engineer-in-charge shall have power to make any alterations in or additions to the original specifications, drawing, designs and instruction that may appear to him to be necessary advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instruction which may be given to him in writing signed by the Engineer-in-charge and such alteration shall not invalidate the contract and at additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respect on which he agreed to do the main work, and at the same time rates as are specified in the tender for the main work., The time for the completion of the work shall be extended in the proportion that the additional work includes bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportions. And if the additional work includes any class of work for which on rate is specified in this contract then such class of work shall be carried out at the on rates specified on this contract than such class of work shall be carried out at the rates entered in the sanctioned schedule by rates of the locality during the period when the work being carried on and if such the district then the contractor shall within seven days of the date of his receipt of the order to carry out the work inform the Engineer-in-charge of the rate which is it his intention to charge for such class of work, and if the Engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out such class or work and arrange to carry it out in such manner as he may consider

Alteration in specification and designs

Extension of time in consequence of alterations

Do not invalidate contract

Rates of works not in estimate of schedule or rate of the district.

No deviations from the specification stipulated in the contract or additional items of work shall ordinarily be carried out by contractor nor shall any altered. Additional or substituted work to be carried out by him unless the rates on the substituted altered of additional items have been approved and fixed in writing by the Engineer in-charge.

The contractor shall be bound to submit his claim for any additional work done during any month on or before the 5th days of the following month accompanied by copy of the order in writing of the Engineer-in-charge for the additional work and that the contractor shall not be entitled to any payment in respect of such additional work if he fails to submit his claim within the aforesaid period

Provided always that if the contractor shall commence work incur any expenditure in regards thereof before the rates shall have been determined as lastly herein before mentioned, then and in such case he shall only be paid in respect of the work carried out or expenditure incurred by him prior to the determination of the rates as aforesaid according to such rates as shall be fixed by the Engineer-in-charge. In the event of dispute the decision of the Superintending Engineer of the circle will be final.

Clause-11 If at any time after the commencement of the work the Government of Odisha shall for any reason whatsoever not require the whole thereof as specified in the tender to be carried out the Engineer-in-charge shall give notice in writing of the fact to contractor who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage, which he might have derived from the execution of the work in full but which he did not derive in consequence of the full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any alternations having been made in the original specification, drawing, designs and instruction which shall involve any curtailment of the work as originally contemplated

No compensation for alteration in or restriction of work to be carried out.

Clause-12 If it shall appear to the Engineer-in-charge or his subordinate in charge of the work that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for or execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract. The contractor shall on demand in writing from the Engineer-in-charge specifying the work materials or articles complained of notwithstanding that the same may have been inadvertently passed, certified and paid forth with rectify or remove and reconstruct the work so specified in whole or part, as the case may require or as the case may be remove the materials or articles so specified and provided other proper and suitable materials or articles at his own proper charge and cost and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in his demand aforesaid then the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day not exceeding the days his failure to do shall continue and in the case of any such failure the Engineer-in-charge may rectify or remove and re-execute the work or remove and replace with other the materials or articles complained of as the case may be at the risk and the expense in all

Action and compensations payable in case of bad work.

Clause-13 All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspections and supervision of the Engineer-in-charge and his subordinates and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of intention of Engineer-in-charge his subordinates to visit the works shall have been given to the contractor either himself be presented to receive orders and instructions, or have a responsible agent duly accredited in writing present for that purpose, Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself

Works to be open to inspection

Clause-14 The contractor shall give not less than five day's notice in writing to the Engineer-in-charge or his subordinate in-charge of the work before covering up or other wise placing beyond the reach of measurement of any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or placed beyond the reach of measurement any work without the consent in writing of the Engineer-in-charge or his subordinate in charge of work and if any work shall be cover up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the contractor's expense, or in default thereof no payments or allowance shall be made for such work or the materials with which the same was executed.

Contractor or responsible agents to be present

Notice to be given before work is covered up

Clause-15 If the contractor or his work people or servants shall break, deface, injure or destroy any part of a building, in which they may be working or any building, road, enclosure or grass land, or cultivated ground continuous to the premises on the premises on which work or any part of it being executed, or if any damage shall happen to the work while in progress from any cause whatever or any imperfection become apparent in it within six Months from the date of final certificate of its completion shall have been given by the Engineer-in-charge, as aforesaid the contractor shall make the same good at his own expense, or in default the Engineer-in-charge may cause the same to be made good by other workmen and deduct the expense(of which the

Contractor liable for damage done and for imperfections for 6 months after certificate

certificate of the Engineer-in-charge shall be final) from any sums that may be then or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof and the contractor shall be liable to pay any part of the expenses not so recovered by the Engineer-in-charge.

Clause-16 The contractor shall supply at his own cost all materials (except such special materials if any as may in accordance with the contract be supplied from the Engineer-in-charge's stores) plant, tools, appliances, implements, ladders, cordage, tackle scaffolding and temporary works requisite or proper for the proper execution of the work whether original altered or substituted and whether included in the specification or other documents forming Part of the contract or referredto in these conditions or not or which may be necessary for the purpose of satisfying or complying with the requirement of the Engineer-in-charge as to any matter as to which under this conditions he is entitled to be satisfied which he is entitled to require together with carriagetherefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out work and counting, weighing and assisting in the measurement of examination at any time and fromtime to time the work or materials, failing him so doing the same may be provided by the Engineer-in-charge at the expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof. The contractor shall also provide all necessary fencing and lights required to protect the public from accident and shall be bound to bear the expenses of defence to every suit, action or other proceeding at law that may be brought by anypersons for injury sustained owing to the above precautions, and to pay any damages and cost which may be awarded in any such suit action or proceeding to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person.

Contractor to supply plants, ladders, scaffolding etc.

And is liable for damages arising from non provision of lights, fencing etc.

Clause-17 No female labour shall be employed within the limits of a cantonment. The contractor shall not employ for the purpose of this contract any labour below the age of legal employment as per Government norm, and shall pay to each labour; for the work done by such labour, wages not less than the wage paid for similar work in the neighborhood.

Explanation : Fair wages means wages whether for time or piece work prescribed by State P.W.D. provided that where higher rates have been prescribed under the minimum wages Act 1948 wages at such higher rates would constitute "Fair wages" [W/D No.22059 dated 16.8.77.

The Superintending Engineer shall have the right to enquire into and decide any complaints alleging that the wages paid by the contractor to any labourer for the work done by such labourer is lessthan the wages paid for similar work in the neighborhood.

The officer in charge of the work shall have the right to decide whether labourer employed by the contractor is below the age of legal employment as per Government norm and to refuse to allow any labourer whom he decides to be below that age

Clause-17(a) The contractor shall, if so required by the Engineer-in-charge employ one more Engineering Graduate or Diploma holder as apprentices at his own cost if the cost of work as shown in the tender exceeds `2,50,000/- The apprentices will be selected by the Chief Engineer. The period of employment will commence within one month after the date of work order and would last till the date when 90% of work is completed. The stipend to be paid to the apprentices, should not be less than Rs.200/- per day in case of graduate Engineers and not less than `150/- per day in case of Diploma holders. The number of apprentices to be employed should be fixed by the Chief Engineer in a manner so that total expenditure does not exceed 1% of the tender cost of the work.

Clause-17(b) Special class Contractor shall employ under him one Graduate Engineer and Two Diploma Holders belonging to the State of Odisha. Like wise 'A' class contractor shall employ under him one Graduate Engineer or Two Diploma holders under the contractor shall be full time & continuous and they should not be superannuated, retired, dismissed or removed personnel from any State Govt. or Central Govt. service/public Sector undertakings, private companies and firms or be ineligible for appointment to Government service. The contractor shall pay them monthly emoluments which shall not be less than the emoluments of the personnel of equivalent qualification employed under the State Government of Odisha. The Chief Engineer, Roads Odisha may however, assist the contractor with names of such unemployed Graduate Engineer and Diploma holders if such help is sought for by the contractor. The names of such Engineering personnel appointed by the contractor should be intimated to the tender receiving authority along with the tender

Employment of Graduate Engineers & Diploma Holders

Clause-18 The contract shall not be assigned or sublet without the written approval of the Engineer-in-charge and if the contractor shall assign or sublet his contract or attempt so to do, or become insolvent or commence any insolvency proceedings or make any composition with his creditor or attempt so to do, or if any bride gratuity, gift loan, perquisite reward or advantage pecuniary otherwise shall either directly or indirectly be given, promised or offered by the contractor or any of his servants to agents to any public officer or person in the employee of Government in any way relating to his office of employment or if any such officer or person shall become in any way directly or indirectly in the contract, the Superintending Engineer may thereupon by notice in writing rescind the contract and the security deposit of the contractor shall there uponstand forfeited and be absolutely at disposal of Government and the same consequences shall ensure as if the contract had been rescinded under clause 3hereof and in addition the contractor, shall not be entitled to recover or be paid for any work therefore actually performed under the contract.

Work not to be sublet.

Contractor may be rescinded and security deposit forfeited subletting bribing or if contractor become in solvent

Clause-19 All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of Government without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

Sum payable by way of compensation to be considered as reasonable compensation with out reference to actual loss

Clause-20 In the case of a tender by partners any changes in the constitution of the firm shall be forthwith notified by the contractor to the Engineer-in-charge for his information. In case of failure to notify the change in the constitution within fifteen days the Engineer-in-charge may be noticed in writing rescind the contract and the security deposit of the contractor shall there upon stand forfeited and be absolutely at the

Changes in constitution of firm

Clause-21 All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects by Superintending Engineer of the circle for the time being who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

Clause-22 **DELETED**

Clause-23 When the estimate on which a tender is made includes lump sums in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-charge capable of measurement, the Engineer-in- charge may by his discretion pay the lump sum amounts entered in the estimate, and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the contractor with regard to any sums payable to him under the provisions of this clause.

Lump sums in estimates

Clause-24 In the case of any class of work for which there is no such specification as is mentioned in rule, such work shall be carried out in accordance with the circle specification and in the event of there being no circle specification, then in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-charge.

Action where no specification

Clause-25 The expression 'work' or 'works' where used in these conditions shall unless there be something either in the subject or context repugnant to such construction be construed & taken to mean the works by or by virtue of contract to be executed whether temporary or permanent, and whether original altered, substituted, or additional.

Definition of works

Clause-26 Government shall be entitled to recover in full from the contractor any amount that the Government may be liable to pay under workmen compensation Act. VIII of 1923, to any workmen employed in course of execution of any part of the work covered by this contract.

Clause-27 That for the purpose of jurisdiction in the event of dispute if any, the contract should be deemed to have been entered into within the State of Odisha and it is agreed that neither party to the contract or agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Odisha.

Clause-28 The Department will have the right to inspect the scaffolding and centering made for the work and can reject partly or fully such structure if found defective in their opinion.

Clause-29 Sanitary arrangement will be made by the contractor at his own cost for his labour camp.

Clause-30 The contractor shall bear all taxes including sales tax, income tax, royalty, fair weather charges and tollage, where necessary.

Clause-31 **Contract price shall be adjusted for increase or decrease in rates and price of labour, cement, steel, bitumen, pipes, POL and other material component in accordance with the following principles and procedure as per formula given below.**

31 (a) (i) REIMBURSEMENT / RECOVERY DUE TO VARIATION IN PRICES OF MATERIALS OTHER THAN (STEEL, CEMENT , BITUMEN, PIPES AND POL)

If during the progress of the work the price of any materials (Excluding the cost of steel, cement, bitumen and POL) incorporated in the work (not being materials supplied from the Engineer-in-Charges store) in accordance with clause there of increases or decreases as a result of increase or decrease in the average wholesale price index (all commodities), and the contractor there upon necessarily and properly pays in respect of that materials incorporated in the work such increased or decreased price, then he shall be entitled to reimbursement or liable to refund quarterly as the case may be, such an amount, as shall be equivalent to the plus or minus difference of 85% in between the Average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the bid was received (last date of receipt) as per the formula indicated below provided that the work has been carried out within the stipulated time or extension thereof as are not attributable to him. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get price escalation on the above materials on the value of works executed during the extended period

This clause will be applicable to the contracts where original stipulated period of completion is **more than 18 months.**

In this situation where the period of completion is initially stipulated in the agreement as less that 18 (eighteen) months but subsequently the completion period has been validly extended on the ground that the delay in completion is not attributable to the contractor and in the resultthe total period including the extended period stands more than 18 (eighteen) months or more, price escalation for other materials is admissible only for the remaining period **excluding 18 (eighteen) months there from**.

Formula to calculate the increase or decrease in the price of materials :

Price adjustment for increase or decrease in cost of materials other than cement, steel, bitumen, pipe and POL procured by the contractor shall be paid in accordance with the following formula.

V_m = 0.85 x Pm / 100 x R x (Mi - Mo) / Mo

Vm = Increase or decrease in the cost of work during the quarter under consideration due to changes in the rates of materials other than cement, steel, bitumen, pipes and POL.

R = Value of work done during the quarter under consideration excluding the work executed under extra items, if any, at prevailing schedule of rate / derived rates.

M_0 = The all India wholesale price index (all commodities) prevailed during the quarter of receipt of bids (as published by the Economic Advisor to Govt. of India, Ministry of Industry and Commerce, New Delhi).

M_i = The all India wholesale price index (all commodities) for the quarter under consideration published by Economic Advisor to Govt. of India, Ministry of Industry and Commerce, New Delhi. In respect of the justified period extended for completion of the work, the index prevailing at the time of stipulated date of completion or the prevailing index of the period under consideration, whichever is less shall be considered.

P_m = Percentage of material component (other than cement, steel, bitumen, pipes and POL) of the work as indicated in clause – 31 (d) below.

31(a)(ii) : REIMBURSEMENT/RECOVERY OF DIFFERENTIAL COST DUE TO VARIATION IN PRICES OF PRINCIPAL MATERIALS (STEEL CEMENT,BITUMEN AND PIPES NOT ISSUED BY DEPARTMENT) AFTER SUBMISSION OF TENDER;

If after submission of the tender, the prices of Steel, Cement, Bitumen and Pipes (not being supplied by the Department) increases/decreases beyond the price(s) prevailing at the time of the last date for submission of tenders including extension for the work, the contractor shall be eligible to get differential cost due to such hike on the value of works executed during the stipulated period and during the extended period when the reason of delay in completion of the work is not attributable to the Contractor. If penalty is levied for delayed completion of the work. The contractor shall not be eligible to get price variation on the above materials on the value of works executed during the extended period.

Reimbursement in case of differential cost due to increase in prices of cement, steel, bitumen and pipes are to be made by the Superintending Engineer with prior approval of tenderaccepting authority subject to following conditions.

1. Contractors have to submit the vouchers showing procurement of different materials from authorized dealers for the said work.
2. Differential cost will be allowed only for the works which are progressed as per the approved work programme / revised work programme duly approved by the Engineer in charge.

Recovery in case of decrease in prices of cement, steel, bitumen and pipes shall be made by concerned Superintending Engineer from the Contractor immediately.

The increase/decrease in prices of cement, steel, bitumen and pipes for reimbursement/recovery shall be determined as follow.

a) **Adjustment towards differential cost of cement.**

$Vc=(C_1-C_0)/ C_0$ x Actual quantity of cement utilized in the work during the quarter under consideration x base price of cement as prevailing on the last stipulated date of receipt of tender including extension, if any.

V_C = Differential cost of cement i.e amount of increase or decrease in rupees to be paid or recovered.

31(b) : REIMBURSENT/REFUND DUE TO STATUTORY RISE IN COST WAGES BY GOVT. :

If after submission of the tender, the wages of labour increases of decreases as a result of the coming into force of any fresh law or statutory rule or order beyond the wages prevailing at the time of the last date of submission of tenders including extensions, the contractor shall be eligible to get escalation due to such hike on the value of works executed during the stipulated period and during the validly extended period when the delay in completion is not attributable to the Contractor. If penalty is levied for delayed completion of the work, the contractor **shall not be eligible to get escalation** on labour on the value of works executed during the extended period.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such wages of labour, give notice thereof to the Engineer-in-charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in a position to supply. Engineer-in-charge may call books of account and other relevant documents from the contractor to satisfy himself about reasonability of increase in prices of wages and actual payment thereof .For this purpose, the labour component of the work executed during period under consideration shall be the percentage(as specified in table below) of the value of work done during that period and the increase/decrease in labour shall be considered on the cost of minimum daily wages of any unskilled labourer, fixed by the Government of Odisha under Minimum wages act.

The compensation for escalation for labour shall be worked out as per the formula given below:

V_1= $0.85 \times P_1/100 \times R \times (L_1-L_o)/L_o$

V_1= increase or decrease in the cost of work during the quarter under consideration due to changes in rates of minimum wages.

R= value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/derived rates.

L_o= the minimum wages for labour as notified by State Government, as prevailing on the last stipulated date of receipt of tender including extension, if any.

L_1= the minimum wages for labour as notified by State Government & as prevailed on the last date of the quarter previous to the one under consideration. In respect of the justified period extended,the minimum wage prevailing on the last date of quarter previous to the quarter pertaining to stipulated date of completion or the minimum wage prevailing on the last date of the quarter previous to the one under consideration, whichever is less, shall be considered).

P_1= Percentage of labour component of, as indicated in the the work clause 31(d).

C_i= All India wholesale price index for cement for the quarter under consideration published by Economic Advisor, Govt. of India ,Ministry of Industry and commerce, New Delhi.

C_o= All India Wholesale price index (as published by Economic Adviser, Govt. of India Ministry of Industry and commerce, New Delhi) for cement as prevailing on the last stipulated date of receipt of tender.

b) Adjustment towards differential cost of steel.

V_s= $(S_i-S_o) \times$ Actual quantity of steel utilized in the work during the quarter under consideration.

V_s= Differential cost of Steel i.e. amount of increase or decrease in rupees to be paid or recovered.

S_i= Cost of the Steel prevailed during the period under consideration as fixed by Steel Authority of India.

S_o= Base price of Steel prevailing as on the last date of submission of tender including extension, if any.

(C) Adjustment towards differential cost of Bitumen.

V_b= $(B_i- B_o) \times$ Actual quantity of Bitumen utilized in the work during the quarter under consideration.

V_b= Different cost of Bitumen i.e. amount of increase or decrease in rupees to be paid or recovered.

B_i= Average cost of Bitumen prevailed during the period under consideration as fixed by IOCL/BPCL/HPCL.

B_o= Base price of bitumen as prevailing on the last stipulated date of receipt of tender including extension, if any.

c) Adjustment towards differential cost of Pipes.

V= $0.85 \times Pp/100 \times R(P_i-P_o)/P_o$

V_p= Differential cost of pipe i.e. amount of increase or decrease in rupees to be paid or recovered during the quarter under consideration.

P_p= Percentage of pipe component of the work as indicated in the clause 31(d).

R= Value of work done during the quarter under consideration excluding the value of work executed under extra items, if any, at prevailing schedule of rates or derived rate.

P_i= All India Wholesale price index for the period under consideration as published by Economic Advisor, Govt. of India, Ministry of Industry and Commerce, New Delhi, for the type of pipe under consideration.

P_o= All India Wholesale price index (as published by Economic Advisor, Govt. of India, Ministry of Industry and commerce, New Delhi) as on the last stipulated date of receipt of tender including extension, if any, for the type of pipe under consideration.

31(c) : **REIMBURSEMENT/REFUND DUE TO VARIATION IN PRICES OF PO.L**.

Similarly, if during the progress of work the prices of Diesel, Petrol, Oil and Lubricants increases or decreases as a result of the price fixed thereof by the Government of India and the Contractor thereupon necessarily and properly pays such increased or decreased price towards Diesel, Petrol, Oil and Lubricants used in the execution of the work, then he shall be entitled to reimbursement or liable to refund, quarterly, as the case may be such an amount as shall be equivalent to the plus or minus difference of 85% in between the price of P.O.L. which is operating for the quarter under consideration and that operated for the quarter of last date of receipt of bids as per the formula indicated below provided that the work has been carried out within the stipulated time or extension thereof as are not attributable to him. If penalty is levied for delayed completion of the work, the contractor **shall not be eligible** to get price escalation on POL on the value of works executed during the extended period.

Formula to calculate the increase or decrease in the price of P.O.L.

V_1= $0.85 \times P_1/100 \times R \times (F_i-F_o) / F_o$

V_1= Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for P.O.L.

P_1= Percentage of P.O.L component of the work, as indicated in clause –31 (d) below.

R= $0.85xP_1/100xRx(F_i-F_0)/F_0$

F_i= All India Wholesale price index for Fuel, Oil & Lubricant (High Speed Diesel) for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and Commerce, New Delhi, in respect of the justified period extended, the rate prevailing at the time of stipulated date of completion or the prevailing rates of the period under consideration whichever is less, shall be considered.

F_o= All India Wholesale price index for Fuel, Oil & Lubricant (High Speed Diesel) as prevailing on the last stipulated date of receipt of tender including extension if any.

31(d) : The following percentages will govern the price adjustment for the entire contract different types of works as applicable given in the following table:

Percentage Table

Sl. No.	Category of Works		% Component (cost wise)		
			Labour (P_I)	**POL (P_I)**	**Steel + Cement+ Bitumen+ Other Materials***
01.	R & B works(% of component	**Road works**	**5**	**5**	**90**
		Bridge Works	**25**	**5**	**70**
		Building Works	**25**	**-**	**75**
02.	Irrigation works (%of componentnt)	**Structural Work**	**20**	**5**	**75**
		Earth, Canal & Embankment work	**25**	**10**	**65**
03.	P.H. works (% of component)	**Structural Work**	**25**	**5**	**70**
		Pipeline work	**5**	**-**	**Pipe-70% + *Other material–25%**
		Sewer Line	**10**	**-**	**Pipe-70% + *Other material–20%**

Note :- Further break up may be worked out considering the consumption of Cement, Steel, Bitumen and pipe in the concerned works for the period under consideration.

31(e) : **APPLICATION OF ESCALATION CLAUSE :**

(i) The contractor shall for the purpose of availing reimbursement / refund of differential cost of steel, bitumen, cement, pipe, POL and wages, keep such books of account and other documents as are necessary to show that the amount of increase claimed or reduction available and shall allow inspection of the same by a duly authorized representative of Government and further, shall at the request of the Engineer-in-Charge, furnish documents to be verified in such a manner as the Engineer-in-Charge may require any document and information kept. The contractor shall within a reasonable time of 15 days of his becoming aware of any alteration in the price of such material, wages of labour and / or price of P.O.L give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition along with information relating there to which he may be in a position to supply.

(ii) The compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of the said quarter. The first such payment shall be made at the end of three months after the month (excluding the month in which tender was accepted) and thereafter at three months interval. At the time of completion of the work, the last period for payment might become less than 3 months, depending on the actual date of completion.

Clause-32 After the work is finished all surplus material and debris are to be removed by the contractor and preliminary works such as vats, mixing platforms etc. are to be dismantled and all materials removed from site. The ground up to 100'-0" wide from the building should be cleared and dressed.

FAIR WAGE CLAUSE

Clause–33(a) The contractor shall pay not less than fair wage to labourers engaged by him on the work.

Explanation: "Fair wages" means wages, whether for time or price work prescribed by the State Public works Department provided that where higher rates have been prescribed under the Minimum Wages Act. 1948 wages at such higher rates would constitute "Fair wages" (W.D. No.22059 dt.16.8.77)

(b) The contractor shall, not with standing the provisions of any contract to contrary cause to be paid a fair wage to labourers indirectly engaged on the work including any labour engaged by his sub contractors in connection with the said work, as if the labours had been immediately employed by him.

(c) In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this agreement, the contractor shall comply with or cause to be complied with all regulation made by Government in regard to payment of wages, wage period deductions from wages, recovery of wages not paid and deductions unauthorisedly made, maintenance of wages register, wage cards, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of a like nature.

(d) The Superintending Engineer or Sub-Divisional Officer concerned shall have the right to deduct, fromthe money due to contractor, any sum required or estimated to be required for making good theloss suffered by a worker or workers by reason of non fulfillment of the conditions of the contract for the benefit of workers non payment of wages or of deductions made from his or their wages, which are not justified by their terms of the contract'" or non-observance of the regulations, money so deducted should be transferred to the workers concerned.

(e) Vis-à-vis the Government of Odisha, the contractor shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his sub contractor.

(f) The regulations aforesaid shall be deemed to be part of this contract and any breach there of shall be breach of this contract.

(g) Under the provision of the Minimum Wages Act, 1948 & minimum wages (Central Rules, 1950) the contractor is bound to allow or cause, to allow to the labourers directly or indirectly employed in the works one day rest for six days continuous work and pay wages at the same rate as for duty, in the event of default. The Superintending Engineer or Sub-Divisional Officer concernedshall have the right to deduct the sum not paid on account of wages for weekly holiday to labourers and pay the same to the persons entitled there to from any money due to the contractor.

(h) The contractor shall at his own expense provide or arrange for the provision of foot wear for any labour doing cement mixing work and black topping of roads (The contractor has undertaken to execute under this contract) to the satisfaction of the Engineer-in-charge and on his failure to do so Government shall be entitled to provide the same and recover the cost from the contractor.

(i) The contractor shall submit by the 4th & 10th of every month, to the Engineer-in-charge a true statement showing in respect of the Second half of the preceding month and the first half to the current month respectively (1) the number of labours employed by him on the work (2) their working hours (3) the wages paid to them (4) the accident that occurred during the said fortnight showing the circumstances under which they happened and the contend of damage and injure caused by them and (5) the number of female workers who have been allowed maternity benefit according the clause [K] and the amount paid to the Government a sum not exceeding Rs.70.00 for each default of materially incorrect statement. The amount levied as fine decision of the Superintending Engineer shall be final in deducting from any bill due to contractor.

(j) In respect of all labour directly employed in the works for the performance of the contractor's part of this agreement, the contractor shall comply with a cause to be complied with all the rules framed by Government from time to time for the protection of health and sanitary arrangement for workers employed by the Odisha Public Works Department and its contractor. This will apply to work places having 50 or more workers.

(k)1 Maternity benefit rules for female worker employed by contractor, Leave and pay during leave shall be regulated as follows.

- Leave : (i) **In case of Delivery:-** Maternity leave not exceeding 8 weeks, 4 weeks up to including the day of delivery or 4th weeks following that day.

(ii) **In case of Miscarriage :-** Up to 3 weeks from the date of miscarriage.

2- Pay **In case of Delivery:-** Leave pay during maternity leave will be at the rate of women's average daily earnings calculated on the total wages earned on the days when full time work was done during a period of three months immediately preceding the date of which she gives notice that she expects to be confined or at the rate of Rs.70.00 a day which ever is greater.

(ii) **In case of Miscarriage :** Leave pay at the rate of average daily earnings calculated on the total wages earned on the days when full time work was done during a period 3 months immediately preceding the date of such miscarriage,

Conditions of grant of Maternity Leave: No maternity leave benefit shall be admissible to a women unless she has been employed for a total period not less than 6 months immediately preceeding the date on which she proceeds on leave.

MODEL RULES FOR HEALTH & SANITARY ARRANGEMENTS FOR WORKERS EMPLOYED BY ODISHA P.W.D. OR IT'S CONTRACTORS

01. **Application :** These rules shall apply to all construction work in charge of Odisha Public Works Department which are expected to continue for a year or more.

02. **Definitions :**

(i) "Work Place" means a place at which an average of fifty or more workers are employed in connection with construction work

(ii) Large work place means a place at which an average of 500 or more workers are employed in connection with construction work.

03. **First Aid :**

(a) At every work place there shall be maintained in a readily accessible place first aid appliances including and adequate supply or sterilizer dressing and sterilized cotton wool. The appliances shall be kept in good order and in large work places they shall be readily available during working hours.

(b) At large work places where hospital facilities are not available within easy distance of the workers, first aid posts shall be established and run by a trained compounder.

(c) Where large work places are remote from regular hospitals an indoor ward shall be provided with one bed for every 250 employees.

(d) Where large work places are situated in cities towns or in their suburbs and no beds are considered necessary owing to the proximity of city, town hospitals, an ambulance shall be provided to facilitate removal of urgent cases to these hospitals. At the work place some conveyance facilities such as a car shall be kept readily available to take injured persons or person to the nearest hospitals.

04. **Drinking Water :**

(a) In every work places, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of water fit for drinking.

(b) Where drinking water is obtained from an intermittent public water supply each work place shall be provided with storage where such drinking water shall be stored.

(c) Every water supply of storage shall be at a distance of not less than 50 feet from any latrine, drain or other sources of pollution where water to be drawn from an existing well which is within such proximity of latrine drain or any other sources of pollution the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with tray door which shall be dust and water proof.

(d) A reliable pump shall be fitted to each covered well the tray door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

(e) The temperature of drinking water supplied to workers shall not exceed 90^0 F.

05. **Washing and Bathing Place :**

(i) Adequate washing and bathing places shall be provided separately for men and women.

(ii) Such places shall be kept in clean and drained condition

06. **Scale of Accommodation in Latrines and Urinals :-**

There shall be provided within the premises of every work place latrines and urinals in an accessible place; and the accommodation, separately for each of them shall not be less than the following.

(a)	Where the number of persons employed does not exceed 50.	No. of seats 1
(b)	Where the number of persons employed exceeds 50 but does not exceed 100	No. of Seats 3
(c)	For every additional 100 (in particulars cases the Superintending Engineer shall have the power to vary thescale where necessary)	No. of seats 3 per 100

07. Latrine and Urinals for Women :

If women are employees, separate latrines and urinals separate from that for women and marked in the vernacular in conspicuous letter "for women only" shall be provided on the scale laid in rule.

Those for men shall be similarly marked "for men only" A poster showing the figure ofa men and women and shall also be exhibited at the entrance of Latrines for each sex. There shallbe adequate supply of water close to the urinals and latrines.

08. **Latrines and Urinals :**

Except in work places provided with water flushed latrines connected with a water borne sewerage system, all latrines shall be provided with receptible on dry-earthen system which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. The receptables shall be tarred inside and out side at least once a year.

09. **Construction of Latrines :**

The inside wall shall be constructed of masonry or stone materials and shall be cement washed inside and outside at least once a year. The dates of cement washing shall be noted in register maintained for this purpose, and kept available for inspection.

10. **Disposal of excreta :**

Unless otherwise arranged for by the local sanitary authorities arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator approved by as, Director of Public Health of Municipal Medical Officer or Health at the case may be, whose jurisdiction the work place is situated. Alternatively excreta may be disposed off by putting a laver of night soil at the bottom of pucca tank prepared for the purpose and covering it with 6' layer of waste or refuse and than covering it up with a layer of earth for a fortnight (when it will turn in to manure).

11. **Provision of shelters during rest:**

At every work place, there shall be provided free of cost two suitable sheds one for females and the other for rest for the use of labourers. The height of the shelter shall be less than 11 feet from the floor level the lowest part of the roof.

12. **Creche:**

At every work place at which more than 50 women workers are employed, there shall be provided only one hut for the use of children under the age of 6 year , belonging to such women and shall be used for infant's games and play and their bed room. The huts shall not be constructed on a lower standard than the following.

(i) Thatched huts

(ii) Mud floors and walls.

(iii) Planks spared over the mud floor and covered with matting.

(a) The hut shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision for sweepers to keep the place clean. There shall be two dhai in attendance. Sanitary utensil shall be provided to the satisfaction of the Health Officer of the area concerned. The use of the hut shall be restricted to Children, their attendants and mothers of the children.

(b) Where the number of women workers is more than 50 the contractor shall provide one hut and Dhai to look after the Children of women workers.

(c) The size of creche shall vary according to the number of women workers.

(d) The crèche shall be properly maintained and necessary equipments like toys etc. Shall be provided.

13. **Canteen :**

A cooked food canteen :- on a moderate scale shall be provided for the benefit of workers whenever it is considered expedient.

CONTRACTOR'S LABOUR REGULATIONS

01. **Short title :-** These regulation may be called " The Odisha Public Works Department / Electricity Department Contractor's Regulations".

02. **Definition :** In these Regulations, unless otherwise expressed or indicated the following words and expressing shall have the meaning hereby assigned to them respectively,

that is say:

(a) "Labour" means workers employed by a contractor for "Repair and Construction of trough wall with bed lining of Malichua S/M -1 in between RD 900m to 1100m. of DID for the year 2026-27."directly or indirectly through a sub-contractor or other person, by an agent on his behalf.

(b) Fair wages means wages whether for time or piece work prescribed by the **Debagada Irrigation Division** provided that where high rates have been prescribed under the minimum wages Act 1948 wagesat such higher rates would constitute fair wages (W.D. No.22059 dt,16.8.77)

(c) "Contractor" shall include every person whether a sub-contractor or headman or agent employing labour on the work taken on contract.

(d) "Wages" shall have the same meaning as defined in the payment of wages Act. And include time and piece rate wages if any.

03. **Display of notices regarding ways, etc.:-**

(a) The contractor shall:-

Before he commences his work on contract display, and correctly maintain and continue to display and correctly maintain, in a clean and legible condition in a conspicuous places on the work, notice in English and in the local Indian language spoken by the majority of the workers giving the rate of wage prescribed by State Public Works Department/ **Debagada Irrigation Division, Debagada for the district in which the work is done**.

(b) Send a copy of such notices to Engineer-in-charge of the work.

04. **Payment of Wages :-**

(a) Wages due to every worker shall be paid to him direct.

(b) All wage shall have to be paid in cash in current coin or currency or in both.

05. **Fixation of wages periods :-**

(a) The contractor shall fix the wage period in respect of which the wages be payable.

(b) No wage period shall exceed one month.

(c) Wage of every workman employed on the contract shall be paid before the expiry of ten days, after the last day of the wage period in respect of which the wages are payable.

(d) When the employment of any worker is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the day succeeding the one on which his employment is terminated.

(e) All payment of wages shall be made on a working days

06. **Wage book and wage cards etc.**

01) The contractor shall maintain a wage book of each worker in such forms as may be convenient, but the same shall include the following particulars:-

(a) Rate of daily or monthly wages.

(b) Nature of work on which employed.

(c) Total number of days worked during each wage period.

(d) Total amount payable for the work during each wage period.

(e) All deductions made from the wages with an indication in each of the ground for which the deduction is made.

02) The contractor shall also maintain a wage card for each worker employed on the work.

03) The Superintending Engineer may grant an exemption from the maintenance of wage bond, wages cards to a contractor who, in his opinion may not directly or indirectly employ more than 100 persons on the work

07. **Fines and deduction, which may be made from wages.**

01) The wages of a worker shall be paid to him without any deductions of any kind except the following.

(a) Fines.

(b) Deduction for absence from duty, i.e. from the place or places where by terms of his employment he is required to work. The amount of deductions shall be in proportion to the period for which he was absent.

(c) Deduction for damage to or loss of goods expressly entrusted to the employed person for custody' or for loss on money for which he is required to encount where such damage or loss is directly attributable to his neglect or default.

(d) Any other deduction which the Odisha Government may from time to time allow.

02) No fines shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing abuse against such fines or deduction.

03) The total amount of fines which may be imposed in any one wage period on a works shall not exceed a amount equal to Five paise in a rupee of the wages payable to him in respect of that wage period.

04) No fine imposed on any worker shall be recovered from him by installments after the expiry of 60 days from the date on which it was imposed.

08. **Register of fines, etc.**

01) The contractor shall maintain a register of fines and of all deduction for damage or loss. Such register shall mention the reason for which fine was imposed or deduction for damage or loss was made.

02) The contractor shall maintain a list in English and in the local Indian language clearly defining acts and omissions for which penalty of fine can be imposed. It shall display such list and maintain it in a clean and legible condition in conspicuous place on the work.

09. **Preservation of register:**

The wage register, the wage cards and the register of fines, deduction required to be maintained under these regulations shall be preserved for 12 months after date of the last entry made in them.

10. **Powers of Labour Welfare Officers to make investigation or enquiry**

The labour Welfare Officers or any other persons authorized by the Government of Odisha on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of the fair wage clauses and the provision of these regulations. He shall investigate into any complaint regarding default made by the contractor, sub contractor in regard to such provisions.

11. **Report of Labour Welfare Officers :**

The Labour Welfare Officers or others authorized as aforesaid shall submit a report of the results of his investigation of enquiry to the Superintending Engineer concerned indicating the extent, if any,to which the default has been committed with a note that necessary deductions from the contractor's bill be made and the wages and other dues be paid to the labourers concerned.

12. **Appeal against the decision of Labour Welfare Officers.**

Any persons aggrieved by the decision and recommendation of the Labour Welfare Officer or other person so authorized may appeal against such decision to the Labour Commissioner within 30 days from the date of decision forwarding simultaneously a copy of this appeal to the Superintending Engineer concerned but subject to such appeal, the decision of the officer shall be finaland binding upon the contractor.

13. **Inspection of registers :**

The contractor shall allow inspection of wage book, card to any of his worker or his agent at a convenient time and place after due notice is received, or to the Labour Commissioner or any other person authorized by the Government of Odisha on his behalf.

14. **Submission of return :**

The contractor shall submit periodical returns as may be specified from time to time.

15. **Amendment**

The Government of Odisha may from, time to time add to or amend these regulations and on any question as to the application interpretation of effect of the regulations the decision of the Labour Commissioner or any other persons authorized by the Government of Odisha in that behalf shall be final.

Clause - 34 **Deleted**

Clause - 35 **Departmental supply of materials**

Before issue of Departmental materials to the contractor, he shall furnish Bank Guarantee of any of the Nationalised Bank equal to the cost of materials. The Bank Guarantee shall be valid for the entire period of agreement. The same may be refunded to the contractor only after the materials supplied to him are fully utilized in the works and cost thereof recovered from his bill (s) in full or if the materials are partly utilized in the unutilized materials are returned by him to the Department in full and in good condition and receipt thereof duly acknowledged by the concerned Department Officer

(Works Department OM No. Codes-M-19/92-13653 dt. 5.6.93)

Clause - 36 The terms and conditions of the agreements have been read/ explained to me and certify that I/We clearly understand them.

1. **ADDENDUM TO CONDITION OF CONTRACT :**

1.1. The bidder / Tender whose bid has been accepted will be notified of the award by the Engineer-in-Charge prior to expiration of the validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the conditions of contract called the ("Letter of Acceptance") will state the sum that the Engineer-in-Charge will pay the contractor in consideration of the execution, completion and maintenance of the works by the contractor as prescribed by the contract (hereinafter and in the contract called the "Contract Price").

1.2. The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security (ISD) and additional performance security in accordance with the provisions of the agreement.

1.3. The agreement will incorporate all agreements between the officer inviting the bid/Engineer-in-Charge and the successful bidder. Within 15 days following the notification of award along with the letter of acceptance, the successful bidder will sign the agreement and deliver it to the Engineer-in-Charge. Following documents shall form part of the agreement.

(a) The notice inviting bid, all the documents including additional conditions specifications and drawing, if any, forming the bid as issued at the time of invitation of bid and acceptance thereof together with any correspondence leading thereto & required amount of performance security including additional performance security.

(b) Standard P.W.D. Form P1.

2. **TIME CONTROL**

2.1 Progress of work and Re-scheduling programme

2.1.1. The Superintending Engineer / Engineer-in-Charge shall issue the letter of acceptance to the successful contractor. The issue of the letter of acceptance shall be treated as closure of the bid process andcommencement of the contract.

2.1.2. Within 15 days of issue of the letter of acceptance, the contractor shall submit to the Engineer-in-Charge for approval and programme commensurate to clause no 3 showing the general methods, arrangements, and timing for all the activities in the works along with monthly cash flow forecast.

2.1.3. To ensure good progress during the execution of the work the contractors shall be bound in all cases in which the time allowed for any work exceeds one month to complete, 1/4th of the whole of the work before 1/4th of the whole time allowed under the contract has elapsed, ½ of the whole of the work before ½ of the whole time allowed under the contract has elapsed, 2/th of the whole of the work before 3/4th of the whole time allowed under the contract has elapsed.

2.1.4. If at any time it should appear to the Engineer-in-Charge that the actual progress of the works does not conform to the programme to which consent has been given, the contractor shall produce, at the request of to such programme necessary to ensure completion of the works within the time for completion. If the contractor does not submit an updated programme within this period, the Engineer-in-Charge may withhold the amount of 1% of the contract value from the next payment certificate and continue to withhold this amount until the next payment after the date on which the over due programme has been submitted.

2.1.5. An update of the programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

2.1.6. The Engineer-in-Charge's approval of the programme shall not after the contractor's obligations. The contractor may revise the programme and submit it to the Engineer-in-Charge again at any time. A revised programme is to show the effect of variations and compensation events.

2.2. Extension of the completion date.

2.2.1. The time allowed for execution of the work as specified in the contract data shall be the essence of the contract. The execution of the works shall commence from the 15th Day or such time period as mentioned in letter of award after the date on which the Engineer-in-Charge issues written orders to commence the work or from the date of handing over of the site whichever is later. If the contractor commits default in commencing the execution of the work as aforesaid, Government shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money and performance guarantee / security deposit absolutely.

2.2.2. As soon as possible after the contract is concluded the contractor shall submit a Time & Progress Chart for each milestone and get it approved by the Department. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works, it shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the contract documents and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per milestone given in Clause – 2 1 3 above

2.2.3. Incase of delay occurred due to any of the reasons mentioned below, the contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

For

(i) Abnormally bad weather, or

(ii) Serious loss or damage by fire, or

(iii) Civil commotion, local commotion of workmen, strike or lockout, bx officers any of the heads employed on the work, or

(iv) Delay on the part of other contractors or tradesmen engaged by Engineer-in-Chief, in executingwork not forming part of the contract.

(v) Incase of variation is issued which makes it impossible for completion to be achieved by the Intended Completion Data without the Contractor taking steps to accelerates the remaining work and which would cause the contractor to incur additional cost, or.

(vi) Any other cause, which in the absolute discretion of the authority mentioned, in contract data is beyond the contractor's control.

2.2.4 Request for re-schedule and extension of time, to be eligible for consideration shall be made by the contractor in writing fourteen days of the happening of the event causing delay. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.

2.2.5 In any such case a fair and reasonable extension of time for completion of work may be given. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing. Within 3 months of the date of receipt of such request, Non-application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and this shall be binding on the contractor.

2.3 **Compensation for delay.**

2.3.1 If the contractor fails to maintain the required progress in terms of clause 2 or to complete the work and clear the site on or before the contract or extended date of completion he shall without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Superintending Engineer (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 2 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period completion has been specified Compensation @ 1.5% per month or for delay of work, delay to be computed on per day basis.

The existing relevant provision in the original documents shall stand modified accordingly. Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Tendered Value of work or to the Tendered Value of the item or group of items of work for which separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Government. In case the contractor does not achieve a particular milestone mentioned in Cl 2 (a) of P1 contract. The amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time. Withholding of this amount on failure to achieve a milestone, shall be automatic without any notice the contract. However, if the Contractor catches up with the progress of work on the subsequent milestone(s), thew withheld amount shall be released. In case the contractor files to make up for the delay in subsequent milestone(s) amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest whatsoever, shall be payable on such withheld amount.

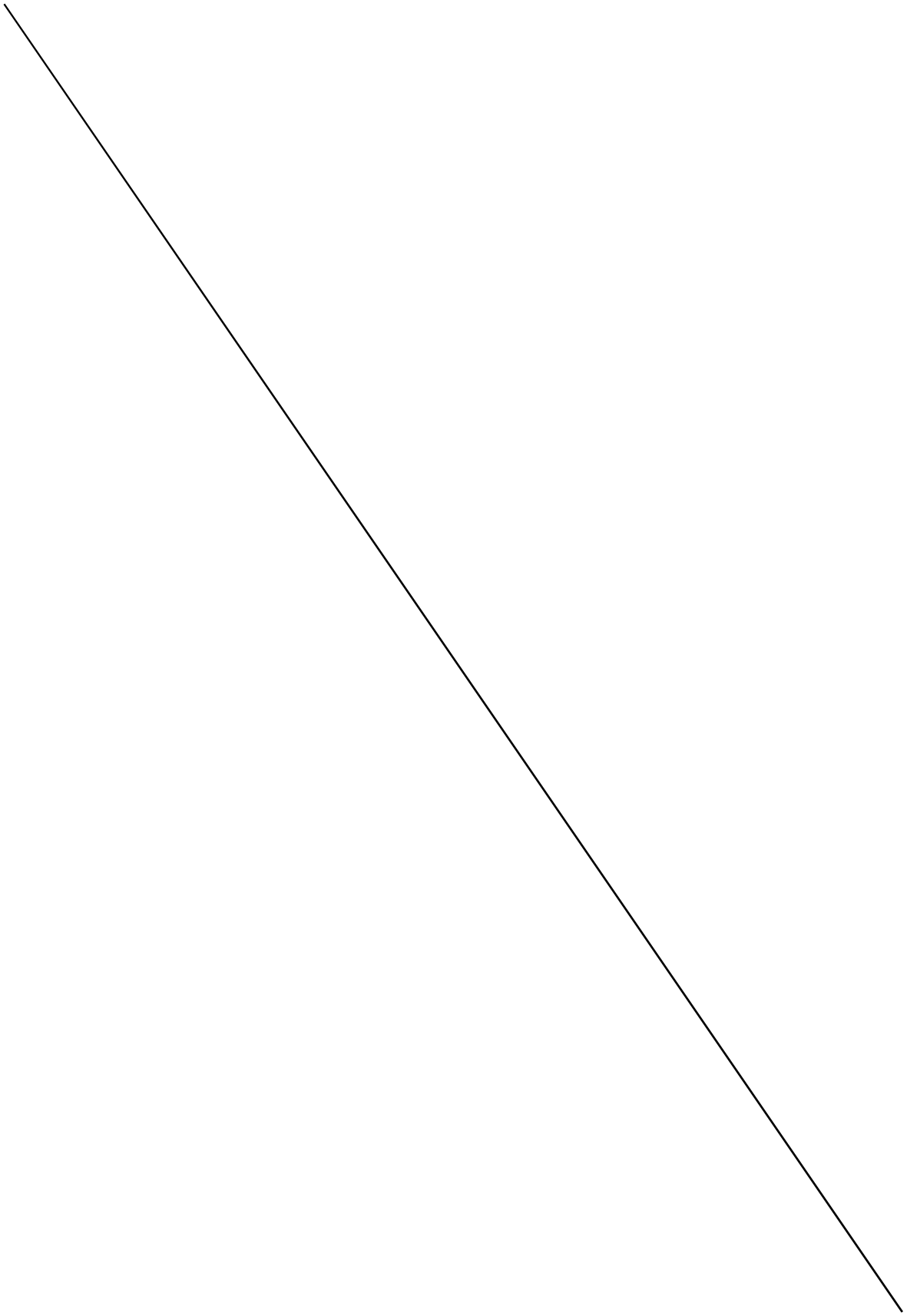
2.4 Management Meetings

2.4.1 Either the Engineer or the Contractor may requires the other to attend a management meeting. The business of a management meeting shall be review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

2.4.2. The Engineer shall record the business of management meetings and to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either the management meeting or after the management meeting and stated in waiting to all who attended the meeting.

SECTION - 5

SPECIFICATIONS



1.0 GENERAL INFORMATION

01. **Description of work to be executed**

(i) Earth work

(ii) Cement work

02. **Location of Work site :**

The site is situated near village _____

03. **Transport Communication Facilities**

Private vehicles and trucks are plying through frequently from_____to_____. The contractor has to make arrangement to transport all his construction equipments, construction Materials and labour to work site at his own cost.

04. **Climate**

The Project area has moderated climate with mean temperature from 18^0C to 42^0C during summer month. The rainy season is generally confined to four months from 15th June to 15th October.

05. **Availability of Labour :**

Both Semi- Skilled & unskilled labour required for the work are available in project area and it is preferable to engage local labourer, However the Contractor must make his own arrangements for labour/machineries/equipments.

06. **Availability of petrol, Diesel and other lubricants :**

The nearest petrol pumps for procurement of petrol, diesel and other lubricants are available at_____. The contractor shall make his own arrangement for procurement of same at his own cost required for the machineries and equipments engaged for the work.

07. **Electricity Supply :**

The Contractor shall make his own arrangement for extension of electric connection at his own cost if so required by him.

08. **Housing Facilities :**

Private house may not available in the vicinity of the work site. The Contractor shall make his own arrangement for housing the Laboure's, workers and staff at the worksite.

Medical Aid :

09. The Contractor shall make first aid arrangement at his own cost in accordance with rule and regulations of prevailing Labour Act.

TECHNICAL SPECIFICATION

1.0. GENERAL SPECIFICATION

1.1.1. The enclosed drawing in the bid document gives broad dimensions and outline of the works to be executed through this contract. These drawings may however be revised/ modified from time to time and supplementary additional drawing may also be issued as per necessity. During the course of execution there may be changes in dimension, specifications and shape of components. These chances in the drawing can be done without in any way deviating the terms of the contract and the contractor is to execute the work as per revised drawings and specifications at the same rate as agreed upon for the work awarded under the original contract. The contractor shall do no work without proper drawings. He shall check all drawings and specifications carefully and advise the Engineer-in-charge if any error and omission are discovered where upon the Superintending Engineer will prepare revised additional drawings and specifications and may be required to suit the stage of the work.

1.1.2. Where the drawings are not consistent with the text of the specifications, the text shall govern.

1.1.3. The rates shall be for finished items of works as per description in the schedule of quantities and according to drawings, specification and conditions of the contract. The rates quoted shall be for execution of finished items of work & the specifications of which confirm to the details furnished in the Agreement and provisions in Bureau of Indian Standards and shall include all general and incidental charges which will not be paid separately. Such general and incidental charges are listed in succeeding Para for the convenience of the tenderers but are not exhaustive. Omission of any such items here in but required for delivering finished items of work, shall not be plea, that such items are not covered by the rates quoted.

1.1.3.1. Formation and maintenance of haul roads including river and drainage crossings within the work site. The existing approaches and haul roads, if any, under the control of the Department may be made use of but improvement, if required, shall be done by the contractor at his own cost.

1.1.4. Labour and material required for the construction of reference points, bench marks, pillars, diversions, signboards, road signals etc. for setting out works shall be at contractors cost.

1.1.4.1. Scaffolding and gangways as and when required for the work will be done by the contractor at his own cost. No additional payment in this regard, will be entertained.

1.1.5. The rate includes all leads, lifts & delifts.

1.1.5.1. Form work complete includes cost of materials, labour, maintenance, erection dismantling and removal.

1.1.6. Construction of coffer dam, dewatering of any water that may accumulate in the areas required for carrying out the items under schedule of quantities includes the initial dewatering of the pond formed after the formation of coffer dam or any type of cross bound and all seepage that may accumulate in the area before or during construction.

1.1.7. Protection of the components of work during the rainy season & khariff irrigation supply shall be the responsibility of the contractor. The responsibility for the safety of the structure rests, entirely on the contractor and any damages that may occur, has to be made good by the contractor at his own cost.

1.1.8. The sequence of construction adopted by the contractor shall have to be approved by the Engineer-in-Charge.

1.1.9. The contractor has to make his own design for coffer dam or any type of cross bund required during course of execution. All materials for the coffer dam of cross bound shall be arranged by the contractor at his cost. The contractor shall maintain the coffer dam/cross bund till completion of the work.

1.2. QUALITY CONTROL :

Before collecting materials required for execution of the respective items of work as laid down in the schedule of quantities and in the detailed specifications described hereafter in the subsequent sections, the contractor shall ensure that samples of materials proposed to be used are first approved by the Engineer-in-Charge. When directed the samples of materials proposed to be used should be furnished to the Departmental laboratory i.e. Quality Control Division, Samal.

All such testing charges shall be borne by the contractor. The contractor will provide necessary assistance if required for collection of samples.

The contractor is liable to pay for any test which is not included in the agreement but required in the opinion of the Engineer-in-Charge during execution of the work for which no additional payment will be made to the contractor.

On the basis of satisfactory test results confirming to technical specification, collection of materials shall be started in the field. The testing of materials shall be checked in the field Laboratory by the Junior Engineer/ Assistant Engineer of the Department as well as staff of A.R.O./ Superintending Engineer of Quality Control Division, Samal. If the field test result is found unsatisfactory, the materials shall be rejected and action taken to remove the same from work site by the contractor at his own cost. In no case the defective materials shall be used in the work.

On receipt of notice from the Engineer-in-charge and on observation of Superintending Engineer of Quality Control Division, Samal, the contractor will rectify the defect in stipulated period at his own cost. If the defects are not rectified in the stipulated period, the Engineer-in-charge shall assess the cost, get the defect rectified and recover the same from the dues of the contractor.

A quarry chart indicating possible source of materials may be seen in the office of the Executive

No claim for carriages of water whatsoever will be entertained.

Decision regarding usefulness of excavated materials rests fully on the Engineer-in-Charge. However he may take advice of Quality Control Organization or higher authorities if required.

1.3. SETTING OUT OF WORK

1.3.1. Temporary bench marks shall be fixed at every 0.5 Km interval connecting permanent bench marks available near major structure site. The Contractor shall establish additional reference Bench Marks as may be needed at his own cost for facilitation the setting out and taking levels for measurement of work, w**ith** the approval of the Engineer-in-charge. The Bench Mark shall be marked on a concrete pillar 30cm. (L) x30cm.(b)x75cm.(d) which shall be embedded 55 cm into firm ground and projecting 20cm.above the ground. The Bench Mark pillar shall be constructed in plain cement concrete of M-10.The pillar shall be well protected from being disturbed. The RL of bench mark shall be conspicuously carved and painted on the pillar.

1.3.2. Before starting any work and during execution (if required), the contractor shall erect reference Bench Marks, reference lines and check profiles at convenient locations as per the direction of the Engineer-in-Charge. The center line of the canal/embankment and the reference line for all alignments for demarcation purpose shall be laid by dug-belling on the ground.

1.3.3. Centre line of the canal/embankment shall be marked at 30M.intervals. Profiles of canal/ embankment in filling and in moderate cutting shall be marked at 50M.intervals in straight reaches and at 25M. Intervals in curves.

To ensure correctness of execution, the edges of cutting, the outer toe lines of canal/embankment in filling should be marked by fixing pillars or pegs at suitable intervals or by dug belling.

1.3.4. The check profiles shall be located 15meter apart or longer as directed by the Engineer-in Charge to serve as a guide for execution on all slopes and steps to the elevations. All important levels and all reference points with respect to bench marks and reference lines shall be fixed and co-related by the contractor as per directions of the Engineer-in-Charges.

1.3.5. The zones of full cutting section, full filling section, partial cutting and filling sections shall be separated by conspicuous demarcation in the field. The curves in canal/embankment alignment shall be marked on the ground by fixing pegs at very closer intervals and joining the peg-point by dug-belling to a suitable depth. The locations of different structures indicated in construction drawing shall also be clearly marked on the ground along with the alignment of the canal/embankment. The control structure locations of off-taking canals shall also be clearly demarcated, so that unnecessary excavation or filling at these locations can be avoided. The spoil dumping zones shall clearly be demarcated in the field, these zones should be at last 2m. beyond the location of catch water drains

To ensure accuracy in execution of cutting, the canal embankment, spoil banks and the structures, their layout shall be given in an appropriate manner with pegs, suitably placed.

1.4. CLEARING AND GRUBBING

1.4.1. The portion of the right-of –way where required for construction the work under these specifications shall be cleared of all tree, bushes, rubbish and other objectionable matter. Trees designated by the Engineer-in-charge shall not be cut and shall be protected from injury. Such cleared material shall be disposed off as described in sub-paragraph "C". The clearing operation shall be in accordance with clauses 4.1, 4.1.1., 4.2 and 4.3. of I.S 4701-1982 Indian Code of Practice for earth work in canals.

1.4.2. The area described or shown on the relevant site plan shall be cleared of all obstructions, loose stones and of all kinds of rubbish. All brushwood shall be cleared and the roots grubbed up. No trees shall be cut down and removed without the instructions of the Engineer-in-Charge.

The products of the clearing shall be stacked in such place and manner as may be ordered by the Engineer-in-charge and the ground shall be left in a perfectly clean condition. All products ofthe clearing shall be the property of Government and shall be disposed off as per the direction of Engineer-in-charge. All holes or hollows, whether originally existing or produced by digging up roots shall be carefully filled up with earth and levelled off, as directed.

The disposal of cleared and grubbed material shall be in accordance with clause 4.1.1 of I.S. 4701-1982 code of practice for earthwork on canals. All waste materials to be burnt shall be piled neatly in suitable condition shall be burnt completely to ashes. Piling of waste materials for burning shall be done at such a location and in such a manner as would not cause any fire risk. Necessary precaution shall be taken to prevent spreading of fires to areas beyond the limits of cleared areas.

1.4.3. For the clearance of light jungles, heavy jungle with or without uprooting etc., payment will be made as provided for in the tender documents. Separate payment will not be made for clearing of site and grubbing including disposal of the cleared and grubbed material required under the above para unless and otherwise specified in the contract document. The contractor shall include the cost thereof in the price bid in the bill of quantities of the contract for the relevant finished item of work for which clearing and grubbing as mentioned in the above Para are required. No payment towards removal of small stones and boulders of size less than 0.014 cubic meter will be made, and the rate quoted for excavation will considered to include this item. However benching will be paid as separate item, per 1(one) running meter of bench at the rate provided for in the tender documents

1.5 USE OF WATER

The Contractor shall procure and apply water all the items of works at his own cost as the same has been included in the price bid in the bill of quantities of the items of work for which the water is used.

1.6. DAMAGES BY MONSOON OR FLOOD / CYCLONE

Damages due to rain or flood or have to be made good by the Contractor till the work is handed over to the department. The responsibility for making well to the damages rests with the Contractor. No extra cost is payable for such operations and the Contractor shall, therefore, have to take all necessary precautions to protect the work done during the construction period.

1.7. COMMENCEMENT OF WORK

Before commencement of work, initial levels to indicate existing ground levels shall be taken at 15m./30m Intervals longitudinally along the canal/embankment alignment. The level points transversely along the cross sections shall be maximum at 5m. Intervals in flat ground and 1.5-2M. in undulating terrain. The cross sections shall be extended beyond the limits of work to a suitable distance and minimum 5 M. beyond the toe lines of slopes on both the sides. The intervals stipulated shall be made closer depending on the topography or stipulation made by the Engineer-in-Charge.

All initial levels shall be recorded in ink in the level books issued by the Engineer-in-Charge and shall be signed by the Junior Engineer/Assistant Engineer when he records the levels. The Assistant Engineers and Superintending Engineer shall exercise checks strictly in accordance with the codal provisions.

Actual construction work shall not be allowed to start unless the above formalities are fulfilled. If the work is awarded to any agency, the level shall be recorded in the presence of the contractor or his authorized agent. The contractor or his authorized agent shall sign each page of the level book/ field book in token of acceptance. These cross sections shall form the basis of all future measurements and payments. Each dimension shall be measured to the nearest 0.01m. Areas shall be computed to nearest 0.01sqm., volume shall be computed to nearest 0.01 cubic m.

1.8. All lead in manual means will mean lead up to 225 m. All lift will mean lift up to 7.5 M.

2.0 EARTH WORK

2.1.1 RECONSTRUCTION / REHABILITATION OF EMBANKMENT

The contractors shall execute the work to the lines, grade and section as per drawing and in accordance with the specification and relevant clause / clauses of relevant Bureau of Indian Standard codes unless otherwise specified. Construction of all approaches and haul roads and their maintenance shall be the responsibility of the contractor. The contractor shall ensure good workmanship and quality and shall ensure besides other aspects fulfilment of the following specific requirements to the satisfaction on the Engineer-in-Charge.

To work is to be executed as per design, drawing and specifications and direction of the Engineer-in-charge.

2.1.2 BORROW AREA

Earth shall be used from borrow areas located at a distance of not less then 10h or 30m., whichever is greater, from the toe of the embankment where 'h' is the height of embankment.

Borrow areas shall be stripped of top soil and cleared of stumps, roots, bushes, rubbish and other objectionable materials.

Soils of approved quality, to the satisfaction of the Engineer-in-Charge shall be used which shall be free from muck, rubbish, silt and cobbles of size larger than 75 mm.

Watering of borrow area shall be done wherever necessary after taking moisture content test.

Borrowing of earth is the responsibility of the contractor at his own cost and risk.

2.1.3. PLACEMENT (EARTHWORK)

(i) Contractor shall reconstruct/rehabilitate the embankment to the section and grade level as per drawing supplied to him to full satisfaction of the Engineer-in-Charge.

(ii) All trees, bushes, roots and other vegetation from the base of the embankment shall be removed.

(iii) The base of the portion of the embankment to be rehabilitated shall be stripped to a depth of 20 cm and roots and other vegetation shall be removed. All holes/hollows produced by digging shall be carefully filled up with earth and well rammed.

(iv) The longitudinal slope of the existing damaged embankment shall be cut to the slope not steeper than 1:4 and the surface so prepared shall be scarified and made loose for a depth of 15 cm before laying of soil. Watering of scarified surface shall be done. The damaged side slopes of the bank shall be benched in convenient steps of depth not more than 30cm for proper bonding of the freshly laid soil with the old embankment.

(v) The earth fill shall be laid in layers of 15 cm.(canals) to 25 cm (other embankments) in depth in such a way that cobbles, gravels not exceeding 7.5 cm. are well distributed throughout the materials and not nested in any position within or under the embankment. Clods shall be broken to 7.5 cm.

(vi) Under no circumstances the embankment shall be widened by material dumped from the top of the existing embankment.

(vii) Adequate quantity of watering is to be done at the junction of the freshly laid soil with the old embankment for proper bonding.

(viii) If initial moisture content in the soil is less than the optimum moisture content, then water shall be sprinkled over the freshly laid layer before compaction.

(ix) Extra earth used for compaction of slopes should be used in the upper layer of embankments.

Compaction shall be done with vibratory roller and plate compactor.

Choice of equipment shall be governed by the site conditions, nature of job/space etc. and it shall be got approved from the Engineer-in-Charge.

2.2. EMBANKMENT

The thickness of compacted layers shall be restricted to 15cm and shall be compacted so as to achieve dry density of at least 95% under optimum moisture content.

Where road is proposed to be constructed over the embankment the top 0.5m of the embankment shall be considered as the sub grade for the road and shall be compacted to 97% of proctor density.

Soil samples shall be taken from each compacted layer to ascertain the degree of compaction. Also moisture content is to be measured from each layer by taking samples. A tolerance of moisture content to the extent of +1% of O.M.C. shall be permitted.

2.2.1 EARTH WORK FOR WIDENING EXISTING EMBANKMENT

When an existing embankment and / or sub grade is to be widened and its slopes are steeper than 1 vertical to 4 horizontal, continuous horizontal benches, each at least 300mm wide shall be cut into the old slope for ensuring adequate bond with the fresh embankment / sub grade material to be added. The materials obtained from cutting of benches could be utilized in the widening of the embankment / sub grade. However, when the existing slope against which the fresh material is to be placed is flatter than 1 vertical to 4 horizontal, the slope surface may only be ploughed or scarified instead of resorting to benching.

Where the width of the widened portions is insufficient to permit the use of conventional rollers, compaction shall be carried out with the help of small vibratory rollers / plate compactors / power rammers or any other appropriate equipment approved by the Engineer. End dumping of materials from trucks for widening operations shall be avoided except in difficult circumstances when the extra width is too narrow to permit the movement of any other types of hauling equipment.

2.2.2. SETTLEMENT ALLOWANCE

Earthwork on the embankment shall be compacted mechanically using vibratory roller. In the mechanically compacted earth fill compacted to 95% of proctor density, no settlement allowance shall be provided.

2.2.3. MEASUREMENT AND PAYMENT

The unit price should include arrangement of borrow area, cost of excavation, loading, transportation, unloading at site, breaking clods, spreading to proper thickness including watering for compaction where necessary.

The unit price shall also include stripping of borrow area, preparation and maintenance of haul road, dressing of side slopes with all other general and incidental operations connected with the work.

The payment shall be made on volumetric basis for the quantities of excavation/filling to the required extent. The cross sections shall be taken initially before commencement of work. On Completion of excavation final cross sections shall be taken at the same points longitudinally and transversely. This cross section as quantities between initial and final cross section shall be marked on the initial cross section shall be worked out as per design section and paid accordingly. Running bill shall only be paid for finished sections of embankment.

2.3. EXCAVATION FOR STRUCTURES

2.3.1. GENERAL

Excavation for the foundation of structures shall be to the elevation shown in the drawings or as directed by the Engineer-in-Charge. In so far as practicable the materials removed in excavation for structures shall be used for back filling.

2.3.2. FOUNDATIONS FOR STRUCTURES

All trenches in soil, other than rock or hard compact soil more than 1.5m deep, into which men enter, shall be securely shored and strutted and timbered.

All trenches in soil, soft or fissured rock or hard soil exceeding 2m. in depth, into which men enter, shall be securely shored and timbered.

Notwithstanding anything said above, it shall be understood that the need for shoring shall receive careful and frequent consideration even in trenches of less than 1.5m or 2m. in depth (as the case may be). When there is doubt as to the safety of the work without shoring, no further excavation or other work shall be continued until adequate shoring is provided.

Where the sides of trenches are sloped but not within 1.5m. of the bottom, the vertical sides shall be shored and the shoring shall extend at least 30cm. above the vertical sides. When open spaced sheathing is used, toe board shall be provided to prevent materials rolling down the slope and falling into the part of the trench with vertical walls.

Shoring and timbering shall be carried along with the opening of a trench but when conditions permit protection work, such as sheet piling may be done before the excavation commences.

All loose stones, projecting clumps of earth, pockets of materials which might come down on the workers in the trench or any condition which is a hazard, shall be either removed or the excavated sides adequately braced and the trench suitably guarded. On steep slopes, workmen shall not be permitted to workmen shall not be permitted to work one above the other.

The contractor shall prepare the foundations at structure sites by methods which will provide firm foundation for the structures. The bottom and side slopes of common excavation upon or against which the structure is to be placed shall be finished to the prescribed dimensions and the surfaces, so prepared shall be moistened and tamped with suitable tools to form firm foundation upon or against which the structure is to be placed. The contractor shall prepare the foundation of the structures as shown on respective drawings. The horizontal foundation material beneath the required excavation shall be moistened if required and compacted in place.

If the Engineer considers it necessary to consolidate the foundation strata by grouting cement slurry, then drilling and grouting or any other foundation treatment shall be done by the contractor as directed by the Engineer and the payment will be as per the general contract document in respect of extra items. Density of the compacted foundation materials and the testing thereof shall be in accordance with relevant I.S. specification.

Separate payment will not be made to the contractor for moistening and compacting the foundation of structures. The contractor shall include cost thereof in the prices bid per cubic meter of the item of the bill of quantities for preparation of foundation.

When unsuitable material is encountered in the foundation for structure the Engineer-in-Charge will direct additional excavation to remove the unsuitable materials. The additional excavation shall be refilled as follows. In excavation in soils, the over excavation shall be filled in by selected bedding material and mechanically compacted by suitable compactors. In excavation in rock it shall be filled by cement concrete M-7.5 No. separate payment for excavation, backfill will be made.

Should remains of old buildings and structures are met with, the material shall be removed with wedges and levers. Blasting shall not be allowed, without the permission in writing, of the Engineer.

If bad ground or loose soil is met with, the contractor shall be responsible for reporting the fact to the Engineer who shall issue such orders as may be necessary. For extra excavation concrete and masonry arising from bed ground, the contractor shall be paid treating this as additional quantity as per the contract rate of contract documents.

All excavated earth, which is unfit or surplus to requirements for filling in shall be spread as instructed by the Engineer at the contractor's expense.

2.3.3. OVER EXCAVATION

If at any point in common excavation the foundation materials is excavated beyond the lines required to receive the structure, or if at any point in common excavation the natural foundation material is disturbed or loosened during the excavation process, it shall be suitably and mechanically compacted in place or where directed, it shall be removed and replaced as follows. In excavation in rock it shall be filled by cement concrete M-7.5. Any and all excess excavation or over excavation performed by the contractor for any purpose or reasons except for additional excavation as may be prescribed by the Engineer-in-Charge and whether or not due to the fault of the contractor shall be at the expense of the contractor. Filling for such excess excavation or over excavation shall be at the expense of the contractor.

2.3.4 DISPOSAL OF MATERIALS

All suitable materials removed in excavation or as much thereof as may be needed as directed by the Engineer shall be used in the construction of embankments, and for selected bedding materials or for backfill around structure. If there is an excess of material in the excavation, it shall be used to strengthen the embankment on either side of the Flood protective embankment, deposited in low areas as directed by the Engineer. The disposal of the excavated material shall be in accordance with clauses 8.1 and 8.2 of BIS 4701.

2.3.5. MEASUREMENT AND PAYMENT

Foundation for structure will be measured for payment, for the approved section, of foundation and level. The contractor will have to make his own arrangements for shoring, strutting provisions of adequate slopes for the sides to prevent slips etc. and no separate charge will paid for any incidental charges arising either during excavation of foundation or construction of the structure.

The quantity for payment of excavation in soil and rock shall be arrived at by taking pre-levels and finished levels at respective strata. Block levels will be taken at one meter or lessintervals, the levels shall be plotted on a graph sheet and average levels arrived at for the purpose of determining the quantity of excavation. The contractor's signature in token of hisacceptance shall be recorded in the cross section sheets. Final payment shall be based on levels only.

Payment for excavation for structures shall be made at the unit price per cubic meter bid. The rate for excavation for structures shall include the cost of all labour and materials for coffer dam and other temporary construction, cost of all pumping and dewatering, cost of all other work necessary to maintain the excavation in good order during construction, of removing such temporary construction where required and shall include the cost of disposal of the excavated material.

3.0. RIP RAP & LAUNCHING APRON

3.1.1. GENERAL

The rip rap may be hand placed or dumped by machines. The thickness of the rip rap shall be measured normal to the slope of the embankment.

3.1.2. QUALITY OF RIP RAP STONE

Rip Rap and spall material shall be controlled in quarry for quality, gradation and size.

Rip Rap and spalls obtained from rock excavation shall be checked for quality, gradation and size before lifting.

The stone for Rip Rap should be dense, resistant to abrasion and is free from cracks, seams, shale partings, conglomerate bonds, calcareous materials and other defects that would tend to increase their susceptibility to destruction by the action of water and weather.

The finished Rip Rap should present a reasonably uniform surface free of loose stones.

3.1.3 . TEST FOR STONE

Soundness - The rock fragments shall be tested for its soundness as per IS-2386-Part-II.

Abrasion - The rock fragments shall be tested for its abrasion as per IS-2386-Part IV.

Water absorption test – As per IS-2386.

3.1.4. THICKNESS OF RIP RAP / LAUNCHING APPRON

In no case the minimum thickness of hand placed Rip Rap/ Launching apron and dumped rip rap shall be less than 30 cm and 45cm respectively.

3.1.5. PLACEMENT OF RIP RAP / LAUNCHING APPRON

Hand placed Rip Rap

The hand placed rip rap shall consist of one man stone (40 to 45 Kg.) laid on edge starting at the bottom. The stone shall be laid compactly with staggered joints and so matched & interlocked that, they shall be keyed together with minimum of joint space. Then rock fragments and spalls shall be driven by a hammer into interstices to wedge the rip rap in place.

The hand placed rip rap shall preferably be laid in one course and the layer thickness is same at the stone size. If two layers of stones are used the header stone extending through both layers and spaced at about 1.5m. shall be used. In two layers placing the tops layer stones shall be larger.

Dumped Rip Rap / **Launching Aprons**

The dumped rip rap/ Launching apron shall consist of boulders or blasted rock fragments. It shall be dumped mechanically on the filter layer either over upstream face from embankment level during raising of embankment or after the embankment has been completed.

MEASUREMENT AND PAYMENT

3.1.6. Thickness of riprap shall be measured at a number of locations and the payment shall be made towards the average thickness arrived out of the measurements. Payment for rip-rap shall be made at the applicable unit price per cubic meter in the bill of quantities for rip rap which unit price shall include the cost of procuring or finishing, hauling and placing the rock for rip rap including the rock spalls.

CRATES

3.1.7. Crates shall be of size 100cm X 100cm X 100cm made out of galvanized iron wire of 10-SWG and stitching with 20-SWG wire tying together with all sides filled with hard stones of not less than 50kg in weight or, 30 cm size blocky in shape rather than elongated and more nearly cubical.

MEASUREMENT AND PAYMENT

3.1.8. Measurement of Crates shall be made in number. The quantity of hard stone will be measured in volume after deducting minimum 1/6th Voids. Payment for crates will be made in numbers and hard stones as cubic meter after deduction of voids at the applicable unit price per cubic meter in the bill of quantities.

ROUGH STONE DRY PACKING

3.3. DESCRIPTION OF ITEMS

3.3.1. Rough stone dry packing in aprons and revetments with approved quality of hard granite stones of 30 cm size and above to required shape with all leads, lifts and delifts including cost, carriage, taxes, royalty etc. of stone, labour for preparation of surface for packing, dewatering if required and all other incidental charges etc. complete as per drawing, specifications and direction of the Engineer-in- Charge.

GENERAL:

3.3.2. The pitching materials shall consist of the most durable rock fragments of approved quality selected for the purpose. Stone shall be used from the surplus usable excavated rubble or from the approved quarries, if required and shall be subjected to thorough inspection and approval by the Engineer. The quality of individual stones shall be dense, sound and resistant to abrasion and shall be free from cracks, seams, shale partings, conglomerate, bands and other defects that would tend to increase unduly their susceptibility to destruction by water and weathering action. The shape of individual stones shall be Anugolaar. Stone having thickness less than 50% of their maximum dimensions shall not be used for pitching.

The compacted embankment, the slope of which is to be protected with stone pitching, shall be trimmed to the lines and slopes as prescribed on the drawings or as directed by the Engineer from time to time. The earth obtained from this trimming shall be laid on top of the embankment if required or as directed by the Engineer.

Pitching shall be hand placed on upstream slope of the canal embankment. The thickness of pitching shall be as indicated on the drawings. The thickness shall be measured normal to the slope of the embankment. Launching apron shall be hand placed in horizontal layers and upstream and downstream of the structures and its thickness shall be as indicated on the drawings.

Before laying the pitching/ launching apron on level ground or on sides of the banks, the receiving surface shall be trimmed to the required slopes and profiles put by means of lines and plates at regular intervals. Depressions shall be filled up and thoroughly compacted. Pitching on inverted filter, if any, shall be started from the end and built in courses upwards. Stones shall be placed by derrick or by hand and so placed that the largest dimensions are perpendicular to the face of the slope. The larger stones shall be placed in the bottom course and for use as headers for subsequent courses.

All interstices between adjacent stones shall be filled with spalls of proper sizes and wedged in with hammer to ensure tight packing.

3.3.3. TEST FOR STONES

Soundness - The rock fragments shall be tested for its soundness as per IS-2386-Part-II.

Abrasion - The rock fragments shall be tested for its abrasion as per IS-2386-Part IV.

Water absorption test – As per IS-2386.

3.3.4. MEASUREMENT AND PAYMENT

Measurement for payment will be made on the basis of volumetric measurement of finished stone packing. The unit price per cubic meter in the bill of quantities is inclusive of trimming the earth to required profile, slopes and grade and/ or preparing level at suitable intervals as directed, to have uniform base .

4.0 CONCRETE WORKS

4.1. GENERAL CONCRETE REQUIREMENTS

4.1.1. Composition

General:-Concrete shall be composed of cement, sand, coarse aggregate, water admixtures (if any) as specified and all well mixed in batching plant by weight or by concrete mixture by volume and brought to the proper consistency. Batching plant shall conform to I.S. Code No. 4925-1968.

For works in which water tightness is required the specification in IS 3370-1965

A. Mixing

Concrete shall be mixed in a mechanical mixer and shall be as dense as possible, plastic enough to consolidate well and stiff enough to stay in place on the slopes.

Mixing shall be continued until there is a uniform mixing of the materials and the concrete is uniform in colour and consistency. The time of mixing shall be as shown in Table 1 of IS 457-1957 reproduced below.

Capacity of Mixer	Minimum Time of Mixing	
All Mixer	Natural Aggregates	Manufactured Aggregates
	2 minutes	2.5 minutes

B. Nominal maximum size of Aggregates

For sizes of aggregates IS 383-1970 shall apply. The coarse aggregate to be used in concrete shall be as large as practicable, consistent with required strength, spacing of reinforcement and embedded items, and placement thickness. The size of the coarse aggregates to be used will be determined by the Engineer-in-Charge and may vary incrementally according to the conditions encountered in each concrete placement. Nominal maximum size of aggregate for concrete in structures and canal lining shall be as indicated in the relevant drawings appended to the contract documents. Smaller coarse aggregate than specified shall be sued where in the opinion of the Engineer-in-Charge that proper placement of concrete is impracticable wit the size of the aggregate specified in the drawings.

C. Mix proportions

The proportions of various ingredients to be used in the concrete for different items of the work are given in the bill of quantities. In proportioning concrete; the quantity of both cement and aggregate should be determined by volume. Water shall be either measured by volume in calibrate tanks or weighed. Batching plant shall conform IS 4925-1968. (Indian Standard Specification for batching and mixing plant). All measuring equipment shall be maintained in a clean serviceable condition and their accuracy periodically checked. Adjustments shall be made as directed to obtain concrete having suitable workability, impermeability, density, strength and durability without the use of excessive cement. The acceptance or rejection of concrete shall be as per the acceptance criteria laid down in Clause 15 of IS 456-1978.

The net water cement ratio exclusive of water absorbed by the aggregate shall be sufficiently low to provide adequate durability in concrete. The water cement ratio or various grades of concrete shall be as determined and ordered by the Engineer-in-Charge.

Admixtures of pozzolanas, if ordered, shall conform to the requirements specified in I.S. 9103-1979 (Indian Standard Specification for admixture for concrete),.

D. Consistencies: The slump of concrete at the placement shall be as follows

No.	Place conditions	Degree of workability	Value of workability
	Concreting of the light	**Medium**	**25mm to 75mm slump**
	Concreting of heavily reinforced sections without vibration		**75mm to 125mm slump for 20mm aggregate**

(ii) For plain concrete work, slump requirements mentioned in Item 1 above are applicable.

(iiI) Lining with slip-form machine 60 to 70 mm, slump and 50 mm slump for concrete paver finisher.

If the specified slump is exceeded at the placement, the concrete is unacceptable. The Engineer-in-Charge reserves the right to require lesser slump whenever concrete of such lesser slump can be consolidated readily into place by means of vibration specified by the Engineer-in-Charge. The use of an equipment which will not readily handle and place concrete of the specified slump will not be permitted.

To maintain concrete at proper consistency, the amount of water and sand batched for concrete shall be adjusted to compensate for any variation in the moisture content or grading of the aggregates as they enter the mixer. Addition of water to compensate for stiffening of the concrete mixing but before placing will not be permitted. Uniformity in concrete consistency from batch to batch will be required.

4.1.2. Concrete quality control measures and concrete quality assurance test programme Concrete quality control measures

(a) The contractor shall be responsible for providing quality concrete to ensure compliance of the contract requirements.

(b) Making and curing concrete test specimens in the field : will conform to I.S. 516-1959.

(c Capping cylindrical concrete specimens will confirm to IS 516-1959.

(d) Compressive strength of concrete specimens will conform to IS 516-1959.

Sampling procedure and frequency

a. A random sampling procedure shall be adopted to ensue that each concrete batch has a reasonable chance of being tested i.e.the sampling should be spread over the entire period of concreting and should cover all mixing units.

b. Frequency

The minimum frequency of sampling of concrete of each grade shall be in accordance with the following :

Quantity of concrete in cum	Number of samples
1 to 5	1
6 to 15	2
16 to 30	3
31 to 50	4
51 to above for each additional 50 cumor part thereof.	4 plus one additional sample

Note : Atleast one sample shall be taken during each shift.

TEST FACILITIES

The contractor shall furnish free of cost samples of all ingredients of concrete for testing. He should also supply free of cost, the samples of all the ingredients of concrete used in the work for the test to be conducted by the Engineer-in-Charge or any officer nominated by him.

Contractor to furnish drawings and data

Not less than 30 days prior to start of installation of the contractors plant and equipment for processing, handling, transporting, storing and proportioning concrete, the contractor shall submit drawings and data to the Engineer-in-Charge for approval, showing the arrangement of plant etc. The drawing and data shall provide a description in sufficient details for an adequate review of the facilities and equipment the contractor proposes to provide at site of work.

4.1.3. Cement

a. General

Cement shall conform to clause 4 of IS 456-1978 of the purposes of specifications. Cement used shall be any of the following with the prior approval of the Engineer-in-Charge.

a. Ordinary or low heat Portland cement conforming to IS 269-1976.

b. Rapid hardening Portland cement conforming to IS 8041-1978.

c. Portland slag cement conforming to IS 455-1976.

d. Portland pozzolana cement confirming to IS 1489-1976.

e. High strength ordinary Portland cement conforming to IS 8112-1976.

f. Hydrophobic cement conforming to IS 8043-1978.

The contractor shall make his own arrangements for the procurement of cement to required specifications required [for the works. Transportation from time place of supplying to the batching plant shall be in weather tight rail cars, trucks, conveyors and there means which will protect the cement completely from exposure to moisture. Immediately upon receipt at the job site, bulk cement shall be stored in dry, weather tight, properly ventilated bins until the cement is batched. The shall be emptied and cleared by the contractor when so directed by the Engineer-in-Charge. However, the intervals between required cleaning will normally be not less than 6 months. Each shipment of bagged cement shall be stored separately so that it may readily be distinguished from other shipment and shall be stored in a dry enclosed area protected from moisture. Storage of materials shall be as described in I.S. 4082-1977 (I.S. recommendation on stacking and storage of construction materials at site). To prevent under again of bagged cement after delivery, the contractor shall use bags of cement in the chronological order in which they were delivered to the job site. All storage facilities shall be subject to approval of the Engineer-in-Charge.

4.1.4. Water

The water used in making and curing of concrete, mortar and grout shall be free from objectionable quantities of silt, organic matter, injurious amounts of oils, acids, salts and other impurities etc. as per I.S. specification No. 456-1978. The Engineer-in-Charge will determine whether or not such quantities of impurities are objectionable. Such determination will unusually be made by comparison of compressive strength, water requirement, time of set and other properties of concrete made with distilled or very clean water and concrete made with the water proposed for use. Permissible limits for solids when tested in accordance with I.S. 3025-1964 shall be as tabulated below.

Permissible limits for solids in water

1.	Organic	Maximum permissible limit 200 mg/ltr
2.	Inorganic	300 mg/ltr
3.	Sulphate (as SO_4)	500 mg/ltr
4.	Chlorides (as Cl)	2000 mg/ltr for plain concrete work and 1000 mg/ltr for RCC work
5.	Suspended matter	2000 mg/ltr

The PH value of water shall generally be not less than 6.

If any water to be used in concrete, mortar, or grout is suspected by the Engineer-in-Charge of exceeding the permissible limits for solids, samples of water shall be obtained and tested by the Engineer-in-Charge in accordance with I.S. 3025-1964.

4.1.5. Sand (Fine Aggregate)

A. General

The term sand is used to designate aggregate most of which passed 4.75 mm I.S. sieve and contains only so much coarser material as permitted in Clause 4.3 of I.S. 383-1970. Sand shall be predominately natural sand which may be supplemented with crushed sand to make up deficiencies in the natural sand grading. All sand shall be furnished by the contractor from any approved sources specified in the contract. Sand as delivered to the batching plant, shall frequently as possible, the frequency for a given job being determined by the Engineer-in-Charge according to weather conditions (I.S. 456-1978). Sand as delivered to the batching plant shall have an uniform and stable moisture content. Determination of moisture content shall be madeas frequently as possible, the frequency for a given job being determined by the Engineer-in-Charge according to weather conditions. (I.S. 456-1978).

B. Quality

The sand shall consist of clean, dense durable uncoated rock fragments, as per I.S. 383-1979.Sand may be rejected if it fails to meet any of the following quality requirements.

Organic impurities in sand

Colour no darker than the specified standard in clause 6.2.2 of I.S. 2386 Part II 1963 (Indian Standard method of test for aggregates for concrete part II estimation of deleterious materials and organic impurities). Sand shall be screened before use. If sand brought to site is not clean it must be washed clean in water. Fine draft sand or sea sand or sand containing saline impurities shall on no account to be used. Sodium sulphate test for soundness. The sand to be used shall pass a sodium or magnesium sulphate accelerated test as specified in I.S. 2386 (Part V) 1963 for limiting loss on weight.

Specific gravity

The sand to be used shall have minimum specific gravity of 2.6.

Deleterious substances

The amount of deleterious substances in sand shall not exceed the maximum permissible limits prescribed in table 1 clause 3.2.1 of IS 383-1970 (Indian Standard Specification for coarse and fine aggregates form natural source for concrete) when tested in accordance with I.S. 2386-1963.

C. Grading

The sand as batched shall be well graded and when tested by means of standard sieves shall confirm to the limits given in Table 4 of I.S. 383-1970 and shall be described as fine aggregates, grading zones I, II, III and IV. Sand complying with the requirements of any of the four grading zones is suitable for concrete. But sand confirming to the requirements of grading zone - IV shall not be used for reinforced cement concrete work.

4.1.6. Coarse aggregate

a. General

For the purposes of these specifications, the term 'Coarse Aggregate' designed clean well graded aggregate most of which is retained on 4.75 mm I.S. Sieve and containing only so much finer material as permitted for various types described under Clause 2.2 of I.S. 383-1970. Coarse aggregate for concrete shall consist of uncrushed stone, or crushed stone and partially uncrushed and crushed stone.

Coarse aggregate for concrete shall be furnished by the contractor from the approved quarries specified in the contract documents. the contractor shall, unless otherwise specified in the tender notice and subsequently on this basis in the contract, be responsibilities payment of seignorages, quarry fees etc. on all materials. Coarse aggregate as delivered to the batching plant shall generally have uniform and stable moisture content. In case of variations, clause 9.2.3 of I.S. 456-1978 shall govern during batching.

b. Quality

The coarse aggregate shall consist of naturally occurring (crushed of uncrushed) stones ,and shall be hard, strong, durable, clear and free from veins and adherent coating and free from juniors amounts of disintegrated pieces, alkali, vegetable matter and other deleterious materials. Coarse aggregate will be rejected if it fails to meet any of the following requirements.

1. Los-Angles Abrasion Test

The abrasion value of Aggregates when tested in accordance with the method specified in I.S. 2386 (Part IV) using Los-Angles machine shall not exceed 30% for Aggregates to be used in concrete for wearing surface and 50% for aggregate to be used in other concrete.

2. Aggregate crushing strength test

Aggregate crushing value, when determined in accordance with I.S. 2386 (Part IV) 1963 shall not exceed 45% for aggregate used for concrete other than wearing surface and 30% for wearing surfaces. As an alternative to the crushing strength test, aggregate impact value shall be found out with the method specified in I.S. 2386 (Part IV) 1963. The aggregate impact value shall not exceed 45% by weight for aggregates used for concrete for there than wearing surfaces, and 30% by weight for concrete for wearing surfaces such as runways, roads and pavements.

3. Soundness test

The coarse aggregate to be sued for all concrete works shall pass a sodium or magnesium sulphate accelerated soundness test specified in I.S. 2386 (part V) 1963 and the average loss of weight after 5 cycles shall not exceed the limits specified in clause 3.6 of I.S. 383-1970.

4. Specific gravity

The coarse aggregate shall have specific gravity of 2.60 minimum.

5. Deleterious material

The maximum quantity of deleterious materials in coarse aggregates shall not exceed the limits specified in Table 1 of I.S. 383-1970 when tested in accordance with I.S. 2386-1963.

4.1.7. MIXING

a. General

The concrete ingredients shall be thoroughly mixed in mechanical mixers designed to positively insure uniform distribution of all the component materials throughout the concrete at the end of the mixing period. Mixing shall be done as per Clause of I.S. 456-1978. The mixer should comply with I.S. 1791-1985 (I.S. Specifications for batch type concrete mixer)

The concrete as discharge form the mixer, shall be uniform in composition and consistency from batch to batch. Workability shall be checked at frequent intervals as per I.S. 1199-1959. Mixers shall be examined regularly by the Engineer-in-Charge or his authorized Engineer for changes in condition due to accumulation of hardened concrete or mortar or to wear of blades. The mixing shall be continued until there is a uniform in colour and consistency and to the satisfaction of the Engineer-in-Charge. If three is aggregation after unloading the concrete should be remixed.

Any mixer that at any time produces unsatisfactory mix, shall not be sued until repaired. If repair attempts are unsuccessful, a defective mixer shall be replaced. Batch capacity shall be at least 10% of but not in excess of the rate capacity of the mixer unless otherwise authorized by the Engineer-in-Charge.

b. Central mixers

Water shall be admitted prior to and during charging of the mixer with all other concrete ingredients. After all materials are in the mixer, each batch shall be mixed for not less than the time specified by the Engineer-in-Charge. The minimum mixing time shall be 2 minutes. The minimum mixing time specified is based on average mixer performance. The Engineer-in-Charge will adjust the minimum mixing time as required by the observations of the mix delivered frommixer. Excessive over mixing which require addition of water to maintain the required concrete consistency shall not be permitted

In addition to I.S. 1791-1985 the mixing equipment shall conform to the following further requirements.

1. Plant configuration shall be such that the mixing of each mixer can be observed from a safe location which can be easily reached from the control station. Provisions shall be made so that the operator can observer the concrete in the receiving hopper or bucket as it is being dumped from the mixers.
2. Each mixer shall be controlled with a timing device which will indicate the mixing period and assure compliance of the required period of mixing.
3. The batch plant shall be equipped with an interlocking mechanism which will prevent concrete batches form entering mixers which are not empty.

4.1.8. Temperature of concrete

Fresh structural concrete and fresh canal lining concrete shall be placed at temperature of between 150C to 300C. During hot or cold weather, the concreting should be done as per the procedure set in I.S. 7861- (Part- 1) 1975 or I.S. 7861 (Part II).

The temperature will be determined by placing a thermometer in the concrete immediately after sampling at the site of placement. The temperature of concrete at the batch plant shall be adjusted to assure that the specified concrete temperature is attained at the placement.

In case of concrete in hot weather condition ,the contractor shall employ effective means such as precooling of aggregates and mixing water and placing at nights, as necessary to maintain the temperature of the concrete as it is placed at the specified limit. The methods of pre-cooling shall be subject to approval by the Engineer-in-Charge.

The contractor shall not be entitled for any additional compensation due to the foregoing requirements.

4.1.9. Forms

a. General

Form shall be used wherever necessary, to confine the concrete and shapring it to the required lines. If a type of form does into consistently perform in an acceptable manner, as determined by the Engineer-in-Charge, the type of form shall be changed and method of erection shall be modified by the Contractor subject to approval of the Engineer-in-Charge.

Plumb and string lines shall be installed before, and maintained during concrete placement. Such lines shall be used by the Contractors personnel and by the Engineer-in-Charge and shall be sufficient number and properly installed as determined by the Engineer-in-Charge. During concrete placement, the contractor shall continuously monitor plumb and string line form positions and immediately correct deficiencies.

Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete and shall be maintained rigidly in position. Where form vibrators are to be used, forms shall be sufficiently rigid to effectively transmit energy from the form vibrators to the concrete, while not damaging or altering the positions of forms. Forms shall be sufficiently tight to prevent of loss of mortar from the concrete. Chamfer strips shall be placed to produce bevelled edges on permanently exposed concrete surfaces. Interior angle of inter-secting concrete surfaces and edges of construction joints shall not be bevelled except where indicated on the drawings.

Suitable struts or stiffener or ties shall be used for the form work wherever necessary. All supports shall be braced and cross braced into two directions. All splices and braces shall be secured by bolting unless specially intended otherwise. All struts shall be firmly supported against settlement and slipping, by suitable means as directed. All supports shall be cut square at both ends and firmly supported against settlement and slipping When the form work is supported on soils, sleepers etc., shall be used to properly disperse the loads. In case, the supports rest on already, completed beam or slab; suitable props shall be provided under the latter

b. The form work shall be of well seasoned timber or steel. When timber forms are used, they shall be lined with M/S sheet or other suitable smooth faced no -absorbent materials as specified. Supports may be of timber or steel. Suitable wedges in Paris to facilitate adjustment and subsequent releasing of forms shall be provided preferably at the upper end of the supports. The details of the proposed form work and supports shall be submitted to the Engineer-in-Charge and got approved before erection.

c. In case of columns, retaining walls or deep vertical component, the height of the column shall facilitate shall placement and compaction of concrete and suitable arrangement may be made for securing the forms to the already poured concrete for placing the subsequent lifts. No steel ties or wires used for securing this form work shall be left exposed of the face for the finished work.

d. Suitable inserts for block outs for electrical and other service fixtures where necessary shall be provided in the required locations as specified.

e. Cleaning and oiling of Forms: At the time the concrete is placed in forms, the surfaces of the forms shall be free from encrustations of mortar, grout or other foreign material. Before concrete is placed the surface of the forms shall be oiled with a commercial forms of oil.

f. Removal of Forms

The stripping of form work shall conform to clause 10.3 of IS 456-1978. The contractor shall be liable for damage and injury caused by removing forms before the concrete has gained sufficient strength. Forms on upper sloping faces of concrete such as forms on the water sides of warped transitions shall be removed as soon as the concrete has attained sufficient stiffness to prevent sagging. Any needed repairs or treatment required on such slopping surfaces shall be performedat once and be followed immediately by the permitted curing.

To avoid increasing appearance in concrete that might result from swelling of forms, wood forms for wall openings shall be loosened as soon as the loosening can be accomplished, without damages to the concrete. Forms for the opening shall be constructed as to facilitate such loosening. Forms shall be removed with care so as to avoid injury to concrete and any concrete so damaged shall be repaired in accordance with paragraph 6.2.21.

g. Cost

The cost of furnishing all materials and performing all work for constructing forms, including any necessary treatment or coating of forms is included in the item of concreting made at the unit price of bid thereof in the bill of quantities.

4.1.10. Tolerances for concrete constructions

a. General

Tolerances are defined as allowable variations from specified lines, grades, and dimensions and as the allowable magnitude of the surface irregularities. Allowable variations from specified liens, grades and dimensions are listed as given under sub-paragraph (b) below.

The intent of this paragraph is to established tolerances that are consistent with modern construction practice that is governed by the effect that permissible variations may have upon a structure. The Government reserves the right to diminish the tolerances set-forth herein if such tolerances impair the structural action, operational function or architectural appearance of a structure or position thereof.

Concrete shall be within all stated tolerances even though more than one tolerance maybe specified for a particular concrete structure. Provided that the specified variation for one element of the structure shall not apply when it will permit another element of the structure to exceed its alterable variation. Where tolerances are not specified for particular structure, tolerance shall be those specified for a similar work. As an exception to clause 2 of the general provisions, specific tolerances shown herein in connection with any dimension shall govern. The contractor shall be responsible for finishing the concrete forms within the limits necessary to insure that the completed work will be within the tolerance limits specified. The defective work where the tolerance limit is exceeded shall be remedied in accordance with the sub-paragraphs b and c.

b. Variations from specified lines, grades and dimension

Hardened concrete structure shall be checked by the contractor and will be subject to such inspection and measurement as needed to determine that the structures are within the tolerance specified in the table below.

Variation is defined as the distance between the actual position of the structure or any element of the structure and the specified position in plan for the structure or the particular element. Plus or minus variation shown as (±) indicate a permitted actual position up or down and in or cut from the specified position in plan. Variations not designated as plus or minus indicate the maximum deviation permitted between designated successive points on the completed element of construction

c. Concrete surface irregularities

a. General

Bulges, depressions and offsets are defined as concrete surface irregularities. Concrete surface irregularities are classified as 'abrupt' or 'gradual' and are measured relative to the actual concrete surface.

b. Abrupt surface irregularities

Abrupt surface irregularities are defined herein as offsets such as those caused by misplaced or loose forms, loose knots in form lumber, or other similar forming faults. Abrupt surface irregularities are measured using a straight edge held firmly against the concrete surface over the irregularity and the magnitude of the offset is determined by direct measurement.

c. Gradual surface irregularities

Gradual surface irregularities are defined herein as bulges and depressions resulting in gradual changes on the concrete surface. Gradual surface irregularities are measured using a suitable template conforming to the design profile of the concrete surface being examined. The magnitude of the gradual surface irregularities is defined herein as measures of the rate of change in slopes of the concrete surface.

The surface irregularities shall not exceed 6 mm for bottom slab and 12 mm for side slopes when tested with a straight edge of 1.5 metre in length.

The magnitude of gradual surface irregularities on concrete shall be checked by the contractor to ensure that the surfaces are within the specified tolerances. The Engineer-in-Charge will also make such checks of hardened concrete surfaces as determined necessary to insure compliance with such specifications.

d. Repair of hardened concrete not within specified tolerances

Hardened concrete which is not within specified tolerances shall be repaired to bring it within those tolerances. Such repair shall be in accordance with paragraph 6.2.21 and shall be accomplished in a manner approved by the Engineer-in-Charge. Concrete repair to bring concrete with the tolerances shall be done only after consultation with a representative of Engineer-in-Charge regarding the method of repair. The Engineer-in-Charge shall be notified as to the time when repair will be performed.

Concrete shall be finished in a manner which will result in concrete surface with a uniform appearance. The fins and any rough projections can then be rubbed down and the whole surface brought to an even finish by rubbing with a wooden float using a mortar of one part cement by two parts of coarse sand as an abrasive, the mortar at the same time filling the voids. A neat cement work shall than be applied to give a smooth surface. If the concrete has set hard the fins and rough projections, if any, shall be removed by using corborandum brick or a paved girding machine by chipping, before finishing off with the smoothing wash. If the work of chipping is not done with care or if the surface exposed after removal of the forms can not be satisfactorily dealt with in this manner due to bad work or for other reasons, a coat of cement plaster of 1:2 of thickness as ordered by the Engineer-in-Charge shall be applied. No extra payment will be given for finishing concrete surface as instructed above in this clause.

e. Prevention of repeated failure to meet tolerances

When concrete placements result in hardened concrete that does not meet the specified tolerances, the contractor shall submit to the Engineer-in-Charge an outline of all prevention actions such as modification to form modified procedure for setting screeds, and different finishing techniques to be implemented by the contractor to avoid repeated failure.

The Engineer-in-Charge reserves the right to delay concrete placement until the contractor implements such preventive actions which are approved by the Engineer-in-Charge.

4.2. REINFORCING BARS

4.2.1. a. General

The contractor shall make his own arrangement for procurement of tor steel of required specification for the work from Steel Authority of India Ltd. (A Govt. of India Undertaking) only. Transportation from the place of supply to work site and all incidental charges will borne by the contractor.

Reinforcing bars shall be placed in the concrete as shown in the drawings or as directed. For concrete canal lining the reinforcement rods as provided for in the drawing shall be placed. For anchoring the concrete canal lining to the hard rock provision of anchor rods is made in the drawing and contractor shall place these anchor rods to the spacing and depth shown in the drawings.

b. Materials

Unless shown otherwise on the drawings the reinforcement to be used shall be high yield strength deformed bars of grade FE 415 conforming to I.S 1786-1985 specification for high yield strength deformed steel bars and wire for concrete reinforcement.

c. Placing

Reinforcement shall be bent and fixed in accordance with the procedure specified in I.S. 2502-1963 (code of practice for bending and fixing of bars for concrete reinforcement). All reinforcement shall be placed and maintained in the position shown in the drawings.

Unless otherwise prescribed, placement dimensions shall be to the centre lien of the bars. Reinforcement will be inspected for compliance with requirement as to size, shape, length, splicing, position and amount after it has been placed, but before being embedded with concrete.

Before reinforcement is embedded in concrete the surface of the bars shall be cleaned of heavy flaky rust, lose scale, dirt grease or other foreign substances which is in the opinion of the Engineer-in-Charge are objectionable. Heavy flaky rust that can be removed by firm rubbing with burlap or equivalent treatment in considered objectionable.

As specified in clause 11.3 of I.S. 456-1978 unless otherwise specified by the Engineer-in-Charge, reinforcement shall be placed with the following tolerances.

a. For effective depth 200 mm or less

b. For effective depth more than 200 mm = $\pm$ 15 mm

The cover in no case be reduced by more than one third of specified cover or 5 mm which ever is less.

Reinforcement shall be securely held in position so that it will not be displaced during the placing of the concrete and special care shall be exercised to prevent any disturbances of the reinforcement in concrete that has already been placed. Welding of bars shall be done as directedby the Engineer-in-Charge and in conformity with the requirements of clause 11.4 of IS 456-1978.Chairs, hangers, spaces and other supports for reinforcement shall be of concrete, metal or other approved material. Concrete cover shall be as shown on the drawings.

d. Reinforcement drawings

The Engineer-in-Charge will supply drawings of reinforcement details and bar bending schedules for adoption.

e. Measurement and payment

Measurement for payment of reinforcement bars will be based on the weight of the bars placed in the concrete in accordance with the drawings supplied by the Engineer-in-Charge when conformance with these specifications drawings has been determined at the time of embedment. Except as otherwise provided below payment for finishing and placing reinforcing bars will be made at the unit price bid in the bill of quantities for furnishing and placing reinforcement bars which unit price shall include the cost of reinforcing bars, attaching wire and of cutting, bending, cleaning securing and maintaining in position reinforcing bars as shown on the drawings. The total weight of bars placed as reinforcement in concrete shall be arrived at by adding the products of lengths of each size and mass per metre (vide Table 1 and para 6.2.1 of IS 1786-19858)of that size of rod.

4.2.2. Dowels

The dowels shall be same HYSD bars of grade Fe 415 confirming to IS 1786-1985 as used for reinforcement. Details of dowels shall be as shown on the drawings or as directed by the Engineer-in-Charge.

Dowels shall be placed in the concrete where shown on the drawings or where directed and will be inspected for compliance with requirements as to size shape, length, position and amount after they have been placed but before being covered by concrete.

Before the dowels are embedded in concrete, the surfaces of dowels be cleaned of all dirt, grease or other foreign substances which in the opinion of Engineer-in-Charge are objectionable.

The dowels shall be accurately placed and secured in position so that they will not be displaced during the placing of the concrete.

Measurement for payment of dowels will be made only on the weight of the dowels placed in the concrete in accordance with the drawings or as directed.

Payment for furnished and placing of dowels will be made at the unit price bid in the bill of quantities for furnishing and placing of reinforcing bars which unit price shall include the cost of furnishing all the materials and for placing the dowels as required.

4.2.3. Preparation for placing

a. General

No concrete shall be placed until all form work installation of items to be embedded and preparation of surface involved in the placement have been approved.

The contractor shall supply concrete placement check-out cards (placement register) satisfactory to the Engineer-in-Charge and shall provide a water tight container for such cards at the convenient location near each individual concrete placement site. The cards shall list all the various work items for example 'cleanup' and 'embedded items' required prior to placement of concrete. After each work item for an individual placement has been completed that item on the cards shall be signed by contractor or his representative signifying completion of the required work. Engineer authorized by the Engineer-in-Charge will inspect the work during and after completion of each phase of the preparation and if the work is satisfactory will sign the check-out card (placement register). Approval of preparation for placement will not be complete until the contractor or his representative and above authorized Engineer have approved by signature all applicable, items for the placement

All surfaces of forms and embedded materials shall be free from curing compound, dried mortar from previous placement and other foreign substance before the adjacent or surrounding concrete placement is begun.

Prior to beginning concrete placement the contractor shall make ready a sufficient number of properly operating vibrators and operators and shall have readily available additional vibrators to replace defective one during the progress of the placement. The Engineer's representative at the placement may delay the start of the concrete placement until the number of working vibrators available is acceptable.

b. **Foundation surfaces**

All surfaces upon on against which concrete is to be placed shall be free from frost, ice, water, mud and debris.

1 Rock surface shall be free from oil, objectionable coatings, and lose semi-detached and unsound fragments. Immediately prior to placement of concrete, surfaces of rock shall be washed with an air water jet and shall be brought to uniform surface dry condition.

2 Earth foundation surfaces shall be wet to a depth of 15 cm. or to impermeable material whichever is less before concrete placement.

c. **Construction joints**

Construction joints are defined as concrete surfaces upon or against which concrete to be placed and to which new concrete is to adhere but which have become so rigid that the new concrete cannot be incorporated integral with that previously placed. The provision of construction joints shall conform to clauses 12.4.1 and 12.4.2 of I.S. 456-1978.

When the work has to be resumed on a surface which has hardened such surface shall be roughened. It shall then be swept clean thoroughly wetted. For vertical joints near cement slurry shall be applied on the surface before it is dry. For horizontal joints the surface shall be covered with a layer of mortar about 10 to 15 mm thick composed of cement and sand in the same ratio as the cement and sand in concrete mix. This layer of cement slurry or mortar shall be freshly mixed and applied immediately before placing of the concrete.

Where the concrete has not fully hardened all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of particles or aggregate. The surface shall be thoroughly wetted and all free water removed. The surface shall then be coated with near cement slurry. On this surface, a layer of concrete not exceeding 150 mm in thickness shall first be placed and shall be well rammed against old work, particular attention being paid to corners and close spots and work thereafter shall proceed in the normal way.

d. **Contraction joints**

Contraction joints are to be provided for volumetric shrinkage of monolithic concrete and or movement between monolithic unit at established joints, thus preventing formation of objectionable shrinkage cracks elsewhere in concrete. Prior to application of wax based curing compound to contraction joints, the surface of all joins shall be cleaned thoroughly of accretion of concrete or other foreign material by scrapping, chipping or other means approved by the Engineer-in-Charge. Water stops, reinforcing bars and other embedded items shall be free of curing compound when adjoining concrete is placed.

4.2.4. Placing

a. General

The contractor shall notify the Engineer-in-Charge before batching begins for placement of concrete. Placing shall be performed only on the presence of an authorized Engineer's representative. Placement shall not begin until after preparations are complete and the concrete placement check out card has been signed by the contractor or his representative and the authorized representative of the Engineer-in-Charge substantiating completion of all preparation for that placement.

All surface upon or against which concrete is to be placed shall be prepared in accordance with paragraph 5.2.16.

Re-tampering of concrete will not be permitted. Any concrete which has become so still that proper placing cannot be assured, shall be wasted.

Concrete shall not be placed in standing water except with written permission of the Engineer-in-Charge and the method of placing shall be subject to approval. Concrete shall not be placed in running water and shall not be subjected to running water until after the concrete has hardened.

Concrete shall be deposited as nearly as practical in its final position and shall not be allowed to flow in such a manner that the lateral movement will cause segregation of the coarse aggregate from the concrete mass methods and equipment employed in depositing concrete in forms shall minimize clusters of coarse aggregates, clusters that occur shall be scattered before the concrete is vibrated.

Forms shall be constantly monitored and their position adjusted as necessary during concrete placement in accordance with paragraph 5.2.12 and 5.2.13.

All concrete except canal lining shall be placed in approximately horizontal layers. The depth of layers shall not exceed 15 cm. The Engineer-in-Charge reserves the right to require lesser depths of ales where concrete cannot otherwise be placed and consolidated in accordance with the requirements of these specifications. All construction joints which intersect exposed concrete surface shall be made straight and level to plumb except as shown otherwise on the drawings.

The placing of concrete shall be in accordance with Clause 12.2 of I.S. 456-1978.

If concrete is placed monolithically around openings having vertical dimensions greater than 60 cm or if concrete in decks, floors slabs, or other similar parts of structures is placed monolithically with supporting concrete, the following requirements shall be strictly observed.

1 Concrete shall be placed up to the top of the formed opening at which point further placement will be delayed to accommodate settlement of fresh concrete. If levels are specified beneath nearly horizontal structural members such as decks floor slabs, beams and gardens or the levels being between the nearly horizontal members and the vertical supporting concrete below, concrete shall be placed to the bottom of the bevels before delay of placement.

2 The last 60 cm or more of concrete placed below horizontal members or levels shall be placed with a 50 mm or less slumps and shall be thoroughly consolidated.

In placing concrete on uniformed slopes so steep as to make internal vibration of the concrete impractical without footing, the concrete shall be placed ahead of no-vibrating skip form screened extending approximately 0.75 meters back from its leading edge. Concrete ahead of the slip form screened shall be consolidated by internal vibrations so as to ensure complete filling under the slip form.

A cold joint is an unplanned joints resulting when a concrete surface harden before the next batch is placed against it, cold joints would be allowed only in the event of equipment breakdown or other unavoidable prolonged interruption of continuous placing. If such unavoidable delays in placing occur which make it appear that unconsolidated concrete may harden to the extent heat later vibration will not fully consolidated it, the contractor shall immediately consolidated such concrete to a stable and uniform slope. If delay of placement is then short enough to permit penetration of the underlying concrete placement shall resume with particular care being taken to thoroughly penetrate and revibrate the concrete surface placed before the delay. If concrete cannot be penetrated with vibrator, the cold joint shall be then treated as a construction joint

Care shall be taken to prevent cold joints when placing concrete in any part of the work. The concrete placing rate shall ensure concrete is placed while the previously placed adjacent concrete is plastic so that the concrete can be made monolithic by normal use of vibrators / tamping.

Concrete shall not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete. A cold joint may necessarily result from prolonged heavy rainfall.

The contractor shall not be entitled to any additional payment, over the unit price bid in the scheduled for concrete by reason of any limitation in the placing of concrete required under the provisions of this paragraph.

c. Compaction

The compaction of concrete shall conform to clause 12.3 of IS 456-1978.

Concrete shall be consolidated by vibrators/tampers. The vibrations shall be sufficient to remove all undesirable air voids from the concrete, including the air voids trapped against the forms. After consolidation, the concrete shall be free of rock pockets and honey comb areas and shall be closed snugly against all surface of forms and embedded materials. All concrete shall be properly consolidated before it hardens.

Except as herein after provided, consolidation of all concrete shall be by immersion type vibrators. Immersion type vibrators shall be operated in nearly vertical position and the vibrating head shall penetrate and re-vibrate the concrete in the upper portion of the underlying layer. Care shall be exercised to avoid contact of the vibrating head with embedded items and with formed surfaces which will alter be exposed to view. Concrete shall not be placed upon either plastic concrete until the previously placed concrete has been thoroughly consolidated.

Form vibrators shall be used in conjunction with slip form lining machines to consolidated concrete in canal linings. such vibrators shall be arranged for effective uniform consolidation of the concrete. The Engineer-in-Charge or his representative may remove samples of the hardened concerns for testing and examination and the contractor shall repair, at no cost to the Government, concrete from which such samples are removed.

Immersion type vibrators shall be operated at speeds of at least 7000 revolutions per minute

4.2.5. Finishes and finishing

The requirements for finishing of concrete surface shall be as specified in this paragraph, paragraph 5.2.12 and 5.2.13 or as otherwise indicated on the drawings. The contractor shall notify the Engineer-in-Charge before finishing concrete. Unless inspection is waived, in each specific case, finishing of concrete shall be performed only when an Engineer's representative is present. Concrete surface will be tested by the Engineer-in-Charge in accordance with paragraph 5.2.13 where necessary to determine whether the concrete surface is within the specified tolerances. Finished concrete which is not within the specified tolerances shall be repaired in accordance with paragraph 5.2.21.

Interior surface shall be slopes for drainage where shown on the drawings or as directed. Surfaces which will be exposed to the weather and which would normally be level shall be sloped for drainage.

Floating may be performed by use of hand or power driven equipment. Floating shall be started as soon as the screened surface has stiffened sufficiently and shall be the minimum necessary to produce a surface that is free from screened marks and is uniform in texture. Joints and edges shall be tooled where shown on the drawing or as directed.

After the surface of road way slabs of concrete bridges, have been wood floated, the surfaces shall be given a broom finish. The finish shall be applied when the water sheet has practically disappeared. The broom shall be drawn transversely across the pavement with adjacent strokes slightly overlapping. The brooming shall be completed before the concrete is in such condition that the surface will be torn or unduly roughened by the operation. The finished surfaces shall have a uniform appearance and shall be free of corrugations exceeding 1.5 millimeters in depth. Broom shall be of a quality, size and construction and be so operated as to produce a surface finish satisfactory to the Engineer-in-Charge.

The finishing in lining shall be in accordance with Clause 5.7 of IS 3873-1978. The finished surface shall be equivalent in evenness, smoothness and free from rock pockets and surface voids to that obtainable by effective use of a long handled steel trowel. Where the surface produced bya lining machine meets the specified requirements no further finishing operations will be required.

The top portion of the side slopes of the canal lining extending 1-1/2 meter vertical below the top of the lining shall receive a nonskid, longitudinal brisk finish as approved by the Engineer in-Charge.

Protection

4.2.6. The contractor shall protect all concrete against damage until final acceptance by the Engineer-in-Charge.

The contractor shall provide protection to prevent erosion to fresh concrete whenever precipitation either periodic or sustaining is imminent or occurring.

When precipitation appears imminent, the contractor shall immediately make ready at the placement site all materials which may be required for protection of fresh concrete. The Engineer- in-Charge may delay placement of concrete until adequate provisions for protection against weather are made.

All fresh concrete surfaces shall be protected from contamination and from foot traffic until the concrete has hardened. Hardened concrete surfaces which have to receive finish shall be protected against damage from foot traffic and the construction activity by covering with protective mats, plywood or by other effective means. Method of protection shall be subject to approval by the Engineer-in-Charge.

Curing

4.2.7. **General**

a. The contractor shall furnish all materials and perform all work required for curing concrete.

All concrete including bed and sides of canal lining shall be cured by water curing.

The precast slab for canal lining shall be cured by keeping them immersed in water for seven days and by sprinkling water for another 21 days with straw canvass, hessian or similar materials cover over slab.

The uniformed top surfaces of bridges decks shall be cured for 28 days with a damp sand cover or curing mat cover. The sand or curing mats shall not be kept so wet as to allow water to drain from them strain other concrete. The sand or curing mats shall be removed after the expire of the curing period.

All concrete surfaces shall be treated as specified to prevent loss of moisture from the concrete until the required curing period elapsed or until immediately prior to placement of other concrete or back fill against those surface. Only sufficient time to prepare construction joint surfaces and to bring them to a surface dry condition shall be allowed between discontinuance of curing and placement of adjacent concrete.

Forms shall be removed within 24 hours after the concrete has hardened sufficiently confirming to clause 10.3 of I.S. 456-1978 to prevent structural collapse or other damage by careful form removal and prior to curing Rasanpur surface repair shall be completed within 2 hoursafter form removal and shall be immediately followed by the initiation of curing by the applicable method specified herein. Concrete surfaces shall be kept continuously moist after form removal until initiation of curing.

Repair of concrete

4.2.8. Concrete shall be repaired in accordance with clause 5.7 of I.S. 3873-1978. Imperfections and irregularities on concrete surface shall be corrected in accordance with paragraph 5.3.13 and clause 5.7 of IS 3873-1978.

Types of repair

All repair shall be made with concrete. Repairs to concrete surfaces and addition where required shall be made by cutting regular opening into the concrete and placing fresh concrete to the required lines The chipped openings shall be reinforced and chipped and troweled to the surface of the openings. The mortar shall be placed in layers not more than 20 mm in thickness after being completed and each layer shall be compacted thoroughly. All exposed concrete surfaces shall be cleaned of impurities lumps of mortar or grout and unsightly stains.

Cost

The cost of furnishing all materials and performing all work required in the repair of concrete shall be borne by the contractor.

4.2.9. Measurement & Payment of concrete

Measurement for payment of concrete including centering and shuttering required to be placed directly upon or against surface of excavation will be made to the liens for which payment for excavation is made.

Measurement for payment of concrete in canal lining shall be made to the liens shown on the drawing. The unit of measurement will be in cubic meter of concreting shown in the drawing. Measurement for payment of all other concrete will be made to the neat lines of structures, unless otherwise specifically shown on the drawings prescribed in the specification. The unit measurement will be cubic meter. In measuring concrete for payment the volume of all opening, fixtures embedded pipes and metal work, each of which is larger than 0.1 square meter in cross section will be deducted.

Payment for concrete including centering and shuttering in the various parts the works shall be made at the applicable unit price in the bill of quantities, which unit price shall include the cost of furnishing all materials and performing all works required for the concrete construction, except that payment for furnishing and placing reinforcement bars and form work shall be made at the respective unit price's bid therefore in the schedule.

5.0 STONE MASONRY

5.1. GENERAL

The stone of the required quality shall be obtained from the quarries in the lead charge appended to the bill of quantities. The common types of natural stones which are generally used are graniteand other igneous rocks and shall be free from defect like decay, cavities, cracks, flaws, sand holes, softheads, veins, patches of soft or loose materials or any other deleterious materials like Iron Oxide organic impurities, etc. they should be free from rounded work or weathered surfaceor skin coating which prevents the adherence of mortar. All stones used shall be clean of uniform colour and texture, strong, hard and durable.

The stone shall be sound, and shall have abrasion shall have determined in accordance with I.S 1121-1974. The strengths shall be as detailed below in Table. 4(a)

Table-(A)

Sl. No.	type of stone	Minimum Crushing strength
1	Granite & other igneous rocks	100kgs/sq.Cm
2	Laterite	30kgs/sq.Cm

The [percentage pf water absorption shall not exceed 5% by weight as determined in accordance with I.S1121 –1974

Sample of the stones collected from the stone stacks by the contractor shall be tested for the standards specified above and other relevant Indian standards and stone stacks not conforming to the standards will be rejected and their cost shall be borne by the contractor. The contractor shall obtain these stone from the approved portion of the approved quarries only.

5.1.1. LATERITE STONE FOR MASONRY WORK

The stone shall be best procurable and free from any admixture of white earth. It shall be dug out from the quarry as sufficient time in advance, to harden well, before being placed in the work. The least thickness of stone shall be 17.5 Cms and other dimensions shall be as laid down in the relevant drawing or specification or as direction by the Engineer. The stones shall be laid as headers and structures alternatively breaking joints by at least 7.5 Cms

5.1.2. RR STONE FOR MASONRY WORK

5.1.3. GENERAL

Stone masonry in general shall conform to the requirements of I.S. 1597 code of practice for construction of stone masonry (part-I) 1967 and I.S.1129- 1970 for rubble stone masonry. I.S. 1597 (part-II) 1967 Ashlar Masonry, IS.1129- 1972 specification for dressing natural building stones.

In the absence of further definition cut stone masonry, shall be executed with a fine dressing for the face. By fine-tooled dressing or fine dressing is meant the finest surface which can be given to stone with a chisel and without rubbing. The approval of the quarries by the Engineer shall not be construed as constituting approval of all or any of the stones collected from the deposits and the contractor will be held responsible for suitability of the stone used in the work .

5.1.4 SAND FOR MASONRY

Sand shall generally conform to specifications given paragraph 4.2.6 except the sand for mortar shall confirm to the grading as given in clause 7 of I.S 2116-1980 as detailed below, in table .

Grading of sand for use in Masonry

I.S._ Sieve Designation	Percentage passing by Mass
4.75mm	95to100
2.36mm	95to 100
1.18 mm	90 to 100
600 micron	80 to 100
300 micron	20 to 65
150 micron	0 to 50

Sand whose grading falls outside the specified limits due to excess or deficiency of coarse or fine particulars may be processed to comply with the standard by screenings through suitably sized sieves and/or blending with quantities of suitable sized and sand particular.

If the sand brought to site is not clean, it must be washed clean in water. Fine dirt sand or sea sand containing saline impurities shall on no account be used.

5.1.5. CEMENT

The specifications and conditions specified for procuring cement in paragraph 4.2.5 shall be applicable here also.

5.1.6. WATER

The specifications and conditions specified for procuring water in paragraph 4.2.5 shall be applicable here also.

5.1.7 MORTAR

5.1.8. PREPARATION OF MORTAR.

Unless otherwise specified the cement mortar used in masonry work shall be cement mortar mix. 1:4 (one cement four sand by volume).Mixing shall be done thoroughly preferably in a mechanical mixer. In such case the cement and sand in the specified proportion shall be mixed by thoroughly in the mixer operating manually or by power. Water shall then be poured graduallyand wet mixing continued at least for 2 minutes. Water shall not be moiré than that requires forbringing the mortar to the required working consistency of 90 to 130 millimeters as required in clause 9.1.1 of IS. 2250-1981. the mix shall be cleaned and free from injurious kind of soil, acid, alkali, organic matters or deleterious substances.

5.1.9. TIME OF USE OFF CEMENT MORTAR

Cement mortar shall be used as soon as possible after mixing before it has begun to set, within 30 minutes after the water is added the dry mixture.

Mortar used for more than mo minutes should not be used and shall to remove from the site or work. The cost of such wasted mortar shall be borne by contractor. The use of retempered mortar will l not be permitted to be used for the memory.

5.1.10 TESTS OF MORTAR

Mortar test tubes shall be cast for the mortar used on the work and shall be tested in accordance with Appendix- A of I.S. 2250-1965 of practice for preparation and use of Masonry mortar. Such cubes shall develop a compressive strength of at least 50-kgs/square centi meter for mortar mix 1:5 and 75-kg/square centimeter for mortar mix 1.4. Mortar not conforming to the specifications will be rejected and the cost of such wasted shall be borne by contractor.

5.1.11. MEASURMENT AND PAYMENT

Cement mortar shall not be measured and paid separately and its cost including cost of materials, mixing, transporting and placing shall be included in the unit price per cubic meter and therefore in the bill of quantities of the contract for the relevant finished item of work for which cement mortar mix mentioned in the above paragraph is required.

5. 2. DISMANTLING OF THE DAMAGED STRUCTURES OR STRUCTURE TO BE REHABILITATED.

Structures defined in the schedule for rehabilitation shall be dismantled down to ground level or bottom of foundation or the iron works etc. which are specified shall being up to below as may be specified in the schedule of item. All materials obtained from dismantling shall be property of the Government. The stone obtained during dismantling shall be separated out and staked or stored properly as directed by Engineer and should be taken that the accounted for.

Special care shall be taken that the materials are not damaged in the process of dismantling. The value of materials broken or damaged shall be recovered from the contractor. When dismantling is done for a portion of the structure, remaining part of the structure, remaining part of the structure should not be damaged, If damaged, the dismantling and reconstruction. shall be done at the cost of the contractor

All serviceable materials shall be removed and stacked or disposed off as specified

For dismantling of structure blasting operation shall not be resorted to.

6.0 ROAD WORK

6.1. SPECIFICATION FOR I.R.C. GR. I & GR. Ill MATERIALS:

6.1.1. DESCRIPTION:

This work shall consists of clean crushed cross aggregate mechanically inter locked by rolling and voids there of filled with binding materials with the assistance of water laid on a prepared sub-base. It shall be constructed in accordance with specification and in conformity with the lines, grade and cross section shown on the drawings or as directed by Engineer.

6.1.2. MATERIALS:

Coarse aggregates

I.R.C	Gr. I metal (90mm to 40mm)
I.R.C	Gr. II metal (50mm to 25mm)
I.R.C	Gr. III metal (50mm to 25mm)

i) The coarse aggregates shall be crushed or broken of hard granite metal of above size durable and generally free from flat, elongated, soft, gritty disintegrated particles and other objectionable materials and conforming to most grading and after physical requirement.

Binding materials: The admixture of sand and moorum /query dust in accordance with 2.20 shall be used as binding materials.

6.1.3. CONSTRUCTION OPERATION:

Preparation of sub grade:

The sub-base to receive the I.R.C. Gr. I and Gr.III metaling coarse shall be prepared to the required grade and camber and cleaned of all dust, any ruts of soft fielding places that have appeared due to improper drainage service under traffic or other reasons shall be corrected and rolled in this firm.

Where the Gr. I and Gr. III metals to be laid on existing un surfaced load, the surface shall be scarified and reshaped to the required grade and camber as necessary. Weak shall be strengthened, corrugation removed and depressions and pot holes made with suitable materials before spreading the coarse aggregates.

Where the existing road surface is black topped 50mm x 50mm. Borrows shall be cut in the existing surfaces at 1 M intervals to the center line of carriage way before proceeding with the laying coarse aggregate in all cases, the foundation shall be kept well drained during the construction operation.

Provision of lateral confinement of aggregator:

Before start of laying I.R.C.. Gr. I/III metaling necessary arrangement shall be made for all the central confinement of aggregates one method is to be construct side shoulder in advance to thickness corresponding to the compacted layers. After should are ready ,their inside edge may be trimmed vertical and the included are cleaned of all special materials there by setting the stage for spread of coarse aggregates.

Spreading Coarse aggregates:

The coarse aggregates shall be spread uniformly and evenly upon the prepares base in required quantities from premeasured stack along the side of the road. In no case shall these be dumped in heaps directly on the area where are to be laid not shall their hauling over partly complete base be permitted. The aggregates shall be spread to proper profiled by using templates placed across the road about 6 meter approximately where possible approves mechanical device shall be used to spread the aggregate uniformly so as to minimize the need of

Manipulation by hand.

The Gr.I and Gr.III shall normally be constructed in layers of not more than 75 mm compacted thicknesses. Each layer shall be passed by depth blocks, no segregation of large and fine particles shall be allowed in the coarse aggregates as spreading shall be uniform gradation with no pockets of fine materials. .

6.1.4. ROLLING:

After the laying coarse aggregate, these shall be compacted to full width by rolling with either three wheel power roller of 10 tones capacity or an equivalent vibratory roller. The weight of the roller shall depend on the type of the coarse aggregates.

The rolling shall begin from edge with roller running forwarded and backward until the edges have been compacted, the roller shall then progress gradually from the edges towards the center parallel to the center line of the road, uniformly lapping each proceeding rear wheel track by one half width. Rolling shall be discontinued when the aggregates are partially compact with sufficient voids space in them to permit application of screening compaction shall be continued until the aggregate are thoroughly keyed or interlocked with no creeping of stones ahead of the roller. Slight sprinkling of water may be done during rolling of necessary.

On super elevated portion of the road, rolling shall commence from the lower edge and progress gradually towards the upper edge of the payment.

Rolling shall not be one when the sub-grade is soft or yielding of when it causes a wave like trotline in the base coarse or sub-grade. If irregularities develop during rolling which exceeds 1 mm tested with a 3 meter strength edge the surface shall be laid and aggregates added or removed as required before rolling again so as to achieve a uniform surface conforming to the desired cross section and grade. The surface shall also be checked transversely by template for chamber, and any irregularities corrected in the manner described above. In no case shall the use of screening to make up depressions be permitted.

6.1.5. APPLICATON OF SCREENING:

After coarse aggregates have been rolled a above screening (the admixture of sand and moorum / query dust in accordance with 2.20) to fill the interstices shall be applied gradually over the surface rolling shall be done when the screening are being spreaded so that the jarring affect of roller cause them to settle into the voids of the coarse aggregates. The screening shall not be dumped in piles but applied uniformly in successive thin layers either by the spreading motion for hand shovels, mechanical spreaders.

The screening shall be applied at a slow rate in three or one applications as necessary, This shall be accompanied by rolling and brooming. Either mechanical broom/hand brooms or both may be used. In no case shall the screening be applied as fast and thick as to form cakes or bridges on the surface making the filling roller on the coarse aggregates. The spreading rolling and brooming of screening shall be taken up on sections which can be completed within one day operation .Dap and wet screening shall not be used in any circumstances.

6.1.6. SPRINKLING AND GROUTING:

After application of screening, the surface shall be copiously sprinkled with water, swept and rolled. Hand brooms shall be used to swept the wet screening into the voids and to distribute them evenly. The sprinkling sweeping and rolling operations shall be continued and additional operation shall be continued and additional screening applied where necessary until the coarse aggregates are will bound and firmly set a grout has been formed of screenings. Care shall be taken that the base or sub-grade does not get damaged due to adoption of excessive quantities water during the construction.

6.1.7. SETTING AND DRYING:

After final compaction of the coarse, the road shall be allowed to cure overnight, next morning the hungry spots shall be filled with screening materials lightly sprinkled with water if necessary and rolled, no traffic shall be allowed till the macadam sets.

In case of Gr.I and GR.III metal base coarse to be provided with bituminous surfacing the latter shall be laid only after the Gr. l and Gr. III metalling coarse is completely dry & before allowing any traffic on it .

6.1.8. PLY OF CONSTRUCTION TRAFFIC:

In general construction traffic may ply over completed portions of the Gr.1I or Gr.11I metalling provided vehicles move over its full width avoiding any rutting or uneven compaction. However the Engineer shall have full authority to stop the passage of construction traffic when in his opinion this is leading to excessive damage.

6.1.9. RECTIFICATIONOF DEFECTING CONSTRUCTION:

Where the surface irregularities of the Gr.l or Gr.1I1 metal exceeds or where the coarse is otherwise defective due to sub-grade soil mixing with the aggregates, the layer to its full thickness shall be scarified over the affected area, reshaped with added material or removed and replaced with fresh materials as applicable and recompacted. The area treated in the aforesaid manner shall not be less than 10m2.In no case, shall depressions be filled up with screening or binding materials.

6.2. SURFACE DRESSING:

6.2.1. Description:

This work shall consists of the application of one coat or two coats of surface dressing each coat consisting of a layer of bituminous binder spread of a base prepared previously, followed by a cover of stone chipping properly rolled to form a wearing coarse to the requirement of these specification.

6.2.2. MATERIALS:

(i) Binder: The binder shall be straight run bitumen of a suitable grade appropriate to the region, traffic, rainfall and other environmental conditions as directed by the Engineer.

(ii) Stone Chipping: The stone chipping shall consist crushed stone. They shall be clear, strong, durable of fairly cubical shape and free from disintegrated pieces, organic or other deleterious matters and adherent coating. The size of materials used or this work shall be 12 mm.

(iii) Quantities of materials: The quantities of materials used for this work shall be 18.00Kg/1 .0m^2.

6.2.3. CONSTRUCTION OPERATION

Weather and seasonal limitation:

The work of laying shall not be taken up during rainy or foggy weather or when the base coarse is dump or wet or during dust storm.

Preparation of base:

The base on which the surface dressing is to be laid shall be scraped, cleaned, free from dust and foreign materials and shall be prepared, shaped and condition to the specified lines, grade and cross section. Where the existing surface shows signs of flatting up this shall be testified.

Application of Binders

Bitumen shall be heated to 163 C to 177 C and sprayed on the dry surface in uniform manner preferably with the help of self propelled mechanical sprayers having self heating arrangement and bitumen pressure pump and spray nozzle are capable of spraying bitumen uniformly.

Application of Stone Chipping:

Immediately after the application of binder, stone chippings. in a dry and cleaned state shall be spread uniformly on the surface, by means of a self propelled or towed mechanical grit-spreader capable of spraying -uniformly SQ as to cover the surface completely. If necessary the surface shall be boomed to ensure uniform spread of chippings.

6.2.4. ROLLINGS:

Immediately after the application of the cover materials, the entire surface shall be rolled with a 8 10 ton smooth wheeled steel roller suitable vibratory roller. Rolling shall commence at the edges and progress towards the center except in super elevated portions where it shall proceed from the inner edge to the outer. Each pass of the roller shall uniformly overlap not less than *1/3rd* of the track made in the preceding pass .While rolling is in progress additional chippings shall be spread by hand necessary quantities required to make up irregularities. Rolling shall continue until all aggregate particles are firmly bedded in the binder and present an uniform closed surface.

Opening to traffic shall not be 'permitted to run on any newly surface dressed area until the following day.

6.3 PREMIX CARPET:

6.3.1. DESCRIPTION:

This work shall consists of laying and compacting carpet of 25 mm. thickness in angle coarse composed of suitable small sizes aggregates prepared with a bituminous binder on a previously . prepared base, in accordance with the requirement of this specifications to serve as a wearing coarse.

6.3.2. MATERIALS:

Binder	Same as surface dressing
Aggregates	Same as surface dressing

Quantities of materials

Stone chips	20mm to 12 mm	@ 0.34 m3 /10m2
	06 mm to 12 mm	@ 0.06m3/10m2
Binder for premix		15.9 Kg for 10m^2
		9.076Kg for 10m^2

6.3.3. CONSTRUCTION OPERATION:

Weather and seasonal limitation: The work of laying shall not be taken up during rainy or foggy weather or when the base coarse is dump or wet or during dust storm.

Preparation of base:

The underlying ,base on which the bituminous carpet is to be laid shall be prepared, shaped and conditioned to the specified lines, grade and cross section.

Tack coat:

Description: This work shall consist of application of low viscosity liquid bituminous materials to an existing road surface preparation to another bituminous construction over it.

Materials: The binder used for tack coat shall be bitumen of a suitable grade appropriate to the region, traffic, rainfall and other environmental condition as directed by the Engineer.

6. 3.4 CONSTRUCTION OPERATION:

Preparation of base: The surface on which the tack coat is to be applied shall be cleaned of dust and any extraneous materials before the application of materials.

Application of Binder: Binder shall be heated to the temperature to the grade to bitumen used and approved by the Engineer and sprayed on the base @5Kg.l10m2. The rate of spread is in terms of straight run bitumen.

The binder shall be applied uniformly with the aid of either self propelled or towed bitumen pressure sprayer with self heading arrangement and spraying nozzles arrangement capable of spraying bitumen at specified rates and temperature so as to provide a uniformly.

Preparation of Premix:

Mixers of approved type shall be employed to the mixer for mixing the' aggregates with the bituminous binder. The binder shall be heated to the temperature appropriate to the grade of bitumen approved by the Engineer in suitable design avoiding local over heating a continuous supply. The aggregates shall be dry and suitable heated to a temperature as directed by Engineer before these are placed in the mixer. After about 15 seconds of dry mixing, the heated binder shall be distributed over the aggregates at the rate specified.

The mixing of binder with chipping shall be continued until the chippings are thoroughly coated with the binder. The mix shall be immediately transported from the mixer to the point of use in suitable vehicles or wheel borrows. The vehicles employed for transport shall be clean and the mix being transported covered in transit if so directed by the Engineer-in-Charge.

6.3.5 SPREADING AND ROLLING:

The premixed materials shall be spread on the road surface with racks to the required thickness and cross fall (camber) on distributed evenly with the help of a drag spread without any undue loss of time. The cross fall shall be checked by means of camber boards. As soon as sufficient length of bituminous materials has been laid, rolling shall commence with 8 to 10 ton power rollers, preferably of smooth wheel type, or other approved equipment. Rolling shall begin" at the edges and progress towards the center longitudinally, except that on the super elevated portions it shall progress from the lower upper edge parallel to the center line of the pavement.

When the roller has passed over the whole area- one, any high $pots on depressions which become apparent shall be corrected by removing or adding premixed materials. Rolling shall then be continued until the entire surface eliminated. In each pass of the roller, Preceding track shall be over lapped uniformly by at least 1/311I width. The roller wheel shall be kept damp to prevent the premix from adhering to the wheels and being picked up. In no case shall fuel lubricating oil be used for this purpose. Excess use of water for this purpose shall also be avoided. Rollers shall not stand on newly laid materials while there is a risk that it will be deformed thereby.

6..4. SEAL COAT:

6.4.1. Description: This work shall consist of application of a seal coat for sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall (camber).

6.4.2. MATERIALS:

(i) Binder: The quantity of binder to be utilized, in terms of straight run bitumen shall be 6.8 Kg per

(ii) Aggregate: Stone chipping shall consist of Angular fragments of clean hard, tough and durable rock or uniform quality throughout. The size of aggregate shall be 6 mm. The quantity used for premixing shall be 0.06 m3 for 10 m2 area.

6.4.3. CONSTRUCTION OPERATION:

(i) Preparation of base: The seal coat shall be applied immediately after the laying of bituminous coarse which" is required to be sealed. Before application of seal coat materials, the surface shall be cleaned free of any dust or other extraneous matter.

(ii) Construction: Mixer of approved type shall be employed for mixing" the aggregate with the bituminous binder. The binder shall be heated in boilers of suitable design to a temperature appropriate to a grade of bitumen approved by the Engineer. Also the aggregate shall be dry and suitably heated to a temperature directed by the Engineer before the same are placed in the mixer.

Mixing of binder with aggregates to the specified proportion shall be continued with the latter are thoroughly coated with the former. The mix shall be immediately transported from the mixing plan to the point of use and spread uniformly on the bituminous surface to be seated. As soon as sufficient length has been covered with the premixed materials, the surface shall be rolled with 6 to 9 ton smooth wheeled power roller. Rolling shall be continued till the premixed materials completely seals the voids in the bituminous coarse and a smooth uniform surface in obtained.

6.5. BLINDING THE ROAD SURFACE:

Blinding the road surface after the seal coat processing is over then the traffic is to be allowed.

SECTION - 6

DRAWINGS

CAN BE SEEN AT CONCERNED SUB-DIVISION OFFICE DURING OFFICE HOUR FROM DT. 21.10.2026 TO 29.10.2026

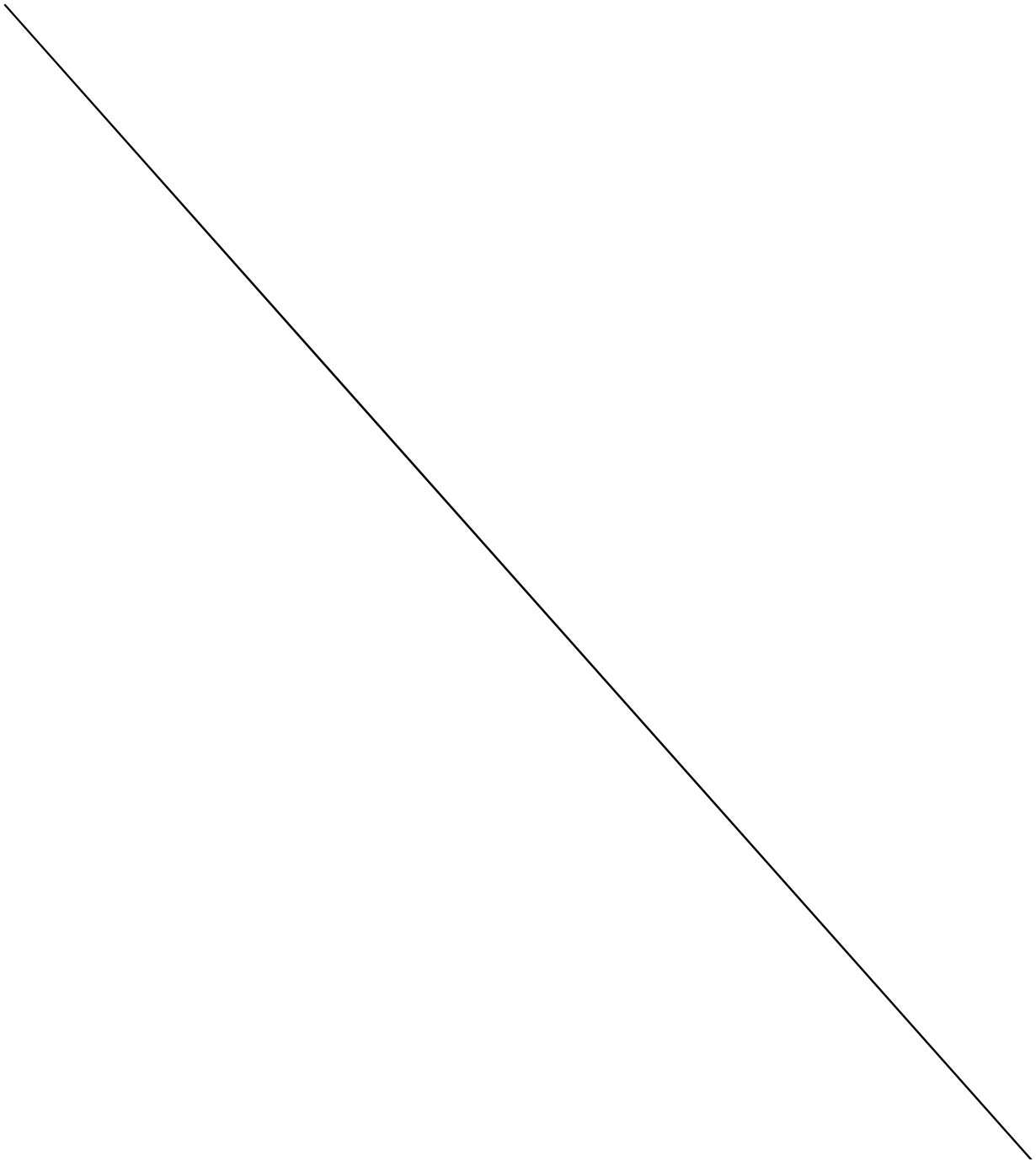
SECTION - 7

FORMS

NO RELATION CERTIFICATE

Certified that I / We am / are not related to any officer of Water Resources Department of the rank of Assistant Engineer and above or any officer of the rank of Assistant Secretary above.

CONTRACTOR



ANNEXURE – A

FORMAT FOR PERFORMANCE RECORD OF CONTRACTORS

1. Name of the Contractor
2. Registration No. and Date
3. Class of Contractor
4. Licensing Authority
5. License valid up to
6. Details of works executed

Sl. No.	Jobs under execution	Agreement amount	Date of Commencement	Stipulated Date of Completion	Whether work is progressing as per programme	Reasons for delay , if any
1	2	3	4	5	**6**	**7**

7. Whether the Contractor has requisite machineries & personnel deployed (details of machinery and personnel deployed)
8. Whether the quality of construction is satisfactory
9. Whether he has capability to make good the loss in time
10. Whether the Contractor has abandoned any work in the past three years, if yes, the details thereof.
11. Whether the Contractor has entered in to any litigation in the past if yes, the details thereof.

Name of the Certifying Officer
With official seal

Signature of Contractor

ANNEXURE – B

Details of the works on hand and performance for last three years as on the date of submission of pre-qualification documents in the following proforma.

(Separate form for each work)

1. Name of work …
2. Place and Country … … … … … … … … … … … … … … … … … … …
3. Total tendered cost of work … … … … … … … … … … … … … … …
4. Brief description of works including principal features and quantities of main items …
5. Details of works in hand

    (i) Percentage of physical completion and amount billed for the work completed.

    (ii) Cost of work remaining to be executed.

    (iii) Stipulated date of completion.

    (iv) Anticipated date of completion.

6. Explain for non-completion of work within stipulated time limit if so.
7. Were there any penalties /fines / stop notice / compensation /liquidated damages imposed ? Yes or No.

    If yes , give amount and explanations

8. Were there any fines, claims or stop notice filed by the employer ? (Yes or No.)/

    (If yes, give amount and explanation)

Signature of Tenderer

Annexure-'C'
AFFIDAVIT

I, Sri…….……Aged……..year, Son/ Daughter/ Wife of Sri…….. at present residing At……. P.O……..P.S……..Dist……..
Pin… .....do here by solemnly affirm as follows.

(i) That, I / We posses a valid license for execution of works contract issued by *…….. belongs to ……Class & is valid up to **…… .

I am submitting tenders before **Superintending Engineer, Debagada Irrigation Division, Debagada** for execution of "Repair and Construction of trough wall with bed lining of Malichua S/M -1 in between RD 900m to 1100m. of DID for the year 2026-27."

in response to Bid Identification No. **SEDID-03(10)/2026-27.**

I am the authorized signatory on behalf of contractor for the tender for the work mentioned above.

(ii) I am swearing this affidavit that all tender documents and accompanying papers those being submitted by me before the Superintending Engineer, Debagada Irrigation Division, Debagada including E.M.D. in any shape are all authentic and bonafied documents in the eyes of the law of the land.

That the fact stated in the affidavit are true to the best of my knowledge andbelief.

Note : *Mention the license issuing authority.
* *Mention the date up to which the license is valid

Signature of Contractor / Authorized Signatory

